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Contributions to the Journal can be made as either a research article or a review article.

1. A research article presents new knowledge and issues discovered from research originally conducted by the authors.

2. A review article elaborates on particular matters grounded from scholarly analysis and synthesis, with accurate references, of a wide range of sources, including theories, concepts and research publications.

It will be assumed that submitted manuscripts have not been published elsewhere, and they are not currently being considered by another journal.

KJSS reserves the right not to publish the article by the same author (s) more than once within one year, so as to give other authors a chance to get published, and in order to maintain diversity of authors, topics, theories and methodology.

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Responsibility for contents are the authors. Reviewed manuscripts do not represent the opinion nor the responsibility of the editorial board and Kasetsart University.

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The Journal Editorial Board will consider submitted manuscripts prepared in accordance with the following instructions.

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2. Title. The title must be concise and precise to the content.

3. Author. The full name of each author is required.

4. Contact Details. The contact details for the corresponding author must be convenient for contact by Journal staff.

5. Abstract. An abstract must not exceed 250 words and must contain all key points in the article. No more than five keywords must be provided.

6. Content. Writing style of a **research article** should conform to the research methodology and tradition accepted for a given research philosophy/paradigm. The content comprises the following headings.

Introduction: Explain the research rationale justified by appropriate citations, objectives, research questions or hypotheses. A concise literature review may be included as appropriate.

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To allow for writing flexibility, the content of the introduction and the literature review sections may be integrated to form a strong grounded introduction.

Research methodology: Identify data collection methods, duration and data analysis. The methods may be quantitative, qualitative, or mixed, as appropriate to the research purpose.

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Conclusion and recommendations: Conclude the research with discussion/reflections and recommendations based on the research findings.

7. Figures and Tables. Figures and tables must be annotated as necessary and must be sequentially numbered. Figures must be clear and relevant to major points in the text. Photographs should be in black and white, with color used if necessary. The captions of figures and tables must be concise and precise.

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b. Book without DOI (Print version)

Babbie, E. (2007). *The practice of social research* (11th ed.). Thomson Higher Education.

c. Edited Book Chapters

McAlister, A. L., Perry, C. L., & Parcel, G. S. (2008). How individuals, environments, and health behaviors interact: Social cognitive theory. In K. Glanz, B. K. Rimer, & F. M. Lewis (Eds.), *Health behavior and health education: Theory, research, and practice* (3rd ed., pp. 67–98). John Wiley & Sons, Inc.

Wilson, R. A., & Briscoe, G. (2003). The impact of human capital on economic growth: A review. In P. Descy & M. Tessaring (Eds.), *Impact of education and training. Third report on vocational training research in Europe: Background report*. Office for Official Publications of the European Communities. Retrieved from https://www2.warwick.ac.uk/fac/soc/ier /publications/2003/wilson_and_briscoe_2003.pdf

d. Dictionary or encyclopedia

Landau, S., & Chis Ster, I. (2010). Cluster analysis: Overview. In P. Peterson, E. Baker, & B. McGaw (Eds.), *International Encyclopedia of Education* (3rd ed., pp. 72–83). Elsevier. https://doi.org/10.1016/B978-0-08-044894-7.01315-4

Periodical:

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Charrad, M., Ghazzali, N., Boiteau, V. Niknafs, A., & Niknafs, A. (2014). NbClust: An R package for determining the relevant number of clusters in a data set. *Journal of Statistical Software*, *61*(6), 1–36. https://doi.org/10.18637/jss.v061.i06

b. Journal article without DOI, with URL

Sillick, T J., & Schutted, N. S. (2006). Emotional intelligence and self-esteem mediate between perceived early parental love and adult happiness. *E-Journal of Applied Phychology*, *2*(2), 38–48. http://ojs.lib.swin.edu.au/index.php/ejap

c. Journal article without DOI from academic research database or print version

Richard, L., Rollerson, B., & Phillips, J. (1991). Perceptions of submissiveness: Implications for victimization. *Journal of Psychology*, *125*(4), 407–411.

d. Newspaper article/Magazine article/Blog post

Guarino, B. (2017, December 4). How will humanity react to alien life? Psychologists have some predictions. The Washington Post. https://www.washingtonpost.com/news/speaking-of-science/wp/2017/12/04/how-will-humanity-react-to-alien-life-psychologists-have-some-predictions/

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a. Unpublished doctoral dissertation or master's thesis

Namsa-ghuan, K. (2011). *Practice pattern: Reflection of moral practice students* [Unpublished doctoral dissertation]. Kasetsart University.

b. Doctoral dissertations or Master's thesis from a database

McNiel, D. S. (2006). *Meaning through narrative: A personal narrative discussing growing up with an alcoholic mother* [Master's thesis, California State University-Long Beach]. ProQuest Dissertations and Theses database (UMI No. 1434728).

c. Doctoral dissertations or Master's thesis published online (not in a database)

Bruckman, A. (1997). *MOOSE Crossing: Construction, community, and learning in a networked virtual world for kids* [Doctoral dissertation, Massachusetts Institute of Technology]. http://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-3029

Conference sessions or Presentations:

Türkcan, B., Caliskan, T. E., & Kaya, A. A. (2009, June 17–19). *Industrial clusters as a regional development tool: A spatial analysis on Turkey* [Paper presentation]. EconAnadolu 2009: Anadolu International Conference in Economics, Eskisehir, Turkey. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.521.9793&rep=rep1&typ e=pdf

Jahnkassim, P. S., & Ip, K. (2006, September 6–8). *Linking bioclimatic theory and environmental performance in its climatic and cultural context – an analysis into the tropical high rises of Ken Yeang* [Paper Presentation]. The 23rd International Conference on Passive and Low Energy Architecture, Geneva, Switzerland.

Research Reports:

U.S. Bureau of the Census. (1991). *Child support and alimony: 1989* (Current Population Reports, Series P-60, No. 173). U.S. Government Printing Office.

Lichtentein, J. (2013). *Profile of veteran business owners: More young veterans appear to be starting businesses* (Issue Brief No. 1). U.S. Small Business Administration, Office of Advocacy. https://www.sba.gov/sites/default/files/Issue%20Brief%201,%20Veteran%20Business%20Owners.pdf

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Halaburda, H., & Piskorski, M. J. (2010). Platforms and limits to network effects. Retrieved from http://hbswk.hbs.edu/item/6428.html

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The precautionary behavior against PM 2.5 exposure

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Abstract

This article presents an integrated theoretical framework combining Protection Motivation Theory (PMT), Precautionary Principles (PP), and the Precaution Adoption Process Model (PAPM) to analyze precautionary behavior in response to PM2.5 exposure. The framework examines how various information channels influence decision-making processes, from awareness to action, through cognitive assessments and stages of precaution adoption behaviors. By incorporating a public attention index based on internet searches, the framework links individual-level processes and population-level indicators of concern regarding PM2.5 issues. This integration offers insights for environmental health research and risk communication, informing targeted strategies to promote protective behaviors against air pollution and other environmental threats. The framework suggests that effective interventions should be tailored to different stages of awareness and decision-making, considering various information sources and their impacts. Potential applications include enhancing risk communication strategies, targeting specific demographic groups, and addressing barriers to the adoption of protective behaviors.

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Introduction

In recent years, PM2.5 (fine particulate matter with a diameter of 2.5 micrometers or less) has emerged as a serious environmental and public health concern, particularly in developing countries experiencing rapid population growth. PM2.5 can remain suspended in the air for long periods and penetrate deep into the respiratory system (Thangavel et al., 2022). Long-term exposure to PM2.5, even at low levels leads to premature mortality and other adverse health effects (Pope et al., 2002; Pope & Dockery, 2006). PM2.5 originates from diverse sources, both outdoor and indoor environments, meaning that even areas with seemingly clean air can have high PM2.5 levels due to indoor activities such as burning wood or coal for heating and cooking (Liu & Salvo, 2018; Kummetha, 2022).

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In 2019, Thailand ranked as the 28th most polluted country among 98 countries, with an annual average PM2.5 concentration of 24.3 micrograms per cubic meter. By 2020, an annual average PM2.5 concentration was recorded at 18.1 micrograms per cubic meter, moving Thailand to 57th place in the rankings. Thailand's PM2.5 level, while improved, remained four times above the WHO's recommended annual air quality guideline value (IQAir, 2022).

To reduce the negative effects of PM2.5 exposure, individuals take preventive actions to manage their exposure levels. These range from short-term proactive defensive behaviors (such as using indoor air purifiers or wearing protective masks outdoors) to longer-term passive avoidance strategies (such as avoiding outdoor activities during high PM2.5 periods or relocating to areas with better air quality) (Ward & Beatty, 2016).

This article presents a pertinent literature on the integration of Protection Motivation Theory (PMT), Precautionary Principles (PP), and the Precaution Adoption Process Model (PAPM) to develop a conceptual framework for analyzing precautionary behavior in response to PM2.5 exposure. The framework examines how various information channels influence decision-making processes, from awareness to action through cognitive assessments, stages of precaution adoption behaviors. In addition to incorporating a public attention index based on internet searches, the framework links individual-level processes and population-level indicators of concern on PM2.5 issue.

This integrated framework offers insights for environmental health research, risk communication, and informs targeted strategies to promote protective behaviors against air pollution and other environmental threats, suggesting that the effective interventions should be tailored to different stages of awareness and decision-making, considering various information sources and their impacts. Policies could focus on enhancing risk communication strategies, targeting specific demographic groups, and addressing barriers to adoption of protective behaviors.

Literature Review

Theories and principles provide a comprehensive framework for understanding how individuals perceive and respond to environmental and health risks. Protection Motivation Theory (PMT) explains the cognitive processes behind threat assessment and coping strategies. Precautionary Principles advocates for preventive action despite the threat, which can be observed in both proactive defensive and passive avoidance behaviors. Precaution Adoption Process Model (PAPM) outlines the stages individuals go through when deciding to take protective action. Public Attention Index to PM2.5 Exposure offers a practical measure of public engagement with PM2.5 issues through internet search behavior.

Protection Motivation Theory (PMT)

The PMT, a psychological framework developed by Rogers (1975), explores the cognitive processes involved in threat appraisal and coping appraisal, providing insights into how people perceive threats and how threats motivate individuals to adopt protective behaviors. The theory is widely used in health psychology, risk communication, and behavior change interventions.

Threat Appraisal: The cognitive process by which individuals evaluate the level of danger posed by a particular threat, involves: Perceived severity, which refers to individuals' assessment of how serious or severe the consequences of the threat would be if it occurred. Perceived vulnerability refers to an individuals' belief about their personal likelihood of experiencing the threat.

Coping Appraisal: The cognitive process by which individuals assess their ability to cope with a threat and the effectiveness of the recommended protective action, involves: Response efficacy, which refers to belief that the recommended protective action will be effective in reducing or eliminating the threat. Self-efficacy refers to individuals' confidence in their ability to perform the recommended protective action. Response cost refers to perceived costs associated with taking protective action such as money and time, which are crucial factors to consider.

The theory determines the level of protection motivation. A high perceived severity and vulnerability of threat appraisal tend to increase protection motivation leading to a higher likelihood of adopting protective behaviors of coping appraisal. Understanding threat appraisal is key for promoting protective behaviors through effective interventions and messaging whereas coping appraisal complements threat appraisal by ensuring individuals feel capable of addressing perceived threats.

Precautionary Principles (PP)

The PP defines a new standard of risk management when the existence of risk is subject to some scientific uncertainty. It was introduced at the 1992 Rio Conference

in Article 15, which stated that "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing effective measures to prevent environmental degradation" (Treich, 2001). The concept of precautionary is strongly linked to the effect of arrival of information over time in sequential models as well as to the situations in which there is ambiguity over probability distributions (Courbage et al., 2013). Therefore, the principle as applied to individuals' behavior can be understood through *proactive defensive* and *passive avoidance behavior*, which provide a framework for analyzing how individuals respond to potential risks when faced with the threats.

Proactive Defensive Behavior: This refers to actions that individuals take to actively protect themselves from perceived threats. The purpose is to seek control or mitigate the risks while still actively engaging with the risk. This involves investing in protective equipment or technology, making backup plans, actively seeking information and expertise, or engaging in developing skills for effective risk management.

Passive Avoidance Behavior**:** This refers to avoiding situations or activities perceived as potentially risky. The purpose is to reduce the risk by limiting exposure to potential threats. This involves avoiding certain activities or environments, opting out of decisions with uncertain outcomes, or maintaining the plan even if the change presents potential risks.

PP has become a key approach in risk management that has been widely adopted and applied across various fields (Courbage et al., 2013; Treich, 2001). It is often discussed in relation to policies and environmental contexts and can also be applied to studying individual behavior. The principle emphasizes the dynamic nature of sequential decision-making with evolving information. Importantly, it is worth noting that individuals employed proactive defensive and passive avoidance behavior at the same time.

Precaution Adoption Process Model (PAPM)

The PAPM is a stage-based model that describes the process individuals go through when deciding whether to take protective action against a health threat. The model illustrates a series of stages aiming to explain how an individual comes to decisions to act and how individuals translate the decision into action. Unlike other health behavior models, such as the Health Belief Model, the model explicitly includes unawareness and inaction stages and also provides a more detailed description of the process leading up to action (Weinstein et al., 2020).

PAPM proposes that individuals' decisions can be categorized into discrete stages. Each stage is characterized by specific patterns of beliefs, behaviors, and informational needs. Stage 1: Unaware, individuals have no knowledge of the health issue or any related precautionary measures. They are completely unaware of the potential risks or the need for preventive action. Stage 2: Unengaged, individuals have become aware of the health issue but have not yet considered taking action. They recognize the existence of the problem but remain detached from it personally. Stage 3: Undecided, individuals actively consider the advantages of taking precautionary action. They weigh the pros and cons but have not reached a conclusion. This stage is marked by uncertainty and information-seeking behavior. Stage 4: Decided not to act, some individuals make a conscious decision not to take any precautionary action. This decision is based on their assessment of the situation, which may include perceived low risk, high costs of action, or other personal factors. Stage 5: Decided to act, some individuals have made a firm decision to adopt precautionary behavior. They have moved past the phase of consideration and are now committed to making a change, although they have not yet begun implementing it. Stage 6: Act, this final stage represents the crucial transition from intention to actual behavior change. In this stage, individuals initiate taking precautionary behavior.

The transition through stages is not always linear, individuals can move backward as well as forward or skip stages. Importantly, awareness of the treats does not always lead to engagement or action. PAPM addresses the overlooked early stages and the gap between deciding to act and taking action, enabling more targeted interventions and communication strategies in public health efforts.

Public Attention Index to PM2.5 Exposure (PAI_PM2.5)

The Public Attention Index for PM2.5 exposure (PAI_PM2.5) is a proxy measure designed to quantify public attention to PM2.5 issues through online search behavior in Thailand, which reflects the public's threat appraisal and information-seeking in response to perceived PM2.5 risks. Individuals' expressions of concern toward the risk from PM2.5 exposure could be detected by online search to locate the resolutions to the problem (internet search behavior) such as reading media news online or searching for relevant information about PM2.5 exposure. The index estimates public attention to PM2.5 issues in Thailand by analyzing internet search data across 77 provinces.

The methodology involves collecting monthly search data, selecting terms most correlated with actual PM2.5 levels, and calculating the index using a formula that normalizes search volumes. The resulting index is then validated against actual PM2.5 levels, economic and social costs, and willingness to pay for pollution reduction. This method provides a comprehensive understanding of public reactions to air quality changes, enabling policymakers to assess perceptions and develop effective interventions for environmental health.

Public attention

Public attention refers to the time and effort that citizens, special-interest groups, and the media dedicate to publicly debated issues. For citizens, attention primarily centers on issues that personally impact them, with concern levels directly influencing the focus given to an issue. Special-interest groups benefit by promoting issues aligned with their specific agendas. Meanwhile, the media seeks to maximize profits by emphasizing issues that capture audience interest. Public attention includes both qualitative and quantitative aspects. Qualitatively, it captures the issues society focuses on, as opposed to society's underlying attitudes. Quantitatively, it measures the resources allocated to an issue over time, representing an intensity that reflects resource usage per unit of time (Newig, 2004).

Notably, Public attention and public attitude are distinct concepts. Public attitude reflects a learned predisposition toward a subject, while attention involves the active allocation of resources. Public attention shifts more rapidly and dramatically than public attitude, both in magnitude and rate of change (Newig, 2004; White, 2013).

Determinant factors of public attention

Public attention is primarily influenced by the severity of the environmental situation and the availability of problem-solving resources. These two key factors work synergistically to shape how much attention the public gives to various environmental problems.

Public attention is closely linked to the severity of the environmental situation as explained by the Problem-Reaction Model described by Newig (2004). The higher the costs caused by the environmental problem, the greater the stakeholders being dissatisfied with the situation and their interest in embarking on measures to improve the deficient situation, and thus, the greater the attention of all stakeholders towards the issue (Jamali, 2008).

Furthermore, the Capacity Model (Newig, 2004) highlights the importance of available resources or capabilities to solve the problem at stake. The deteriorations in environmental conditions remain unperceived unless they are or become technically solvable at economically viable costs explained by the theory of cognitive dissonance (Festinger et al., 1957). As problem-solving resources become more accessible, public awareness and attention are likely to increase.

Measuring public attention

The development of mass media came into being by enabling virtually everyone to receive and disseminate common interesting and relevant information (McQuail, 1987). As a result, public attention has become a major area of research. Public attention suggests at least a basic level of shared focus; otherwise, it would just refer to individual attention. In general, one way to conceptualize public attention is by equating it to the aggregate of individual attentions, which could be measured through random polling or interviews, mass media analysis, and internet search data.

Polls and interviews measure public attention the most direct and accurate compared to other approaches, but their reliability may turn into the contrary when respondents provide inaccurate responses, especially on socially sensitive issues. These methods are costly and can only address select topics at specific times. Respondents are either asked to choose from a list of issues, limiting the range of possible answers, or they may name issues freely, risking the omission of important ones (Bauske et al., 2022; Keeter, 1984; Mayone Stycos, 1996).

Mass media (such as newspapers, television, radio) enables the exploration of a wide range of issues or subjective opinions across virtually any time frame, indirectly revealing individuals' preferences in devoting their attention. As a result, mass media analysis tends to produce less biased outcomes compared to poll and interview approaches. For example, the corpus of published newspapers provides ex-post analyses of issues, whereas polls and interviews are limited to topics covered at the time of their conduct. Mass media analysis approach is more cost-effective and time-efficient than conducting polls and interviews.

Internet search data opens a novel research frontier by directly measuring public attention to unexpected events, providing real-time and dynamic feedback. The internet data source offers immediacy and broad coverage, capturing a large and diverse range of respondents. Internet search data is generated as a byproduct of routine online activity, eliminating the need for individuals or organizations to respond to questions post-event.

This approach can mitigate issues related to non-response or inaccurate answers. Furthermore, it allows for continuous information gathering on a broader spectrum of topics, rather than being limited to a few predetermined questions (Maurer & Holbach, 2016; Nghiem et. al., 2016; Wu et. al., 2022).

Public attention on environmental policy

Public attention significantly influences government actions on politically relevant issues, as illustrated by Newig (2004) rational choice model. This model emphasizes the importance of understanding issue-attention cycles and their role in shaping policy responses through public discourse.

Recent studies have raised concerns regarding the efficacy of environmental policies in general practice, particularly those targeting air quality improvement. Zhang & Mu (2018) critically evaluated interventions such as refined oil price adjustments, suggesting these measures may yield only limited short-term improvements in air quality. Extending this analysis, Lu et al. (2018) and Yang and Geng (2022) identified key indicators of environmental concern within the Chinese public, emphasizing the roles of regulatory measures and public education in fostering heightened awareness and engagement.

Public understanding and interpretation of air quality information present significant challenges. There are studies that revealed a limited awareness of air pollution's health impacts, particularly among individuals without pre-existing respiratory conditions (Arshad et. al., 2024; Chen et. al., 2024; Ghorani-Azam et. al., 2016; Vichit-Vadakan et. al., 2011). Although urban sources of pollution, such as traffic emissions, were widely recognized, there was less awareness regarding rural pollutants, with many individuals often mistakenly perceiving rural areas as pollution-free. The study also identified a gap in understanding the connection between air pollution and climate change. These studies recommended revising the Air Quality Index (AQI) to incorporate specific health guidance and adopt a more detailed grading system, emphasizing the need for clear communication strategies to bridge the gap between scientific knowledge and public comprehension of air quality issues.

Methodology

Conceptual Framework

Figure 1 is the study's conceptual framework which presents an integrated conceptual framework of the Precaution Adoption Process Model (PAPM), Protection Motivation Theory (PMT), Precautionary Principles (PP), and Public Attention Index to PM2.5 Exposure (PAI_PM2.5). This integration demonstrates how external factors (PM2.5 exposure levels and information availability) and internal processes (threat perception and coping strategies) work together to move individuals through stages of awareness and action regarding PM2.5 exposure. It shows both the cognitive progression through the PAPM stages, and the factors influencing this progression in the determinants section.

The PAPM section outlines stages from "Unaware" to "Act" which illustrate the progression of awareness toward decision-making. The determinant section outlines the specific determinants related to PM2.5 exposure that influence progression through the PAPM stages, starting with the severity of PM2.5, leading through threat appraisal, internet search, and public attention index for PM2.5 exposure, to coping appraisal, precautionary behavior, and future intention.

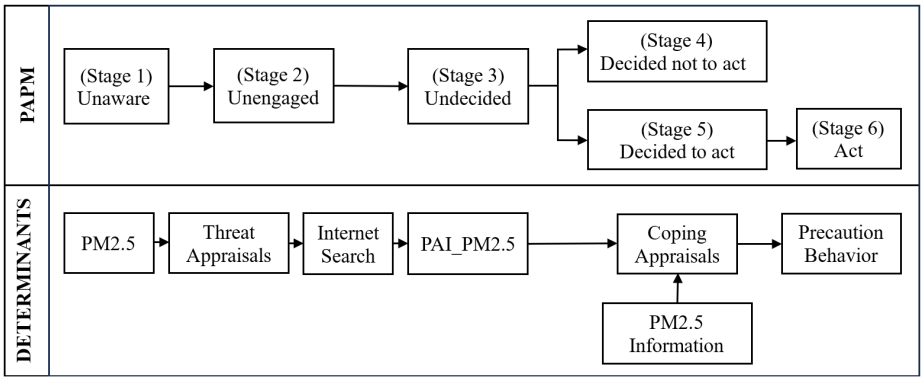


Figure 1 Conceptual Framework

The framework highlights the crucial roles of internet searches, news and information on the issue of PM2.5 exposure in shaping public attention, and subsequent decision-making stages. It demonstrates the effects of information sources on precautionary behaviors. Table 1 and Table 2 provide detailed information on how each component in the framework is defined and measured.

Table 2 illustrates the stages of the PAPM in relation to public awareness and response to PM2.5 pollution threats. The table integrates key concepts from PMT, including threat appraisals and coping appraisals, while also considering internet search behavior and precautionary actions. Each of the six stages is clearly defined and associated with specific determinants, providing a comprehensive view of how people progress in their understanding and response to PM 2.5 exposure risks.

Econometric Model

Logit regression is a statistical method used for examining the relationship between a binary dependent variable and a set of independent predictor variables that can be continuous or categorical (Lechner, 1991). Let there be N observations and k characteristics (exogeneous variables) on each observation, ($n = 1.....N$). The dichotomous qualitative response model is defined as:

$$y_n^* = X_n\beta + u_n \qquad ; (n = 1, ..., N)$$
$$y_n = \begin{bmatrix} 1 \ if \ y_n^* \geq 0 \\ 1 \ if \ y_n^* < 0 \end{bmatrix} \tag{1}$$

Table 1 The Notation and Definition of Variables in Conceptual Framework

Notation	Definition
PM2.5	The 24-hour average of PM2.5 concentration levels in micrograms per cubic meter. This reflects the actual severity of PM2.5.
Threat Appraisals	A combination of perceptions regarding the severity of potential harm (perceived severity) and the likelihood of experiencing that harm (perceived vulnerability) contributes to the perceived severity of the risk from PM2.5 exposure. This is derived from PMT.
Internet Search	Internet search terms related to PM2.5 issue, collected as secondary data from Google Trends across 77 provinces of Thailand. The data reflect information-seeking behavior concerning PM2.5.
PAI_PM2.5	Public attention index for PM2.5. This reflects the attention on the issue of PM2.5.
Coping Appraisal	An assessment of precaution action according to the concept of PMT involves assessing the effectiveness of potential actions (response efficacy) and ability to successfully implement these actions (self-efficacy).
PM2.5 Information	Channels of news and information on the issue of PM2.5 which can be categorized according to the source (formal and informal) and types (on-line and off-line). This categorization helps assess the perceived reliability and accessibility of perceived information.
Precautionary Behavior	An action on how people respond to the threat of PM2.5 exposure. This encompasses proactive defensive behavior such as wearing masks and passive avoidance behavior such as avoiding polluted areas.

Table 2 Description of Conceptual Framework.

PAPM Stages	Determinant	Definition
Stage 1: Unaware	- PM 2.5	In this initial stage, individuals have no knowledge or awareness about the harmful effects of PM2.5 exposure or how to protect themselves from it. The only relevant factor here is the actual PM2.5 level which is defined as the 24-hour average of PM2.5 concentration levels in micrograms per cubic meter. At this point, despite being exposed to PM2.5, individuals have not formed any opinions about it due to the lack of awareness.
Stage 2: Unengaged	- Threat Appraisals - Internet Search	As individuals move into this stage, they develop some knowledge and awareness about the harmful effects of PM2.5 and potential protective measures, remaining unengaged with the issue because an individual may believe that the issue is irrelevant to them. After perceiving the risk from PM2.5 exposure (called Threat Appraisals in PMT), individuals express of concern toward the risk from PM2.5 that could be detected by online search to locate the resolutions to the problem (called Internet Search Behavior) such as reading media news online or searching for relevant information about PM2.5 exposure. The Public Attention Index for PM2.5 (PAI_PM2.5) is formed at this stage, reflecting the level of public attention to the PM2.5 issue as measured by internet search behavior.

Table 2 Continued

PAPM Stages	Determinant	Definition
Stage 3: Undecided	- PM 2.5 Information - PAI_PM 2.5	Individuals have knowledge and awareness about harmful and protective measures but are uncertain about taking action due to limited knowledge. Therefore, individuals in this stage actively seek information which is influenced by public attention for PM2.5 (PAI_PM 2.5) and news on the issue of PM2.5 (PM2.5 Information).
Decision making (Stage 4 and 5)	- Coping Appraisal	Once individuals perceive harm and engage with the problem of PM 2.5, they will decide whether or not to act in such precautionary activities based on their preference to cope with the PM2.5 risk. This decision-making process is known as Coping Appraisals in PMT.
Stage 4: Decided not to act		Individuals being aware and engaged, some decide not to take protective action against PM 2.5 exposure. This could be due to low perceived threat, low response efficacy, or low self-efficacy. The decision in this stage is influenced by their assessment of coping strategies.
Stage 5: Decided to act		Individuals being aware and engaged, some decide to take preventive action against PM2.5 exposure, which is based on adopted precautionary preference. This decision is influenced by their evaluation of effective coping strategies.
Stage 6: Acting	- Precautionary Behavior	In this final stage, where decisions turn into actions, individuals have taken precaution action to protect themselves against PM 2.5. These precaution behaviors, shape their future intentions regarding PM 2.5 exposure response choices.

where; β denotes the $k \times 1$ vector of unknown coefficients. u_n denotes the error term. Xn denotes the $1 \times k$ vector of exogenous variables. y_n^* denotes the unobservable dependent variable. The observable dependent indicator variable y_n takes the value 1 with probability p_n and the value 0 with probability $1 - p_n$. Due to the assumption on error term being *i.i.d* of logit regression, thus, the logistically distributed p_n is given by:

$$p_n = \frac{1}{1 + \exp(-X_n\beta)} \tag{2}$$

Empirical Model

For the empirical analyses, this study employs the Logit regression to analyze precautionary behavior in response to PM2.5 exposure, with an emphasis on how various information channels influence these behaviors. The models are defined as:

$$\begin{aligned} BEHAVIOR_n^k &= \beta_1 PAI\_PM25_n + \beta_2 PM25_n \quad ; (n = 1, ..., N) \\ &+ \beta_3 INFO\_SOURCE_n^k + \beta_4 INFO\_TYPE_{n_n}^k \\ &+ \beta_5 \text{DEMOGRAPHIC}_n + \beta_6 \text{CONTROL}_n + u_n \end{aligned}$$

$$BEHAVIOR_n^k = \begin{cases} 1 & if\ BEHAVIOR_n^k \geq 0 \\ 0 & if\ BEHAVIOR_n^k < 0 \end{cases} \tag{3}$$

where $BEHAVIOR_n^k$ denotes group of variables that represents types k of precautionary behavior against PM2.5 exposure as precaution practice of individual n. PAI_PM25_n denotes public attention index for PM2.5 issue of individual n. $PM25_n$ denotes the 24-hour average of PM2.5 concentration levels in micrograms per cubic meter of the province in which individual n resides. $INFO\_SOURCE_n^k$ denotes PM2.5 information from source of type k as perceived by individual n. $INFO\_TYPE_n^k$ denotes PM2.5 information from type k media as perceived by individual n. $DEMOGRAPHIC_n^k$ denotes group of variables that represents demographic characteristic of individual n, consists of gender, age, health condition, highest education attainment level, and occupation type. $CONTROL_n^k$ denotes group of control variables of individuals n that consists of total income, total income of individuals' household, co-residency with elderly aged 60 and over, presence of children under 12 years, and any respiratory patients within the household. u_n denotes the error term (Table 3).

Table 3 Variable summary for logit regression

Category	Variable	Description	Value
Precautionary Behavior	$DEFENSIVE_n^D$	Individual *n* adopts proactive defensive behavior as precaution practice against PM2.5 exposure	1 if yes, and 0 if no
	$AVOIDANCE_n^D$	individual *n* adopts passive avoidance behavior as precaution practice against PM2.5 exposure	1 if yes, and 0 if no
	$NOACTION_n^D$	individual *n* takes any precaution action as precaution practice against PM2.5 exposure	1 if yes, and 0 if no
Public Attention for PM2.5	PAI_PM25_n	Public attention index for PM2.5 issue of individual *n*	Numeric value of 0 to 100
PM2.5 Concentration Level	$PM25_n$	24-hour average of PM2.5 concentration levels for individual *n*'s province	Numeric value in micrograms per cubic meter
Perceived Sources of PM2.5 Information	$INFO\_SOURCE_n^{formal}$	Sources of PM2.5 information as perceived by individual *n*	1 if individuals *n* perceive PM2.5 news from formal source (e.g. government departments and agency, news agency, media broadcasting, etc.) and 0 if individual *n* perceives PM2.5 news from informal source (e.g. friends and relatives, community leader, influencer, youtuber, etc.)
Types of Media for PM2.5 News	$INFO\_TYPE_n^{online}$	Media types of PM2.5 information as perceived by individual *n*	1 if individual *n* perceives PM2.5 news from on-line media, and 0 if individual *n* perceives PM2.5 news from off-line media
Demographic Characteristics	$MALE_n^D$	Gender of individual *n*	1 if individual *n* is male, and 0 if individual *n* is female
	AGE_n	Age of individual *n*	Numeric value
	$SICKNESS_n^D$	Individual *n* is a respiratory patient	1 if yes, and 0 if no
	$MARRIED_n^D$	Marital status of individual *n*	1 if individual *n* is currently married, and 0 if no
	$EDUCATION_n^{no}$	Highest education attainment level of individual *n* is no educational attainment	1 if yes, and 0 is no
	$EDUCATION_n^{Primary}$	Highest education attainment level of individual *n* is primary school	1 if yes, and 0 is no
	$EDUCATION_n^{secondary}$	Highest education attainment level of individual *n* is secondary school	1 if yes, and 0 is no
	$EDUCATION_n^{high}$	Highest education attainment level of individual *n* is high school	1 if yes, and 0 is no
	$EDUCATION_n^{undergrad}$	Highest education attainment level of individual *n* is undergraduate	1 if yes, and 0 is no
	$EDUCATION_n^{graduate}$	Highest education attainment level of individual *n* is graduate	1 if yes, and 0 is no
	$OCCUPATION_n^{student}$	Occupation of individual *n* is student	1 if yes, and 0 is no
	$OCCUPATION_n^{servant}$	Occupation of individual *n* is public servant	1 if yes, and 0 is no
	$OCCUPATION_n^{fulltime}$	Occupation of individual *n* is full-time employee	1 if yes, and 0 is no
	$OCCUPATION_n^{Parttime}$	Occupation of individual *n* is part-time employee	1 if yes, and 0 is no
	$OCCUPATION_n^{self}$	Occupation of individual *n* is self-employed	1 if yes, and 0 is no
	$OCCUPATION_n^{farmer}$	Occupation of individual *n* is farmer	1 if yes, and 0 is no
	$OCCUPATION_n^{retired}$	Occupation of individual *n* is retired	1 if yes, and 0 is no
	$OCCUPATION_n^{unemploy}$	Occupation of individual *n* is unemployed	1 if yes, and 0 is no
Control Variables	$LN(INCOME\_R)n$	Log total income of individual *n*	Numeric value
	$LN(INCOME\_HH)n$	Log total income of individual *n*'s household	Numeric value
	$CORES(ELDERLY)_n^D$	Individual *n* lives with elderly aged 60 years and over	1 if yes, and 0 is no
	$CORES(CHILDREN)_n^D$	Individual *n* lives with children aged below 12 years	1 if yes, and 0 is no
	$CORES(SICKNESS)_n^D$	Individual *n* lives with respiratory patient	1 if yes, and 0 is no

Discussion

The analyzing of human cognition and behavior of are inadequate under the explanation by a single theory, necessitating multiple perspectives for comprehensive understanding more efficiently. This article presents an integrated framework of Protection Motivation Theory (PMT), Precautionary Principles (PP), and the Precaution Adoption Process Model (PAPM) that provides a comprehensive view of how various information channels influence individuals' perceptions, motivations, and adoption of precautionary action throughout the decision-making process. PAPM explains the transition process of how individuals adopt precautionary behavior, from being unaware of a risk (PM2.5 exposure) to taking or not taking precautionary action while PMT explains how individuals assess PM2.5 threats and protective measures based on perceived severity, vulnerability, and coping ability in determining their adoption of precautionary behaviors.

Contributions of the integrated framework in combining cognitive processes of the risk from PMT offer insights into why some take action against PM2.5 risks while others do not, the response against the risk from PP, and behavior change stages from PAPM. Firstly, this reveals how differences in information types and sources impact behavior across different awareness and decision-making stages, which helps identify critical points for more targeted and effective public health communication to promote health protective policies related to the risk from environmental issues, especially from PM2.5 exposure and potentially other environmental health-related behavior. Second, it enables a more dynamic analysis of behavior change, examining how factors such as risk perception and efficacy beliefs evolve over time and influence progression through the PAPM stages. Third, this framework also corporates contextual factors, demographic characteristics, to illustrating their potential impact on both cognitive processes and stage progression. Last, the integration bridges individual-level cognitive processes (PMT) with population-level indicators (public attention index for PM2.5 exposure), offering a more comprehensive view of public response to the risk from PM2.5 exposure. This novel integration contributes to the theoretical framework of health behavior change and potentially informs future research in environmental health and related fields.

Conclusion and Recommendation

This article presents an innovative integrated theoretical framework combining Protection Motivation Theory (PMT), Precautionary Principles (PP), and the Precaution Adoption Process Model (PAPM) to comprehensively understand precautionary behavior against PM2.5 exposure. This integration offers key contributions to environmental health behavior research, including comprehensive behavioral analysis, insights into information impact across awareness stages, dynamic behavior change analysis, incorporation of demographic influences, and bridging individual and population-level indicators.

The framework enhances the understanding of how individuals respond to environmental health risks, particularly PM2.5 exposure, from initial awareness to taking preventive action. This offers a foundation for future research in environmental health, potentially informing more effective public health interventions and policy development. Therefore, understanding how individuals progress from unawareness to action on PM2.5 risks can inform strategies for promoting protective behaviors and policies addressing air quality and other environmental health concerns.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References

Arshad, K., Hussain, N., Ashraf, M. H., & Saleem, M. Z. (2024). Air pollution and climate change as grand challenges to sustainability. *Science of the Total Environment, 938*, 172370. https://doi.org/10.1016/j.scitotenv.2024.172370

Bauske, E., Kibbe, A., & Kaiser, F. G. (2022). Opinion polls as measures of commitment to goals: Environmental attitude in Germany from 1996 to 2018. *Journal of Environmental Psychology, 81*, 101805. https://doi.org/10.1016/j.jenvp.2022.101805

Chen, F., Zhang, W., Bani Mfarrej, M. F., Saleem, M. H., Khan, K. A., Ma, J., Raposo, A., & Han, H. (2024). Breathing in danger: Understanding the multifaceted impact of air pollution on health impacts. *Ecotoxicology and Environmental Safety*, *280*, 116532. https://doi.org/10.1016/j.ecoenv.2024.116532

Courbage, C., Rey, B., & Treich, N. (2013). Prevention and precaution. In G. Dionne (Ed.), *Handbook of insurance* (pp. 185–204). Springer. https://doi.org/10.1007/978-1-4614- 0155-1_9

Festinger, L., Schachter, S., & Back, K. (1957). *Theory of cognitive dissonance*. Stanford University Press.

Ghorani-Azam, A., Riahi-Zanjani, B., & Balali-Mood, M. (2016). Effects of air pollution on human health and practical measures for prevention in Iran. *Journal of Research in Medical Sciences, 21*(1), 65. https://doi.org/10.4103/1735-1995.189646

IQAir. (2022). *Air quality in Thailand*. https://www.iqair.com/th-en/thailand

Jamali, D. (2008). A stakeholder approach to corporate social responsibility: A fresh perspective into theory and practice. *Journal of Business Ethics, 82*, 213–231. https://doi.org/10.1007/s10551-007-9572-4

Keeter, S. (1984). Problematical pollution polls: Validity in the measurement of public opinion on environmental issues. *Political Methodology*, 267–291.

Kessler, R. (2014). Prevention: Air of danger. *Nature, 509*(7502), S62–S63. https://doi.org/10.1038/509S62a

Kummetha, T. A. (2022, June 8). *The cost of clean air in Thailand*. World Health Organization. https://www.who.int/thailand/news/detail/08-06-2022-the-cost-of-clean-air-in-thailand

Lechner, M. (1991). Testing logit models in practice. *Empirical Economics, 16*, 177–198. https://doi.org/10.1007/BF01205778

Liu, H., & Salvo, A. (2018). Severe air pollution and child absences when schools and parents respond. *Journal of Environmental Economics and Management, 92*, 300–330. https://doi.org/10.1016/j.jeem.2018.08.003

Lu, Y., Wang, Y., Zuo, J., Jiang, H., Huang, D., & Rameezdeen, R. (2018). Characteristics of public concern on haze in China and its relationship with air quality in urban areas. *Science of the Total Environment, 637*, 1597–1606. https://doi.org/10.1016/j.scitotenv.2018.05.388

Maurer, M., & Holbach, T. (2016). Taking online search queries as an indicator of the public agenda: The role of public uncertainty. *Journalism & Mass Communication Quarterly, 93*(3), 572–586. https://doi.org/10.1177/1077699016636318

Mayone Stycos, J. (1996). Population and the environment: Polls, policies, and public opinion. *Population and Environment, 18*(1), 37–63. https://doi.org/10.1007/BF02208207

McQuail, D. (1987). *Mass communication theory: An introduction*. Sage.

Newig, J. (2004). Public attention, political action: The example of environmental regulation. *Rationality and Society, 16*(2), 149–190. https://doi.org/10.1177/1043463104043710

Nghiem, L. T., Papworth, S. K., Lim, F. K., & Carrasco, L. R. (2016). Analysis of the capacity of Google Trends to measure interest in conservation topics and the role of online news. *PLOS ONE, 11*(3), e0152802. https://doi.org/10.1371/journal.pone.0152802

Pope, C. A., III, & Dockery, D. W. (2006). Health effects of fine particulate air pollution: Lines that connect. *Journal of the Air & Waste Management Association, 56*(6), 709–742. https://doi.org/10.1080/10473289.2006.10464485

Pope, C. A., III, Burnett, R. T., Thun, M. J., Calle, E. E., Krewski, D., Ito, K., & Thurston, G. D. (2002). Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution. *JAMA, 287*(9), 1132–1141. https://doi.org/10.1001/jama.287.9.1132

Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. *The Journal of Psychology, 91*(1), 93–114. https://doi.org/10.1080/00223980.1975.9915803

Thangavel, P., Park, D., & Lee, Y. C. (2022). Recent insights into particulate matter (PM2.5)-mediated toxicity in humans: An overview. *International Journal of Environmental Research and Public Health, 19*(12), 7511. https://doi.org/10.3390/ijerph19127511

Treich, N. (2001). What is the economic meaning of the precautionary principle? *The Geneva Papers on Risk and Insurance: Issues and Practice, 26*(3), 334–345. https://doi.org/10.1057/palgrave.gpp.2510019

Vichit-Vadakan, N., & Vajanapoom, N. (2011). Health impact from air pollution in Thailand: Current and future challenges. *Environmental Health Perspectives, 119*(5), A197–A198. https://doi.org/10.1289/ehp.1103723

Ward, A. L. S., & Beatty, T. K. (2016). Who responds to air quality alerts? *Environmental and Resource Economics, 65*, 487–511. https://doi.org/10.1007/s10640-015-9957-7

Weinstein, N. D., Sandman, P. M., & Blalock, S. J. (2020). The precaution adoption process model. In *The Wiley encyclopedia of health psychology* (pp. 495–506). Wiley. https://doi.org/10.1002/9781119057840.ch39

White, R. (2013). *Environmental harm: An eco-justice perspective*. Policy Press.

Wu, W., Wang, W., & Zhang, M. (2022). Does internet public participation slow down environmental pollution? *Environmental Science & Policy, 137*, 22–31. https://doi.org/10.1016/j.envsci.2022.08.004

Yang, X., & Geng, L. (2022). An integrated analysis of social, economic, and environmental indicators' effects on public health and health inequality globally: From the perspective of vulnerability. *Social Indicators Research, 162*(3), 1261–1279. https://doi.org/10.1007/s11205-021-02801-6

Zhang, J., & Mu, Q. (2018). Air pollution and defensive expenditures: Evidence from particulate-filtering facemasks. *Journal of Environmental Economics and Management, 92*, 517–536. https://doi.org/10.1016/j.jeem.2018.07.002

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The contributing factors to child abuse and the aftermath of violent exploitation: An examination through the lens of Thailand

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Abstract

Child abuse is a significant concern in Thailand, encompassing various forms of harm such as physical abuse, emotional abuse, sexual abuse, and neglect. This study investigates the underlying causes and effects of child abuse in the country. Data were gathered through detailed interviews with 20 experts in the field of child abuse and analysed via content analysis. The research identifies seven main risk factors for child abuse in Thailand: parenting styles, societal structure, insufficient parenting skills and family preparedness, family separation, peer influence, substance abuse, and economic conditions. Furthermore, the study highlights the repercussions of child abuse, including perpetuating cycles of violence, creating double victims, and leading to mental health issues in children. The recommended approach to address these issues involves enhancing parental education and developing strong community support networks to support families facing challenges, aiming to reduce the risks and improve mental health outcomes for children.

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Introduction

Child maltreatment refers to harmful actions or the failure to act in a way that causes injury to a child's physical and mental well-being. It encompasses four main categories: physical abuse, sexual abuse, emotional abuse, and neglect. The situation of child abuse in Thailand is increasingly concerning. Reports from the Department of Women's Affairs and Family Institutions under the Ministry of Social Development and Human Security (2015) reveal a rising trend in child abuse cases. These statistics are supported by evidence from service centres under the Ministry of Public Health (2015). In 2013, there was a 35 percent increase in reported cases of abuse, with support centres handling 31,966 cases. This averages 87 cases daily, or approximately 3 every hour. Of these incidents, 60 percent involved children, and 40 percent involved women. This is a significant increase from the 20,582 cases reported in 2012, which averaged 56 cases per day. A closer look at the child

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abuse statistics reveals that about 90 percent of the victims were girls, predominantly between the ages of 10–15 years (61%) and 15–18 years (22%). The most frequent form of abuse was sexual, accounting for 69 percent of cases (13,226 cases), followed by physical abuse (4,256 cases). The abusers were often individuals trusted by the children, such as boyfriends or friends. Factors contributing to these incidents include environmental influences like inappropriate media exposure, proximity, and opportunistic circumstances.

In 2007, Thailand implemented the Act for the Protection of Victims of Domestic Violence, recognizing the complex and sensitive nature of addressing domestic violence, which typically involves intimate personal relationships. This context differs significantly from physical abuse between strangers. Utilizing criminal measures under the Penal Code for domestic violence cases was seen as less effective, as criminal law focuses more on penalizing offenders rather than on rehabilitating them or safeguarding the victims of domestic abuse. Thus, a specialized law for the protection of domestic violence victims was deemed more suitable. This specific law allows for different forms, methods, and procedures compared to general criminal proceedings. It offers offenders opportunities for reform and aims to prevent further abuse, while also striving to maintain healthy family relationships. The law further acknowledges the state's responsibility to protect children, youths, and family members from violence and mistreatment. Statistics show the impact of this law over the years. In 2011, 65 cases were brought under this act. The number rose to 94 in 2015, indicating an increased awareness or reporting of domestic violence. However, by 2017, the number of cases had decreased to 49, suggesting potential changes in the incidence of domestic violence, reporting rates, or the effectiveness of preventive measures (Office of Planning and Budget, Office of the Ombudsman, 2019).

In Thailand, various news outlets have reported several instances of child abuse in different forms. A notable case involved physical violence, where a man wearing a red shirt was reported to have strangled and slapped a schoolboy, accusing him of stealing money from a teacher (Thai Rath Online, 2018). There have also been incidents of emotional and psychological abuse, such as an instance where a teacher publicly criticized a student's floral arrangement on Facebook, calling it unattractive (Khaosod Online, 2018). In addition, there have been distressing reports of sexual violence. One such case was reported where a mother entrusted her 1-year and 6-month-old daughter to a known individual in a nearby village for childcare, only to later find out that the child had suffered a broken arm and had been sexually abused (Thai Rath Online, 2018). Furthermore, there have been cases of neglect and abandonment. For example, a construction worker discovered an infant left in a backpack beside a temple wall; the baby was still alive and was quickly reported to the police and taken to a hospital for care (Thai Rath Online, 2018).

Efforts to combat child violence are being undertaken by various organizations, including initiatives to support and safeguard children who have been mistreated or not properly cared for. These efforts are spearheaded by entities like the Child Rights Protection Centre, which offers rehabilitation programs for abused children. In a broader context, the United Nations has developed the UN Model Strategies on Violence Against Children. This comprehensive framework is designed to protect children from crimes, violence, and discrimination, and to ensure they receive appropriate criminal justice. It serves as a guideline for nations to adopt and implement in their strategies against child violence. The UN Model Strategies encompass 17 different strategies, organized into three primary categories. The first category focuses on general preventive measures, aimed at reducing the risk of violence against children. The second category enhances the capability of the criminal justice system to address incidents of violence against children effectively. The third category involves strategies for both prevention and response to violence against children within the justice system itself. This holistic approach ensures a multi-faceted and thorough strategy in dealing with the issue of child violence at various levels.

Addressing child violence effectively requires insights from experts with firsthand experience in child protection, law enforcement, social work, and psychology, as their specialized knowledge is crucial in understanding the complex, multi-faceted causes of child abuse. Experts such as these are uniquely positioned to identify subtle risk factors and systemic issues that may not be evident in broader studies, allowing for a more nuanced, context-specific perspective on child violence. Their perspectives are invaluable in uncovering patterns, motivations, and environmental influences that contribute to child abuse within Thailand, thereby enhancing our understanding of both immediate and long-term impacts on affected children. This study, therefore, focuses on gathering insights from these experts to identify the specific risk factors contributing to child violence in Thailand and the outcomes of such abuse. By analysing their informed viewpoints, the research aims to develop

actionable strategies and policies tailored to the unique socio-cultural landscape of Thailand, with the ultimate goal of supporting targeted interventions that mitigate this pressing issue and enhance child protection efforts nationwide.

Literature Review

Child abuse, as defined by Siegel & Welsh (2017), includes a range of detrimental acts towards a child's physical, emotional, and sexual health, and is categorized into physical, sexual, emotional abuse, and neglect. A global review of literature reveals complex risk factors and consequences, necessitating comprehensive interventions. Familial dynamics, evident in factors such as family conflict and inconsistent discipline in South Africa, and a history of family abuse and substance abuse in Kentucky, play a significant role in child abuse (Meinck et al., 2015; Pierce et al., 2017). Economic hardships and social instability, like those seen in Croatia and during the COVID-19 pandemic, exacerbate child maltreatment risks (Ajduković et al., 2018; Lawson et al., 2020). Parental mental health and substance abuse are consistently linked to child maltreatment (Doidge et al., 2017; Motorca et al., 2021). Specific risks for children, especially girls, include previous sexual abuse and lack of peer support (Clayton et al., 2018; Meinck et al., 2017), while behavioural and developmental challenges, as seen in Thailand, are also significant factors (Swangpun et al., 2019). The psychological impact of child abuse includes increased suicide attempts and mental health challenges, highlighting the importance of coping mechanisms and support for vulnerable populations, including refugees and girls at risk of sexual abuse (Martin et al., 2016; Thoresen et al., 2021). This body of research underscores the need for multifaceted strategies to address the diverse and complex dynamics of child abuse globally.

The body of research on child maltreatment presents a harrowing picture of its extensive and enduring effects. Various studies underline that all forms of child abuse, be it physical, emotional, or sexual, lead to a wide array of psychiatric and behavioural problems, such as anxiety, depression, aggression, and conduct disorders (Ivanov et al., 2015; Vachon et al., 2015). Immediate consequences include physical injuries and psychological trauma (Lemesle et al., 2015), while long-term impacts extend to serious health issues like suicide, substance abuse, and chronic physical conditions (Tonmyr, 2015). The ripple effects of child abuse are profound, affecting educational performance, employment prospects, and relationships, thus impeding societal and economic progress (Abbasi et al., 2015). Additionally, abused children face heightened risks of peer victimization (Benedini et al., 2016), mental health disorders, and genetic modifications (Hecker et al., 2016). The lifelong implications of childhood violence include poor overall health and emotional instability (Brown et al., 2023), leading to social, cognitive, and attachment issues, as well as perpetuating a cycle of violence across generations (Dodaj & Sesar, 2020; Heidari et al., 2021). Furthermore, there's a noted correlation between child abuse and the development of psychopathy, aggressive behaviour in adulthood, and extreme criminal activities such as serial killings (di Giacomo et al., 2021; Pitzanti, 2021).

The studies collectively emphasize the critical need for targeted interventions and preventative measures to mitigate the impacts of child abuse, including breaking the intergenerational cycle of violence and addressing the wide-ranging consequences of childhood maltreatment (Trangkasombat, 2008). Within the Thai context, child sexual abuse (CSA) is a significant concern, often under-researched in terms of services, policy, and legislation (Chotchaisathit, 2014). For instance, studies examining Thailand's child protection system post-Child Protection Act 2003 indicate that while there have been improvements in systematic responses, there remain critical gaps in community awareness, data collection, and intervention enforcement, particularly at the local level (Auemaneekul, 2013). Additionally, Thailand's community beliefs and attitudes toward discipline and punishment often hinder effective intervention, as highlighted in qualitative research on Bangkok parents' perceptions of child discipline (Auemaneekul, 2013).

More recent studies underscore the connections between parental stress, economic hardship, and increased risk of child abuse. For instance, Jeharsae et al. (2022) reported associations between caregiver stress levels and self-reported child abuse, revealing significant behavioral issues stemming from socioeconomic challenges in Thailand's Deep South. Moreover, McCoy et al. (2021) examined the feasibility of the Parenting for Lifelong Health program within Thailand's public health system, which showed promising reductions in harsh parenting and child maltreatment. However, despite these positive results, broader application and scalability of such interventions remain limited.

A cross-country analysis comparing child sexual abuse policies and practices in Thailand and India further underscores the lack of collaborative, cross-national research on CSA prevention and intervention efforts in

Thailand, as well as the need to align Thailand's policies more closely with the United Nations Convention on the Rights of the Child (UNCRC) standards (Jatchavala et al., 2024). These studies identify knowledge gaps in integrated intervention models that address not only family and parenting dynamics but also broader economic and social stressors within the Thai socio-cultural landscape. This study aims to bridge these gaps by exploring comprehensive, multi-dimensional strategies for preventing and mitigating child abuse, ultimately contributing to a more robust, culturally informed approach to child protection in Thailand.

Methodology

Participants

The study involved 20 essential informants selected through a purposive sampling strategy, chosen for their specialized roles and expertise in areas of child protection, anti-trafficking, and social services. This approach aligns with recommendations for focused qualitative sampling, especially in studies addressing sensitive social issues (Bryman, 2016; Patton, 2014). The selection criteria included (1) professional experience in fields directly related to child welfare, (2) a minimum of five years in roles involving direct intervention, policy development, or advocacy concerning child abuse, (3) affiliation with institutions or organizations recognized for their influence on child protection efforts, and (4) geographical and socio-economic diversity to capture varied perspectives on child abuse across Thailand. This criterion-driven sampling enhanced the diversity of perspectives and mitigated potential biases, ultimately supporting the study's external validity (Creswell & Poth, 2016). To further enrich the sample, the snowball sampling technique was employed, allowing initial participants to recommend additional informants with relevant expertise, thereby expanding the sample to include voices from harder-to-reach groups (Noy, 2008). The informants comprised individuals from prominent institutions and organizations actively engaged in child protection, including the Head of the OSCC at Pathumthani Hospital, officers from the Anti Human Trafficking Division, law enforcement representatives from regional police divisions, leaders from NGOs such as the Childline Foundation 1387 and the FACE Foundation, social workers, academic experts from the Police Cadet School, and officials from the Ministry of Social Development and Human Security. This comprehensive representation from both governmental and non-governmental sectors aimed to strengthen the generalizability of findings by integrating a broad range of expert perspectives, consistent with best practices for data triangulation in qualitative research (Denzin, 2012; Tracy, 2024).

Research Tool

The research employed a carefully designed interview questionnaire as the primary tool for data collection, aimed at capturing the nuanced dynamics and risk factors associated with child abuse as outlined in the literature. This tool's development involved a systematic approach, beginning with an extensive review of established theories and research on child maltreatment, including concepts from ecological systems theory (Bronfenbrenner, 1979) and attachment theory, which informed the structure and content of the questions to ensure a thorough examination of relevant factors (Papalia et al., 2017, 2018; Siegel & Welsh, 2017). The topics and questions were meticulously crafted to address key aspects such as familial dynamics, economic stress, parental mental health, and specific child vulnerabilities highlighted in prior studies (Meinck et al., 2015; Ajduković et al., 2018). To enhance the questionnaire's relevance and clarity, a subject matter expert reviewed and provided feedback, which was integrated into subsequent revisions to better align the tool with real-world scenarios of child abuse. Following these adjustments, a pilot test was conducted on a small representative group, allowing the research team to refine the questions further by identifying any ambiguities and ensuring that the tool effectively captured the complex factors influencing child maltreatment (Lawson et al., 2020). This pilot phase, in particular, helped refine questions related to economic hardship and parental substance abuse, ensuring their clarity and applicability. Through this rigorous process, the interview questionnaire was optimized for reliability and validity, thereby enhancing its capacity to gather meaningful, comprehensive data on child abuse's multifaceted nature (Thoresen et al., 2021).

Data Collection

This qualitative study utilized documentary research, in-depth interviews, and focus group discussions to explore the causes of child abuse within Thai society. Documentary analysis involved examining books, journals, and relevant Thai and foreign research documents to gain a comprehensive understanding of

the factors driving violence and child abuse. The data collection for this study took place over a one-year period, from September 2019 to February 2020, allowing sufficient time for thorough interviews, focus groups, and in-depth exploration of the research objectives. This duration was essential for gathering detailed insights and ensuring the reliability of findings across diverse sources and regions. Field research included in-depth interviews with key informants, supplemented by observational data, with interviews lasting between 30 to 45 minutes. Focus group discussions were organized with justice system officials, academics, NGO workers, and community leaders to facilitate diverse insights into the issue. Ethical approval for the study was obtained from the Committee of Research Ethics (Social Sciences) at Mahidol University (Certificate of Approval No. 2019/195.1009). Recognizing the sensitivity of the topic, particularly concerning child abuse, the researchers implemented enhanced ethical protocols to support participants' well-being. Informed consent was obtained after providing participants with detailed information about the study, emphasizing their right to confidentiality, withdrawal without repercussions, and protection of their privacy and dignity throughout. During interviews, researchers were trained to approach sensitive topics carefully and were prepared to provide immediate referrals to psychological support services if any participant experienced distress. To maintain confidentiality, data from interviews and discussions are reported in aggregate only, with all identifying information securely protected. Additionally, all data will be destroyed upon study completion, upholding strict confidentiality standards. This ethically rigorous approach ensures that the study respects the vulnerability of participants while adhering to high standards in sensitive research.

Data Analysis

For data analysis, the researchers transcribed all focus group discussions and one-on-one interviews verbatim, meticulously documenting observations and extracting key information from documents to ensure accurate interpretation (Creswell & Poth, 2016). Qualitative data analysis was conducted using thematic analysis, incorporating a structured coding process to identify recurring patterns and themes related to the causes of child abuse (Braun & Clarke, 2006). Initially, open coding was applied to categorize data, followed by axial coding to establish connections between themes, which enabled a deeper understanding of underlying issues (Saldaña & Omasta, 2016). This multi-step coding strategy enhanced transparency and allowed for a more nuanced analysis, aligning with best practices for qualitative rigor (Guest, MacQueen, & Namey, 2012). To ensure accuracy and reliability, triangulation was employed by integrating data from three primary sources: in-depth interviews, documentary research, and focus group discussions. Cross-referencing information across these methods minimized potential biases and strengthened the validity of the findings (Patton, 2014). This rigorous analytical approach not only provided a comprehensive view of the factors contributing to child abuse in Thailand but also enhanced the study's transparency and replicability, offering a robust framework for interpreting complex social dynamics in child welfare research (Denzin, 2012).

Results

Risk Factors of Child Abuse

From the in-depth interviews and field studies, the causes of violence against children became clearer, as follows:

Parenting styles

The in-depth interviews and field studies highlight that parenting styles and family environments are critical factors in the occurrence of child abuse. Parents who have experienced violence are more likely to perpetuate this cycle within their own families, as one interview with an administrator from the One Stop Crisis Center (OSCC) noted, "the parenting style of caregivers plays a significant role." Children often mirror the behaviour they observe, such as smoking, drinking, and domestic violence, which they may view as acceptable. A professor at the Royal Police Cadet Academy stated, "if parents smoke, drink, and abuse each other, children may view this behaviour as acceptable." A positive family environment fosters healthy development, while a negative one increases the risk of violent behaviour, as emphasized by a police officer from the Metropolitan Police Bureau: "children absorb behaviours from their guardians, which become ingrained as they grow." Financial status alone does not determine the likelihood of child abuse, as issues of neglect and inadequate care are present across all socio-economic levels. A child protection expert from the Childline Thailand Foundation highlighted, "if you smoke and drink but tell children not to, they will mimic your actions because they absorb the environment they are in." These insights underscore the need for positive role modeling and attentive parenting to break the cycle of abuse and ensure healthy child development.

Societal structure

The social structure in Thailand has both positive and negative impacts on families and children, with increasing competition among families often leading to inadequate childcare, weakened parent-child relationships, and heightened risks of domestic violence and exploitation. Professionals interviewed highlighted that "when children lack attachment to their parents, they are easily pushed out of the family system," making them vulnerable to human trafficking, particularly boys from broken families. In competitive environments, parents may prioritize work over childcare, leading children to seek support from peers rather than their parents, increasing their exposure to negative influences. A police officer noted, "when families use violence, some children internalize this behaviour and eventually display it in their relationships or towards their children," emphasizing how parental neglect and drug abuse can predispose children to societal dangers. Additionally, a social worker pointed out that the absence of parental care often leads to children seeking affection online, where they are easily deceived or exploited. Overall, the findings underscore the need for comprehensive support to address these challenges and protect vulnerable children in Thailand.

Insufficient parenting skills and family preparedness

The findings reveal that insufficient parenting skills and family preparedness are significant factors affecting child development in Thailand. Many parents lack adequate knowledge and understanding of child-rearing, often leading to negative consequences for their children. As noted by professionals from the One Stop Crisis Center (OSCC), "the knowledge and understanding of child-rearing among Thai parents are quite low, and we do not provide enough education on this matter." This gap in parenting skills sometimes results in the use of physical violence, with a police officer from the Anti Human Trafficking in Persons Division stating that "many parents or guardians lack a deep understanding of how to properly care for their children, and as a result, they may resort to using physical violence." This issue is further compounded by a lack of emotional control, leading children to replicate violent behaviours as they grow. The administrators at the Childline Foundation emphasized that "the root cause of resorting to violence often stems from parents lacking the necessary parenting skills." A lawyer from the Bangkok Shelter for Children and Families pointed out that "parenting skills are vital" and that proactive education and guidance are essential to equip parents with the necessary skills. Moreover, the founder of The Hug Project Thailand observed that parents "genuinely care for their children, but they may lack the know-how to properly raise and nurture them," often due to their own difficult childhood experiences, which can perpetuate cycles of violence or neglect. Social workers from the A21 Foundation highlighted the need for better communication within families, noting that simple gestures like asking a child if they are tired are not yet norms in many households. Collectively, these insights underscore the urgent need for improved parenting education and support to foster a nurturing environment for children across all social classes in Thai society.

Family separation

Conflicts within families, such as differences between spouses, often escalate and lead to separation or divorce, profoundly impacting children's well-being. The director of the Anti-Human Trafficking and Child Abuse Center (ATCC) in Chonburi Province noted that "delinquent children, victims of abuse or human trafficking, often result from broken families," where children are expelled from new family settings, exposing them to harsh treatment and abuse. A former police investigator emphasized that the absence of warmth and care at home forces these children into survival mode, leading them to display defiant behaviours and making them vulnerable to human trafficking. Police officers from the Anti-Human Trafficking in Persons Division highlighted that family fragmentation, often due to divorce, leads children to seek solace in risky activities like socializing with peers or excessive gaming, which is exacerbated by parental stress and work-related issues. A social worker from the A21 Foundation further explained that in fractured families, children often internalize the effects of violence and instability, lacking positive role models, which compounds their challenges. These insights underscore the urgent need for support and intervention to mitigate the negative impact of family separations on children's lives.

Peer influence

Peer influence plays a critical role in shaping the thoughts and behaviours of children and adolescents, often surpassing the influence of family. As observed by a police officer from the Investigation and Suppression Division, Provincial Police Region 1, "associating with friends involved in drug use can result in drug addiction," highlighting how peer pressure can lead to harmful activities like drug abuse or illegal income generation. This influence extends to involvement in the commercial sex industry, as noted by the management of the Anti-Human Trafficking and Child Abuse Center (ATCC),

where at-risk youths in Pattaya are often persuaded by peers already in the sex trade to join, initially lured by the promise of good earnings. Once these youths experience financial gain, they tend to continue voluntarily. The choice of friends is therefore pivotal in determining whether children engage in positive or negative behaviours, underscoring the need for proactive measures to guide them toward healthy relationships and decisions.

Substance abuse

Substance abuse has devastating effects on individuals, families, and even national stability, leading to the destruction of lives and escalating domestic violence, particularly affecting vulnerable children. A legal practitioner from a children's shelter in Bangkok emphasized that "domestic violence or abuse often arises from issues related to substance addiction, such as drugs or alcohol," noting cases where both parents become involved in violence due to addiction, and even instances where children are exposed to addictive substances through breastfeeding. A medical social worker at the One Stop Crisis Center (OSCC) highlighted that substance use during pregnancy can have lasting repercussions, stating that "substances can infiltrate the child's genetic composition," leading to a higher likelihood of the child developing addiction and exhibiting aggressive behaviour. These insights underscore the critical need to address substance abuse to protect individuals, preserve family units, and maintain societal stability.

Economic conditions

Poverty has far-reaching consequences, deeply affecting families and contributing to various societal challenges. Interviews with law enforcement and professionals working with disadvantaged children reveal that poverty often drives children to engage in risky behaviours and illicit activities. A police officer from the Investigation and Suppression Division of Provincial Police Region 1 noted that children from disadvantaged backgrounds may, "driven by the desire for certain items, resort to inappropriate means," including prostitution and illicit trade, as they compare themselves to wealthier peers. A legal practitioner from a children's shelter in Bangkok recounted a case where an uncle, unable to provide proper care due to economic constraints, had to tie his young nieces and nephews to house posts while he worked, illustrating the desperate measures some caregivers are forced to take. These insights underscore the urgent need for comprehensive support and interventions to address the challenges posed by poverty on families and children.

Consequences of Child Abuse

The act of using violence against children has repercussions that extend beyond the children themselves, affecting the individuals responsible for the violence, the people around them, society, and the nation. Through in-depth interviews and field research, a more detailed comprehension of the substantial and widespread consequences of violence has been obtained.

Cycle of Violence

The long-term impact of violence against children often perpetuates a cycle where victims become perpetrators as they grow older. An attorney specializing in children and youth observed that many violent children come from abusive families, noting, "They tend to exhibit such behaviours towards others as well, continuing this pattern." A former child and youth development expert from the Department of Juvenile Observation and Protection added, "The impact of experiencing violence often leads the victims to become perpetrators in the future, creating an endless cycle." This view is supported by The Hug Project Thailand, an NGO, which highlighted cases where individuals who were abused or exploited as children, such as in prostitution, later forced others into similar situations. These insights underscore how the cycle of violence is perpetuated by the traumatic experiences and behaviours children endure, leading them to replicate such actions in their own lives.

Double Victims

The management of the Anti-Human Trafficking and Child Abuse Center (ATCC) in Chonburi Province highlights the severe consequences faced by vulnerable children who do not receive timely intervention. As noted in their work, "children, especially those addicted to drugs or forced to distribute drugs, are at risk of death due to their activities." Without assistance, these children often continue to be victimized, and disturbingly, those who were once involved in the sex trade may grow up to participate in or facilitate these same harmful activities. This underscores the critical role of organizations like the ATCC in breaking the cycle of violence and exploitation, emphasizing the need for comprehensive intervention and protection to prevent these children from becoming double victims—first as children and later as adults perpetuating the cycle of abuse.

Child Mental Health Issues

Interviews with experts from the Anti-Human Trafficking and Child Abuse Center in Chonburi and the One-Stop Crisis Center in Pathum Thani reveal a troubling rise in mental health issues among children exposed to violence. The director of the ATCC noted a significant increase in cases, with "about 85 percent of the 40 children under the center's care" suffering from mental health problems. A police officer from the Anti Human Trafficking in Persons Division highlighted that these children often struggle with emotional maturity, showing "two personalities"—compassionate at times but prone to violence when triggered. The psychological impact of violence leaves many children fearful, mistrustful, and socially withdrawn, unable to form healthy relationships. A medical social worker from Pathum Thani Hospital emphasized that without proper support, these children face ongoing emotional and social difficulties, which can severely affect their development. These findings underscore the urgent need for comprehensive mental health support for children affected by violence to ensure their long-term well-being.

Discussion

This research in Thailand aligns with global literature on child abuse, emphasizing the complexity of risk factors and the critical need for comprehensive interventions that address both individual and societal influences. Similar to findings in international studies, familial dynamics such as family conflict, inconsistent discipline, and substance abuse are significant factors contributing to child abuse within the Thai context (Meinck et al., 2015; Pierce et al., 2017). Moreover, economic hardships and social instability, particularly highlighted during the COVID-19 pandemic, exacerbate risks of child maltreatment, mirroring trends seen globally, including in Croatia (Ajduković et al., 2018; Lawson et al., 2020). Parental mental health and substance abuse continue to be major risk factors linked to child maltreatment, reflecting widespread patterns observed in various studies (Doidge et al., 2017; Motorca et al., 2021). Unique risks for Thai children, such as peer influence, behavioural challenges, and substance exposure, are consistent with global findings that recognize the impact of environmental and social contexts on child welfare (Clayton et al., 2018; Swangpun et al., 2019). This study extends these understandings by highlighting that child abuse is not merely an isolated, personal issue but is deeply embedded within social structures and contexts. Such abuse affects both the physical and mental health of the individual, with ripple effects on society as a whole, contributing to broader public health and social challenges. Violence experienced by children has both immediate and long-term repercussions, manifesting in increased risks for mental health challenges, suicide attempts, and behavioural issues, underscoring the necessity of effective coping mechanisms and support systems for vulnerable populations (Martin et al., 2016; Thoresen et al., 2021). Notably, the findings reveal that child abuse often perpetuates a cycle of violence, where victims may become perpetrators as adults, thus transmitting violence across generations and exacerbating societal challenges (Dodaj & Sesar, 2020; Heidari et al., 2021). Furthermore, the study recognizes links between child abuse and severe behavioural outcomes in adulthood, including increased aggression, psychopathy, and even extreme criminal behaviour, such as serial offenses (di Giacomo et al., 2021; Pitzanti, 2021). These results add a critical dimension to the understanding of child abuse in Thailand by underscoring how social context and familial patterns contribute to this cycle, suggesting that breaking this cycle will require both systemic interventions and support for individuals. In essence, the findings reinforce the importance of targeted, multi-level interventions that address both the personal and societal dimensions of child abuse. Effective prevention and intervention strategies must focus not only on protecting children but also on mitigating the social factors that facilitate the perpetuation of abuse across generations. This study thereby contributes to the global discourse on child abuse, emphasizing the need for holistic approaches that incorporate societal context, break the cycle of violence, and prioritize the mental well-being of children to foster healthier future generations.

Implications

This study underscores the critical need for a comprehensive, multi-faceted approach to addressing child abuse in Thailand, with significant implications for both policy and practice. Policymakers should prioritize the development and implementation of parental education programs, targeting organizations such as the Ministry of Social Development and Human Security (MSDHS) and the Department of Children and Youth (DCY), to equip parents with the skills necessary for raising children in safe, non-abusive environments.

These programs should be accessible across Thailand, with a focus on reaching vulnerable populations who may lack resources or support. For example, collaborations with local NGOs, such as the Hug Project Thailand and Childline Thailand Foundation, could ensure that these resources reach families in need. In addition to enhancing parenting skills, addressing broader economic conditions that contribute to child abuse is essential. Policies aimed at reducing economic disparities—such as improving access to education, healthcare, and employment opportunities—could be implemented through partnerships with the Ministry of Public Health and the Ministry of Education. These agencies, along with support from organizations like the Thailand Research Fund (TRF), could focus on providing services in disadvantaged areas to alleviate poverty-related stressors that often lead to child abuse. Strengthening community support networks is also vital for families dealing with challenges like separation, substance abuse, and peer influence. Community-based organizations, such as the Center for Combating Human Trafficking and Child Abuse (CCHTCA) and the FACE Foundation, should receive adequate funding to offer resources, counseling, and guidance. Additionally, local government offices and district health centres could facilitate accessible support networks for families. Public awareness campaigns led by agencies like MSDHS and the Department of Mental Health could destigmatize seeking help for child abuse and mental health issues, encouraging families to utilize these support services. For child protection professionals, this study emphasizes the need for comprehensive training that covers the various risk factors associated with child abuse, including societal dynamics and economic challenges. Organizations like the Police Cadet Academy and the Anti-Human Trafficking Division could benefit from training initiatives that equip professionals to recognize and address mental health issues often experienced by abuse victims. Collaborative, community-based interventions that involve local organizations, schools, and community centres are essential for establishing strong support networks. For example, local schools could partner with community centres and NGOs like the A21 Foundation to deliver resources and support to at-risk families. Overall, implementing policies and partnerships that target the root causes of child abuse—such as income inequality, limited access to essential services, and inadequate support systems—is crucial for creating a safer environment for children in Thailand. By addressing these underlying issues and providing support to both parents and children through collaboration among government agencies, NGOs, and community organizations, policymakers and practitioners can work together to break the cycle of abuse and improve the long-term well-being of children across the country.

Conclusion

In conclusion, this study sheds light on the complex dynamics of child abuse in Thailand, identifying seven key risk factors: parenting styles, societal structure, parenting skills and family preparedness, family separation, peer influence, substance abuse, and economic conditions. These findings underscore the urgency of addressing child abuse comprehensively, taking into account the unique characteristics of the Thai context. The study also highlights the enduring repercussions of child abuse, including the perpetuation of cycles of violence, the creation of double victims, and the emergence of mental health issues in children. To effectively combat this issue, a multi-pronged approach is recommended, involving professional training, community support networks, public awareness campaigns, and policy measures targeting root causes. By addressing these aspects, Thailand can make significant strides towards safeguarding the well-being of its children and breaking the cycle of abuse, contributing to the broader global discourse on child protection.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Ethics Approval

Ethical approval for this research was obtained from the Committee for Research Ethics (Social Sciences) of Mahidol University (Reference Number: 2019/195.1009). Informed consent was obtained from all individual participants included in the study.

Author Contribution

UL conceptualized the research framework, developed the theoretical foundation, and conducted the literature review on factors contributing to child abuse in Thailand. WK designed the methodology, oversaw data collection and analysis, and interpreted findings on the aftermath of violent exploitation. Both authors collaboratively drafted and revised the manuscript, with WK managing journal correspondence and the final revision. Both UL and WK approved the final manuscript for submission.

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References

Abbasi, M., Saeidi, M., Khademi, G., & Hoseini, B. (2015). Child maltreatment in the world: A review article. *International Journal of Pediatrics, 3*, 353–365. https://doi.org/10.22038/ijp.2015.3753

Ajduković, M., Rajter, M., & Rezo, I. (2018). Individual and contextual factors for the child abuse potential of Croatian mothers: The role of social support in times of economic hardship. *Child Abuse & Neglect, 78*, 60–70. https://doi.org/10.1016/j.chiabu.2018.01.008

Ajduković, M., Sušac, N., & Rajter, M. (2018). Gender and age differences in prevalence and incidence of child sexual abuse and level of trauma in abused children. *Croatian Medical Journal, 59*(1), 26–36. https://doi.org/10.3325/cmj.2013.54.469

Auemaneekul, N. (2013). *Parents' perceptions of child abuse and child discipline in Bangkok, Thailand. Journal of the Medical Association of Thailand, 96* (Suppl. 5), S181–S189. https://pubmed.ncbi.nlm.nih.gov/24851589/

Benedini, K., Fagan, A. A., & Gibson, C. L. (2016). The cycle of victimization: The relationship between childhood maltreatment and adolescent peer victimization. *Child Abuse & Neglect, 59*, 111–121. https://doi.org/10.1016/j.chiabu.2016.08.003

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.

Brown, C. L., Yilanli, M., & Rabbitt, A. L. (2023). Child physical abuse and neglect. In *StatPearls* [Internet]. StatPearls Publishing.

Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.

Chotchaisathit, R. (2014). *Child protection in Thailand: Towards an improved system* (Doctoral thesis, Charles Sturt University, Australia). Charles Sturt University.

Clayton, E., Jones, C., Brown, J., & Taylor, J. (2018). The etiology of child sexual abuse: A critical review of the empirical evidence. *Child Abuse Review, 27*, 181–197. https://doi.org/10.1002/car.2517

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage Publications.

Denzin, N. K. (2012). Triangulation 2.0. *Journal of Mixed Methods Research, 6*(2), 80–88.

Dodaj, A., & Sesar, K. (2020). Consequences of child abuse and neglect. *The Central European Journal of Paediatrics, 16*, 168–181. https://www.cabidigitallibrary.org/doi/full/10.5555/20210014515

Doidge, J. C., Higgins, D. J., Delfabbro, P., & Segal, L. (2017). Risk factors for child maltreatment in an Australian population-based birth cohort. *Child Abuse & Neglect, 64*, 47–60. https://doi.org/10.1016/j.chiabu.2016.12.002

di Giacomo, E., Santorelli, M., Pessina, R., Rucco, D., Placenti, V., Aliberti, F., Colmegna, F., & Clerici, M. (2021). *Child abuse and psychopathy: Interplay, gender differences and biological correlates*. *World Journal of Psychiatry*, *11*(12), 1167–1176. https://doi.org/10.5498/wjp.v11.i12.1167

Guest, G., MacQueen, K. M., & Namey, E. E. (2012). *Applied thematic analysis*. Sage Publications.

Hecker, T., Radtke, K., Hermenau, K., Papassotiropoulos, A., & Elbert, T. (2016). Associations among child abuse, mental health, and epigenetic modifications in the proopiomelanocortin gene (POMC). *Development and Psychopathology, 28*, 1401–1412. https://doi.org/10.1017/S0954579415001248

Heidari, N., Afrasiabi, H., & Javadiana, S. R. (2021). Meaning and interpretations of child abuse by abuser parents: A qualitative study. *Journal of Social Behaviour and Community Health, 5*(2), 678–686. https://doi.org/10.18502/jsbch.v5i2.7828

Ivanov, M., Platonova, N., & Kozlovskaya, G. (2015). Long-term mental health consequences of child sexual abuse. *European Psychiatry, 30*, 1208. https://doi.org/10.1016/S0924-9338(15)30949-4

Jatchavala, C., Ransing, R., Sukavejworakit, N., Ramalho, R., & Devraj, N. (2024). Child sexual abuse, mental health, and legislation in India and Thailand: A cross-country comparison. *Journal of Forensic and Legal Medicine, 102*, 102655. https://doi.org/10.1016/j.jflm.2024.102655

Jeharsae, R., Jehnok, M., Jeh-alee, H., Waeteh, S., Nimu, N., Chewae, C., Yama, M., Dureh, N., & Wichaidit, W. (2022). Associations between caregiver stress and child verbal abuse and corporal punishment in Thailand's impoverished Deep South region during the COVID-19 pandemic. *International Journal of Mental Health, 53*(3), 253–268. https://doi.org/10.1080/00207411.2022.2098563

Khaosod Online. (2018, September 4). *Child abuse*. https://www.khaosod.co.th/special-stories/news1531853

Lawson, M., Piel, M., & Simon, M. (2020). Child maltreatment during the COVID-19 pandemic. *Child Abuse & Neglect, 110*, 104709. https://doi.org/10.1016/j.pcl.2021.05.006

Lemesle, M., Vabres, N., Fleury, J., Picherot, G., & Guen, C. (2015). How to detect and what to do with child abuse? *La Revue du Praticien, 65*(5), 660–664. https://pubmed.ncbi.nlm.nih.gov/26165102/

Martin, M., Dykxhoorn, J., Afifi, T. O., & Colman, I. (2016). Child abuse and the prevalence of suicide attempts. *Social Psychiatry and Psychiatric Epidemiology, 51*, 1477–1484. https://doi.org/10.1007/s00127-016-1250-3

Meinck, F., Cluver, L., & Boyes, M. (2017). Longitudinal predictors of child sexual abuse. *Journal of Interpersonal Violence, 32*, 2804–2836. https://doi.org/10.1177/0886260515596331

Meinck, F., Cluver, L., Boyes, M., & Ndhlovu, L. (2015). Risk and protective factors for abuse victimisation. *Child Abuse Review, 24*, 182–197. https://doi.org/10.1007/s40471-020-00252-3

Ministry of Social Development and Human Security. (2015). *Statistical report on children subjected to violence*. https://www.society.go.th/more_news.php?cid=443

McCoy, A., Lachman, J. M., Ward, C. L., Tapanya, S., Poomchaichote, T., Kelly, J., Mukaka, M., Cheah, P. Y., & Gardner, F. (2021). Feasibility pilot of an adapted parenting program embedded within the Thai public health system. *BMC Public Health, 21*, Article 1009. https://doi.org/10.1186/s12889-021-11081-4

Motorca, M., Buhas, C., Sandoiu, F., Sandoiu, L., Lele, L., & Venter, A. (2021). Risk factors involved in physical child abuse. *Romanian Journal of Medical Practice, 16*(1), 55–60. https://doi.org/10.37897/RJMP.2021.1.10

Noy, C. (2008). Sampling knowledge: Snowball sampling in qualitative research. *International Journal of Social Research Methodology, 11*(4), 327–344. https://doi.org/10.1080/13645570701401305

Office of Planning and Budget, Office of the Ombudsman. (2019). *Statistics of cases adjudicated by lower courts*. https://oppb.coj.go.th/th/content/category/articles/id/8/cid/2084

Papalia, N., Luebbers, S., & Ogloff, J. R. (2018). Child sexual abuse and criminal behaviour. *Aggression and Violent Behavior, 43*, 71–89. https://doi.org/10.1016/j.avb.2018.10.007

Papalia, N. L., Luebbers, S., Ogloff, J. R., Cutajar, M., & Mullen, P. E. (2017). Long-term psychiatric outcomes of child sexual abuse. *Australian & New Zealand Journal of Psychiatry, 51*(6), 604–613. https://doi.org/10.1016/j.dib.2017.07.003

Patton, M. Q. (2014). *Qualitative research & evaluation methods*. Sage Publications.

Pierce, M., Kaczor, K., Acker, D., Webb, T., Brenzel, A., Lorenz, D., Young, A., & Thompson, R. (2017). Dataset on psychosocial risk factors. *Data in Brief, 14*, 107–109.

Pitzanti, G. (2021). *Child abuse and aggressivity: The childhood of serial killer, spree killer and mass murderer*. *Rivista di Psicopatologia Forense, Medicina Legale, Criminologia, 26*(1-2-3). https://doi.org/10.4081/psyco.2021.631

Saldaña, J., & Omasta, M. (2016). *Qualitative research: Analyzing life*. Sage Publications.

Siegel, L. J., & Welsh, B. C. (2017). *Juvenile delinquency: The core*. Wadsworth.

Swangpun, K., Kanato, M., & Leyatikul, P. (2019). Risk of drug abuse among preschool students. *Iranian Journal of Public Health, 48*, 451–457. https://pubmed.ncbi.nlm.nih.gov/31223572/

Thai Rath. (2018, April 22). *A grieving mother cries out*. https://www.thairath.co.th/content/1262246

Thoresen, P., Gillieatt, S., & Fielding, A. (2021). Refugee and asylum-seeking children. *Journal of Refugee Studies, 34*(1), 1150–1167. https://doi.org/10.1093/jrs/feaa114

Tonmyr, L. (2015). The nurse-family partnership. *Health Promotion and Chronic Disease Prevention in Canada, 35*(8–9), 141–142. https://doi.org/10.24095/hpcdp.35.8/9.01

Tracy, S. J. (2024). *Qualitative research methods* (2nd ed.). John Wiley & Sons.

Vachon, D., Krueger, R., Rogosch, F., & Cicchetti, D. (2015). Psychiatric and behavioural effects of maltreatment. *JAMA Psychiatry, 72*(11), 1135–1142. https://doi.org/10.1001/jamapsychiatry.2015.1792

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Assessing the current state of teaching to develop competency in understanding the living world based on nature reserves in high school biology education in Vietnam

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Abstract

In the context of Vietnam's 2018 General Education Curriculum reform, teaching is oriented toward the development of students' competencies and integrating practical experience. Nature reserves, which are biodiversity-rich protected areas, provide an ideal learning environment to directly observe and illustrate abstract scientific theories. Nature reserve-based teaching stimulates curiosity, fosters critical thinking and environmental consciousness, and promotes mental well-being among students, aligned with the competency in understanding the living world - one of the three core components of competencies in Biology (biological cognition, understanding the living world, and applying knowledge and skills in life). This study surveyed 824 Biology teachers from high schools across various provinces in Vietnam, utilizing a Likert-scale questionnaire and open-ended questions. The findings indicate that most teachers preferred using materials such as images, videos, and questions related to nature reserves in their classrooms to develop students' competency in understanding the living world. However, the results also show that methods were less frequently adopted as they often require more time, resources, and financial support, such as experiential learning, practical activities, or project-based learning. Differences in using these methods were observed between teachers in rural and urban schools. Furthermore, the primary challenges stem from financial constraints, limited involvement from school students and communities, and a lack of nature-based teaching expertise that can be solved by funding environmentally responsible businesses, support from nature reserve staff, and integrating a formal curriculum.

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Introduction

In the context of the 2018 General Education Curriculum reform in Vietnam, the teaching objectives have been shifting from content-based approaches to competency-based learning, emphasizing the integration of practical and experiential learning with theoretical instruction (Ministry of Education and Training, 2018*)*. Within this framework, nature reserves, which are biodiversity-rich protected areas designated for conserving diverse species and ecosystems, provide ideal environments for direct observations, field research, and natural phenomena to illustrate abstract scientific theories (Akkaş & Eker, 2021; International Union for Conservation of Nature, 2021). As part of the natural environment, nature reserves provide students with exciting opportunities to engage with organisms in their habitats, fostering curiosity, critical thinking, conservation awareness, practical skills and mental health benefits as well as promoting environmental stewardship (Kuo et al., 2019; Louv, 2008) that aligns with educational reform goals, particularly in Biology education. Recognizing the broad educational potential of nature-based learning, researchers recommend its consideration as an educational policy approach to support schools and educators in enhancing student outcomes (Jordan & Chawla, 2019). Nature reserve-based learning thus offers a promising strategy to develop students' competency in understanding the living world, a core competency in Biology education. This competency involves skills such as formulating questions; making predictions and forming hypotheses; planning; implementing investigations; and writing, presenting reports, and discussing.

Although a few studies have discussed the role and implementation of nature reserve-based teaching, an assessment of its consistent application across Vietnam's education system has yet to be conducted. This study, therefore, surveys a representative sample of teachers nationwide to address this gap. As primary agents in implementing educational reforms, teachers play a crucial role in translating policy into effective classroom practice (Fullan, 2015). Their perspectives are thus critical for identifying the practical challenges and opportunities involved in integrating nature reserves to foster students' competencies.

This study investigates the integration of nature reserves into biology teaching at high schools in Vietnam as an approach to foster students' competency in understanding the living world. For such purpose, the study addresses the following research questions: (1) How do teachers implement nature reserve-based teaching to develop competency in understanding the living world? (2) How do teachers perceive the roles, advantages, and challenges in natural reserve-based teaching? (3) Are there differences in the implementation of nature reserve-based teaching between urban and rural teachers? The findings suggest a foundation for recommendations to enhance the effectiveness of nature reserve-based teaching, aligning with Vietnam's current educational reform.

Literature Review

Nature Reserve-Based Teaching

Nature reserves are areas established to protect animal and plant species and ensure the long-term sustainability of natural ecosystems. These areas are often rigorously managed to prevent negative human impacts, preserve biodiversity, and maintain natural values for future generations (International Union for Conservation of Nature, 2013). Vietnam is located within the Indo-Burma biodiversity hotspot, with over 16,000 plant species and 10,000 animal species identified. Vietnam currently has 176 nature reserves, including 34 national parks, 58 strict nature reserves, 24 species, and habitat conservation areas, and 61 landscape protection areas, encompassing terrestrial and marine reserves, accounting for approximately 7.6 percent of the whole country's territory. These reserves play a crucial role in protecting diverse ecosystems, ranging from tropical forests to wetlands, and serve as habitats for numerous rare and endangered species, such as the Saola, Catba langur, and the Javan rhino (Ministry of Natural Resources and Environment, 2022).

The foundation of teaching connected with nature reserves originates from nature-based education. Nature-based education is an approach that integrates the natural environment into teaching and learning, enabling students to acquire knowledge and skills through real-world experiences and direct or indirect observation (Louv, 2008). Building on this foundation, nature reserve-based teaching focuses explicitly on incorporating nature reserves as real-world learning contexts to support students in exploring and investigating organisms and natural phenomena, such as the adaptation of organisms to their environment, interactions among species, relationships between organisms and their surroundings, and the dynamic changes of organisms and ecosystems over time. Students who experience biological phenomena in natural settings are more likely to identify problems, formulate questions, and seek solutions, thereby enhancing their problem-solving skills. Nature-based learning

also fosters cognitive skills, such as scientific thinking, critical thinking, and analytical abilities, through activities involving observation, data collection, and analysis. Additionally, integrating teaching with nature reserves helps students develop a deeper awareness of ecosystems and a heightened sense of responsibility for environmental protection. Moreover, outdoor activities support the development of collaboration and communication skills, which are essential soft skills in modern society. Learning in natural environments also benefits students' emotional well-being by improving mental and physical health, reducing stress, enhancing concentration, and promoting positive emotions (Collado et al., 2020; Kuo et al., 2019). Despite these benefits, the organization of nature-based instructional activities by teachers is often influenced by health and safety concerns, limited school resources and support, curriculum framework, teachers' confidence, and the strict standards imposed by the educational system (Dillon et al., 2006; Waite, 2011).

Nature-based educational models prioritize experiences with nature which are categorized into three distinct types (Kellert, 2002): direct experiences in natural settings (exploring a forest), indirect experiences within structured contexts (playing in school gardens), and symbolic experiences with representations of nature (reading ecosystems literature).

Competency in Understanding the Living World

The General Education Curriculum Framework of Vietnam defines competency as a key attribute that enables individuals to integrate knowledge, skills, and personal qualities to effectively perform tasks and achieve outcomes under specific teaching contexts (Ministry of Education and Training, 2018). The biology curriculum highlights the importance of cultivating three components of biology competency of students, including biological cognition, understanding the living world, and applying learned knowledge and skills (Ministry of Education and Training, 2018). Competency in understanding the living world refers to the ability to perform basic skills to explore and explain natural phenomena and life and to substantiate real-world issues with scientific evidence. Based on the 2018 Biology Curriculum (Ministry of Education and Training, 2018), we identified the process skills associated with competency in understanding the living world and described the indicators of these skills as shown in Table 1 below.

Table 1 Indicators for assessing skills in the competency of understanding the living world

Skills	Indicators
1. Proposing issues related to the living world	1.1. Ask questions about the living world based on searching, observing real-world phenomena, or using situational and contextual information.
	1.2. Express the issue that needs to be investigated about the living world.
2. Making predictions and forming hypotheses	2.1. Make scientific predictions based on analyzing the issue to be investigated about the living world.
	2.2. Construct and express hypotheses for investigating issues related to the living world.
	2.3. Identify feasible methods for conducting investigations or testing research hypotheses concerning the living world.
3. Planning Research	3.1. Construct a logical framework for exploring the living world.
	3.2. Identify specific tasks that need to be implemented.
	3.3. Identify methods, tools, expected outcomes, and timelines for each task to address the issues to be investigated.
	3.4. Develop a comprehensive plan to implement tasks, including specific job assignments for each member based on individual competencies.
4. Implementing plans to verify hypotheses	4.1. Collect or generate data through observation, experimentation, and investigation of topics and phenomena related to the living world.
	4.2. Record and store collected data in a scientific, logical, and accurate manner.
	4.3. Process collected data for analysis using simple statistical parameters.
	4.4. Analyze and evaluate results based on the processed and analyzed parameters.
	4.5. Compare the results with the hypothesis to draw conclusions supporting or refuting the scientific hypothesis.
	4.6. Explain the results of observations, experiments, or investigations related to the living world.
	4.7. Propose recommendations and apply research findings related to the living world.
	4.8. Propose recommendations for future research topics related to the living world.
5. Writing, presenting reports, and discussing	5.1. Use language, drawings, diagrams, and charts to represent the process and research results related to the living world.
	5.2. Listen to and accept differing viewpoints and feedback positively and respectfully.
	5.3. Self-evaluate research findings and draw lessons learned.
	5.4. Report, justify, defend, and argue logically and convincingly research findings.

Previous research indicates that students' competency in understanding the living world is not proficient, particularly in scientific research skills, data interpretation, and applying knowledge to practical scenarios. These limitations are influenced by the learning environment, biology instructional activities, and students' abilities in scientific research, analysis, and real problem-solving (Tien et al., 2023).

Nature reserve-based learning creates numerous opportunities for students to effectively enhance competency in understanding the living world aligned with the goals of the educational curriculum. In a natural environment, students have direct exposure and interaction with biological phenomena, stimulating curiosity and easily identifying and formulating questions related to the living world. This process encourages students to make predictions and formulate hypotheses based on the data and phenomena they observe. Additionally, the natural environment provides distinct opportunities to access diverse species and their habitats for testing hypotheses through experiments and field observations, allowing students to hone practical skills and verify information accurately. Finally, students can synthesize, analyze, and present scientific reports logically and engage in discussions with teachers and peers, thus developing scientific communication and critical thinking skills.

Methodology

Participants

The target population comprised approximately 10,000 high school biology teachers nationwide (Ministry of Education and Training, 2024), representing diverse geographic and educational contexts. A stratified sampling method was employed to ensure representativeness, dividing the population based on regional distribution and teaching background to cover diverse characteristics. The minimum sample size required for representativeness was calculated using Cochran's formula for large populations (Cochran, 1977; Lohr, 2019), and the final sample of 824 exceeded this requirement. The collected survey sample included Biology teachers from high schools across Northern, Central, and Southern Vietnam including Ha noi, Lao Cai, Ninh Binh, Hai Phong, Nam Dinh, Nghe An, Ha Tinh, Thanh Hoa, Quang Binh, Quang Tri, Da Nang, Quang Nam, Phu Yen, Hue, Ho Chi Minh, Dong Nai, Binh Phuoc, An Giang, Tien Giang, Soc Trang, Ba Ria - Vung Tau, Gia Lai, Lam Dong, and Can Tho. Of the respondents, 87 percent had over 10 years of teaching experience, 9 percent had 5-10 years, and 4 percent had under 5 years. Teachers were classified into urban (66.9%) and rural (33.1%), with urban areas including cities and provincial towns while rural areas comprise other regions (Standing Committee of the National Assembly of the Socialist Republic of Vietnam, 2022). This classification allows for a comparison across regions with socio-economic and cultural disparities.

Data Collection

The primary data collection tool was a questionnaire informed by Bryman (2012) guidelines on survey design, which emphasize using closed-ended and open-ended questions to capture a range of perspectives. A 5-point Likert scale was utilized to measure agreement, usage frequency, and perceptions, with each scale point covering an interval of 0.8, as suggested by Allen and Seaman (2007), Narli (2010), and Yavuz et al. (2013). The scale levels were defined as follows: 1.0–1.8 (Strongly Disagree/Never), 1.8–2.6 (Disagree/Rarely), 2.6–3.4 (Neutral/Occasionally), 3.4–4.2 (Agree/Often), and 4.2-5.0 (Strongly Agree/Very Often).

The questionnaire included four main sections: (1) Teaching activities developing competencies in understanding the living world (Q1-13); (2) Teaching activities linked to nature reserves (Q14-20); (3) Teacher's perspectives on the effectiveness of nature reserves in competency development (Q21-29); and (4) Causes of challenges in Nature reserve-based teaching (Q31-37). Additionally, one qualitative question addressed the advantages and challenges of integrating nature reserves into teaching (Q30). Content validity was ensured through expert evaluation and refined after a pilot survey with 24 Biology teachers and experts. Reliability was confirmed with a Cronbach's Alpha of 0.906, exceeding the 0.7 threshold for internal consistency for the questionnaire (Cohen et al., 2018; Cronbach, 1951). Construct validity, assessed via Exploratory Factor Analysis (EFA), got a KMO value of 0.90, exceeding the 0.6 threshold (Field, 2018; Kaiser, 1974), indicating strong interrelationships among variables. The cumulative variance explained was 63.256 percent, surpassing the 60 percent benchmark (Hair et al., 2019), demonstrating that the items collectively measure different aspects of a common construct. These findings provide evidence that the questionnaire is both valid and reliable for surveying the current state of developing competency in understanding the living world through nature reserve-based teaching. The study spanned seven months (December 2023–June 2024), with data collected via Google Forms.

Data Analysis

The quantitative data collected from the survey were coded and processed using SPSS Statistics 27. Descriptive statistics were used to explore the data. Additionally, the Mann-Whitney U test, a nonparametric statistical test, was employed to examine whether the extent of using nature reserves in Biology teaching differed between the two groups based on the regional distribution of the schools. This choice was appropriate due to the non-normal distribution of the data, with the significance level set at $p < .05$.

The qualitative data from the open-ended questions were thematically analyzed. The information was openly coded to identify the practical challenges and advantages of teaching objectively (Cohen et al., 2018). Initially, open coding was used to break down the responses into discrete codes, capturing key concepts expressed by participants. In the second stage, axial coding linked related codes to form broader themes, such as teaching challenges and benefits. Finally, selective coding refined these themes into core categories representing the main patterns in the data. An intercoder agreement was assessed to ensure coding reliability, with a second coder independently reviewing a subset of the data. Discrepancies were discussed and resolved to maintain consistency.

Results and Discussion

The Current State of Teaching to Develop Competency in Understanding the Living World through Nature reserve-based Teaching in High School Biology Education

Levels of teaching to develop competency in understanding the living world through teaching organization associated with nature reserves

Each teaching method chosen by the teacher not only influences the approach to constructing knowledge and skills but also shapes the development of students' thinking abilities (Hattie, 2009; Marzano, 2003). Table 2 indicates that teachers frequently use visual aids, scenario-based exercises, real-world exercises, and practical teaching to foster students' competency in understanding the living world. This finding is evidenced by the mean values for each method, which are 4.12, 3.75, 3.70, and 3.57, respectively, all within the $3.4 \leq M < 4.2$, indicating the 'often' range. The SE values, ranging from 0.022 to 0.024, demonstrate high consistency among teachers using these methods. Visual teaching, in particular, is the most commonly used method due to its effectiveness and ease of implementation. Studies have shown that visual aids, such as videos, images, and specimens, enhance comprehension and retention of complex concepts by illustrating abstract ideas, stimulating interest, promoting active engagement, and fostering critical thinking through systematic analysis and comparison (Eppler, 2006; Guo et al., 2014; Mayer, 2009). Despite requiring diverse resources, visual teaching is considered both feasible and easily implementable in modern educational contexts (Clark & Mayer, 2016).

However, other methods, such as project-based teaching, experiential teaching, and context-based teaching, are utilized less effectively, with average scores corresponding to 'occasionally' at 3.14 ± 0.024, 3.14 ± 0.026, and 3.35 ± 0.026, respectively. Although these methods have the potential to enhance scientific understanding, reasoning, and critical thinking skills in students (Kolb, 2015; Minner et al., 2010), their implementation remains limited due to high demands for facilities, preparation time, and complexity. Similarly, research-based teaching (2.90 ± 0.027) is the least-used method among those proposed due to its high requirements for advanced skills, resources, and preparation time (Capps & Crawford, 2013).

Table 3 highlights the diversity in the choice of locations for biology teaching. Places such as 'natural history museums' (2.98 ± 0.03), 'business and production facilities' (2.13 ± 0.02), and notably 'parks, national parks, nature reserves' (2.11 ± 0.02) are rarely used. Expanding and diversifying out-of-classroom learning sites can stimulate curiosity, enhance students' engagement, and develop critical thinking, environmental responsibility, social collaboration, and problem-solving skills. To support this goal, outdoor teaching can be integrated into the curriculum through diverse settings such as museums, national parks, and school gardens as well as activity-based strategies like hands-on experiments,

Table 2 Level of utilization of teaching methods to develop students' competency in understanding the living world

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
M±*SE*	4.12 ± .022	3.14 ± .024	2.90 ± .027	3.14 ± .026	3.57 ± .023	3.70 ± .023	3.75 ± .024	3.35 ± .026
Levels	Often	Occasionally	Occasionally	Occasionally	Often	Often	Often	Occasionally

Note: Q1: Visual teaching, Q2: Project-based teaching, Q3: Research-based teaching, Q4: Experiential teaching, Q5: Practical teaching, Q6: Teaching using real-world exercises, Q7: Teaching using scenario-based exercises, Q8: Context-based teaching; $1.0 \leq M < 1.8$-Never, $1.8 \leq M < 2.6$-Rarely, $2.6 \leq M < 3.4$- Occasionally, $3.4 \leq M < 4.2$-Often, $4.2 \leq M \leq 5.0$- Very often

collaborative projects, and real-world applications aligned with curricular goals. Furthermore, enhancing teachers' expertise in organizing curriculum-connected outdoor activities that support student skill development is essential (Yokuş, 2020).

Table 3 also shows the differences in the frequency and location of teaching activities between urban and rural schools. The data indicate that 'school gardens' and 'business and production facilities' are used with comparable frequency by both urban and rural teachers ($p > 0.05$). However, the survey revealed that teachers in urban schools organize teaching activities at laboratories ($Z = -2.508$; $p = .012$), natural history museums ($Z = -3.386$; $p < .001$), and parks, national parks, nature reserves ($Z = -2.846$; $p = .004$) more frequently than those in rural schools, with statistically significant differences. This discrepancy can be explained by the fact that urban schools typically have better access to facilities, equipment, and resources, enabling teachers to conduct experiments more regularly. Moreover, the convenience of transportation and access to museums in urban areas may also facilitate the organization of out-of-classroom teaching activities. Specifically, organizing teaching activities at nature reserves often requires funding for transportation, entrance fees, and other trip-related expenses. Urban schools, with more abundant budgets and resources, are better capable of investing in these activities, thereby allowing teachers at these schools to organize field trips more frequently.

The analysis of using nature reserves in biology teaching (Figure 1, Table 4) indicates that most teachers incorporate nature reserves into lessons by utilizing the practical learning resources from these reserves, such as using questions and exercises related to real-world contexts, designing lessons from related issues, and illustrating theoretical knowledge with images, videos, and diagrams, with the 'often' and 'very often' rates of 48 percent, 40.2 percent, and 63.5 percent, respectively. However, organizing experiential learning, practical activities, project-based learning, and context-based teaching at nature reserves for students remains limited with $1.8 \leq$ '*M*' (2.16–2.46) < 2.6 – 'rarely' and 18–26 percent of teachers never implementing these activities.

Table 3 Comparison of the level of teaching organization at out-of-classroom locations between two groups of teachers working in urban and rural schools

Code	Places	*M*±*SE*	Viewpoint	Urban	Rural	Mann-Whitney U
Q9	School gardens	3.11 ± .033	Occasionally	3.15 ± .058	3.11 ± .033	Z = -.750, *p* = .453
Q10	Laboratories	3.66 ± .024	Often	3.75 ± .042	3.66 ± .024	Z = -2.508, *p* = .012
Q11	Natural history museums	2.09 ± .029	Rarely	2.22 ± .050	2.09 ± .029	Z = -3.386, *p* = < .001
Q12	Business and production facilities	2.21 ± .028	Rarely	2.23 ± .050	2.21 ± .028	Z = -.229, *p* = .819
Q13	Parks, National parks, Nature reserves…	2.13 ± .030	Rarely	2.25 ± .054	2.07 ± .035	Z = -2.846, *p* = .004

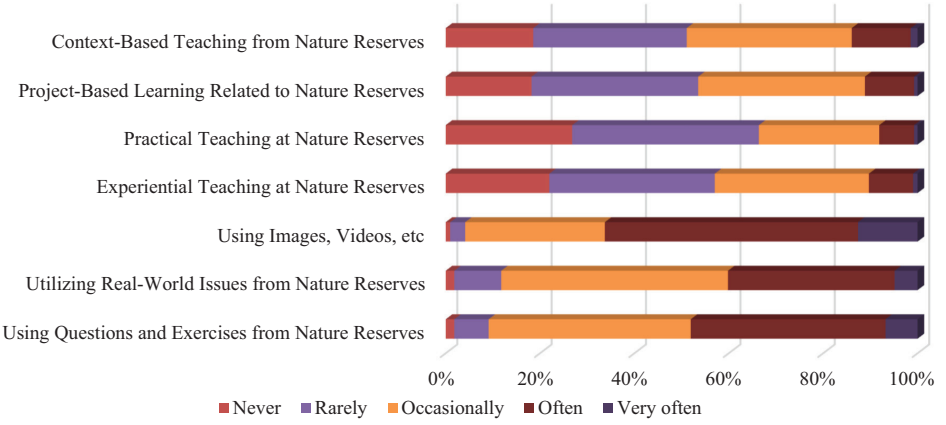


Figure 1 Level of teaching organization connecting knowledge with nature reserves

Table 4 Level of teaching organization connecting knowledge with nature reserves

Code	Method	Mean±SE	Distribution by Location		Mann-Whitney U
			Urban	Rural	
Q14	Using questions and exercises related to practical contexts of nature reserves	3.44±.028	3.52±.049	3.44±.028	Z = -1.796, *p* =.073
Q15	Utilizing issues from nature reserves to develop lessons	3.31±.027	3.38±.050	3.31±.027	Z = -1.717, *p* =.086
Q16	Using images, videos, diagrams, charts, etc., related to nature reserves to illustrate theoretical knowledge	3.74±.026	3.79±.045	3.74±.026	Z = -1.374, *p* =.170
Q17	Organizing experiential learning for students at nature reserves	2.32±.033	2.47±.059	2.32±.033	Z = -2.855, *p* =.004
Q18	Organizing practical learning activities for students at nature reserves	2.16±.032	2.27±.058	2.16±.032	Z = -2.354, *p* = .019
Q19	Organizing student projects related to nature reserves	2.40±.032	2.50±.058	2.40±.032	Z = -2.159, *p* =.031
Q20	Using the context of nature reserves to facilitate student learning and exploration	2.46±.034	2.59±.060	2.46±.034	Z = -2.529, *p* =.011

Note: 1.0 ≤ *M* < 1.8-Never, 1.8 ≤ *M* < 2.6-Rarely, 2.6 ≤ *M* < 3.4- Occasionally, 3.4 ≤ *M* < 4.2-Often, 4.2 ≤ *M* ≤ 5.0- Very often

Table 4 also indicates significant differences between urban and rural teachers' organization of teaching activities that integrate scientific knowledge with nature reserves. Activities such as organizing experiential learning for students (Z = -2.855, p = .004), practical activities at nature reserves (Z = -2.354, p = .019), implementing learning projects related to nature reserves (Z = -2.159, p = .031), and utilizing the context of nature reserves to facilitate student learning and exploration (Z = -2.529, p = .011) all showed statistically significant differences, with the mean scores of teachers in urban areas being significantly higher than those in rural areas. This may be explained by the fact that urban teachers are often better equipped with facilities, technology, and learning materials; they have more opportunities to participate in professional development programs and connect with colleagues and experts, enabling them to update and apply modern teaching methods. Additionally, rural schools struggle to attract high-quality teachers and face a shortage of teachers, making it challenging to implement innovative and complex teaching activities. Furthermore, community involvement, including parents, local leaders, and community-based organizations, also contributes to the educational gap between these areas (Wood, 2023).

Conversely, activities such as using questions and exercises related to practical contexts of nature reserves (Z = -1.796, p = .073), designing lessons from issues related to nature reserves (Z = -1.717, p = .086), and using visual aids to illustrate theoretical knowledge (Z = -1.374, p = .170) showed no significant differences between the two groups of teachers, with p-values all greater than 0.05. This suggests that teachers in both areas apply these methods relatively equally, possibly due to the availability and easy access to these teaching resources. Among these methods, teachers in both areas most frequently utilize images, videos, diagrams, specimens, etc., when linking scientific knowledge to nature reserves in student learning activities (M = 3.74). Using these visual materials in biology teaching not only helps students engage vividly with the natural world but also enables them to understand ecosystems better and the relationships between species in natural environments. According to research by Moreno and Mayer (2007), using images and videos related to real-world environments enhances students' understanding and retention through visual aids. This is particularly useful when geographical constraints or limited resources prevent organizing field trips, yet it still provides an educational experience closely connected to nature. However, learning directly in natural environments offers unique benefits that no alternative methods can fully replicate. Direct learning in nature not only helps students build a deep connection and long-lasting awareness of the importance of environmental protection but also fosters autonomy and a sense of responsibility towards the environment (Chawla, 2007; Larson et al., 2011). Additionally, outdoor learning activities improve physical health, reduce stress, and enhance students' mental well-being, fostering personal development, such as better critical thinking and real-world problem-solving (Collado et al., 2020). Contrasted with the benefits, direct nature reserves-based instructional activities, such as experiential and practical learning, remain limited, with mean scores indicating 'rarely' (2.16 and 2.32).

The results offer a practical view of the discrepancies in nature-based education access, with urban teachers implementing it more diversely, particularly in organizing outdoor activities at nature reserves. Therefore,

the government should focus on improving infrastructure, providing continuous professional development programs, and attracting quality teachers to rural areas to support the implementation of modern teaching methods and fully utilize these outdoor educational resources. To bridge the educational gap between rural and urban areas, UNESCO has implemented pilot programs across Southeast Asia to enhance infrastructure and teaching capacity in rural schools. Efforts include expanding online training programs for teachers to strengthen their professional expertise and adopting modern teaching methodologies. Additionally, improvements to school infrastructure, such as modern educational equipment and internet systems, have contributed to increased enrollment rates and reduced dropout rates (UNESCO, 2023).

Teachers' Perspectives on the Roles of Nature Reserves in Developing Competency in Understanding the Living World

Based on Table 5, which presents teachers' perspectives on the necessity of integrating nature reserves into teaching to develop students' competency in understanding the living world, it can be observed that all roles received strong agreement from teachers, with mean scores ranging from 4.27 to 4.37. These findings indicate that teachers clearly recognize this teaching approach's importance and effectiveness in cultivating students' skills and awareness. The data also reveal that the location distribution does not lead to significant differences in teachers' perspectives on the roles of integrating nature reserves in teaching. This suggests that teachers in urban and rural areas similarly recognize the importance of this approach.

Challenges and advantages in teaching integrated with nature reserves

The results on issues related to organizing teaching activities linked to nature reserves (Table 6) indicate that the inadequate quality of students - Q30 (3.19 ± 0.035) and students' lack of proactiveness - Q31 (3.33 ± 0.034), have average scores at the "neutral" level, suggesting that teachers hold differing views and have not reached a consensus on considering these as significant difficulties.

Table 5 Teachers' perspectives on the necessity of integrating nature reserves in teaching to develop competency in understanding the living world

Code	Role	Mean	Distribution by Location		Mann-Whitney U
			Urban	Rural	
Q21	Enhancing students' environmental awareness.	4.37±0.019	4.40±.035	4.36±.023	Z = -1.104, p =.269
Q22	Increasing students' interest in learning biology.	4.28±0.021	4.28±.037	4.28±.025	Z = -.031, p =.975
Q23	Developing students' ability to explore, discover, and analyze real-life problems.	4.28±0.020	4.26±.037	4.28±.024	Z = -1.135, p =.892
Q24	Enhancing students' ability to formulate and express hypotheses on the living world.	4.28±0.020	4.28±.037	4.26±.025	Z = -.624, p =.533
Q25	Enhancing students' ability to plan research on living world issues.	4.27±0.020	4.28±.036	4.28±.024	Z = -.056, p = .955
Q26	Developing students' ability to implement plans: investigate, collect/generate data, analyze and process data, and evaluate results against research hypotheses.	4.28±0.020	4.29±.035	4.28±.024	Z = -.112, p =.911
Q27	Fostering students' creativity and developing new research ideas.	4.28±0.020	4.26±.036	4.27±.024	Z = -.074, p =.941
Q28	Enhancing students' ability to present and write logical and scientific reports.	4.27±0.020	4.44±.034	4.41±.024	Z = -.800, p =.424
Q29	Developing students' argumentation, critical thinking, and ability to defend and evaluate opinions.	4.27±0.019	4.43±.033	4.39±.024	Z = -1.039, p =.299

Note: $1.0 \le M < 1.8$ – Strongly Disagree, $1.8 \le M < 2.6$ – Disagree, $2.6 \le M < 3.4$ – Neutral, $3.4 \le M < 4.2$ – Agree, and $4.2 \le M \le 5.0$ – Strongly Agree.

Table 6 Challenges in planning or conducting teaching connected with nature reserves.

	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37
M±*SE*	3.19±.035	3.33±.034	4.00±.027	3.79±.030	4.29±.0222	3.94±.030	3.50±.034	3.76±.031
Mann-Whitney U (Urban/Rural)	Z = -.960, p = .337	Z = -.793, p = .428	Z = -1.850, p = .064	Z = -1.139, p = .255	Z = -1.086, p = .278	Z = -2.019, p = .043	Z = -.818, p = .413	Z = 1.623, p = .105

Note: $1.0 \le M < 1.8$ – Strongly Disagree, $1.8 \le M < 2.6$ – Disagree, $2.6 \le M < 3.4$ – Neutral, $3.4 \le M < 4.2$ – Agree, and $4.2 \le M \le 5.0$ – Strongly Agree

Conversely, the issues of insufficient time for organization - Q32 (4.00 ± 0.027), lack of instructional materials - Q33 (3.79 ± 0.030), and challenges in managing students - Q35 (3.94 ± 0.030) are identified as significant difficulties, reflecting that time management, provision of resources, and student management in activities related to Nature reserves are substantial challenges for teachers. Notably, the lack of facilities and funding - Q34 (4.29 ± 0.022) is rated the highest, at the "strongly agree" level, indicating that teachers perceive this as the most significant challenge in implementing this teaching approach. Lastly, the difficulties of relating knowledge to real-world conditions in Nature reserves - Q36 (3.50 ± 0.034) and conducting data investigations - Q37 (3.76 ± 0.031) are also rated at the "agree" level, highlighting that teachers often encounter challenges in applying knowledge to practical contexts and conducting data investigations.

In addition to the overall assessment, we also compared the perceived difficulties among different groups of teachers. Regarding geographical distribution (urban and rural), although most difficulties were assessed similarly between urban and rural teachers, rural teachers experienced or perceived more significant challenges in managing students during activities related to nature reserves (Q35: $p = .043$). This may reflect a lack of facilities, human resources, and supportive tools in rural areas compared to urban areas.

To objectively identify the advantages and challenges of integrating nature reserves into teaching, we conducted a qualitative survey using open coding for analysis (Cohen et al., 2018). The survey results and analysis are detailed in Tables 7 and 8.

Table 7 Advantages of organizing teaching activities connected to nature reserves

Thematic categories	Description data	Code	*N*
Local conditions	The system of nature reserves in Vietnam is rich and has a high diversity of ecosystems, which significantly supports the teaching of knowledge.	Abundant system of nature reserves	101
		Diverse ecosystems	98
Resource availability	Online materials support engaging and effective teaching.	Great online resources	324
Program support	Teaching connected with the practical aspects of nature reserves aligns with the perspectives and objectives of the 2018 education curriculum.	Curriculum alignment	96
		Educational goals	43
	Biological concepts can be practically applied in nature reserves, enhancing understanding.	Knowledge applications	405
School support	The school facilitates nature-based educational activities.	School resources	227
		Institutional support	70
Community support	Parental support enhances the feasibility of outdoor activities.	Parental involvement	135
	Partnerships with nature reserve management enable effective learning experiences.	External support	104
Student engagement	High student motivation leads to more effective learning.	Student motivation	278

Table 8 Challenges faced by teachers in organizing or intending to integrate knowledge with nature reserves in teaching

Thematic Categories	Description data	Code	*N*
Difficulties with resources and materials	The lack of updated, accurate information and poor-quality resources, such as audiovisual materials, hinder effective teaching about nature reserves.	Difficulty finding data	291
		Poor quality materials	113
	Lack of instructional materials and standard evaluation tools (question sets, evaluation criteria).	Lack of teaching materials	266
		Evaluation tools	51
Financial difficulties	Lack of funding to cover transportation, entry fees, and preparation tools.	Financial constraints	452
School-related difficulties	The school does not provide support for taking students to nature reserves, and teachers lack coordination for effective support.	Lack of school support	351
		Lack of cooperation between teachers	126
	The curriculum does not have official lessons for students to visit nature reserves.	Curriculum misalignment	199
Community-related difficulties	Parents disagree with letting students participate in outdoor lessons at nature reserves.	Lack of support from families	311
	Difficulty in establishing contact and receiving support from nature reserves. Nature reserve staff lack teaching skills and integration with the curriculum.	Difficulty establishing contact	76
		Lack of teaching skills among reserve staff	30
	Complex and lengthy administrative procedures for taking students to outdoor experiences at nature reserves discourage teachers from doing so.	Complex administrative procedures	301

Table 8 Continued

Thematic Categories	Description data	Code	*N*
External risks	Unstable weather affects outdoor activities.	Bad weather impact	39
	The locality lacks nature reserves or is too far from the school.	Geographical distance from nature reserves	179
	Difficulty ensuring student safety and transportation.	Safety concerns	265
		Transportation issues	268
Difficulties in organizing teaching	Students' lack of practical knowledge makes it difficult to relate and carry out tasks effectively.	Students' knowledge is inadequate	26
	Differences in student abilities make it challenging to organize and assign tasks.	Uneven student abilities	32
	Lack of cooperation from students (students are not actively participating in learning activities related to nature reserves).	Lack of cooperation from students	106
		Students lack initiative	175
	Preparing and organizing these activities is time-consuming and costly, often resulting in overextended lessons or excessive homework	Time-consuming preparation and organization	264
	Challenging to manage group activities, especially at nature reserves.	Difficulty managing student groups	247
	Difficulty guiding students during fieldwork (data collection, analysis, and information processing).	Difficulty guiding students on field tasks	165
Teacher-related difficulties	Teachers struggle to integrate content with nature reserves and choose appropriate methods due to a lack of knowledge, skills, and experience.	Difficulty linking content	276
		Uncertainty in choosing teaching methods	213
	Complex and time-consuming methods make teachers hesitant to innovate.	Complex and time-consuming methods	223
	Lack of motivation as biology is not given enough attention by society, parents, schools, and students.	Biology is a less prioritized subject	164
	Teachers do not have enough physical stamina to guide students in the field.	Teachers' health is insufficient	35

The advantages mentioned are significantly fewer than the challenges, which likely contribute to the low frequency of teaching based on nature reserves. Vietnam's diverse nature reserves, combined with the practical nature of Biology, provide excellent opportunities for hands-on teaching. This setting allows teachers to link theory with practice, sparking student interest and curiosity. Audiovisual materials further support lesson preparation and enhance content delivery. These advantages align with Vietnam's 2018 curriculum, emphasizing competency development, problem-solving skills, and a practical world understanding. In a recent study, Phan et al. (2023) utilized the context of Ba Vi National Park to enhance student learning outcomes and engagement through direct interaction with organisms and observation and investigation of natural phenomena within the natural ecosystem.

Despite the potential advantages, integrating teaching with nature reserves in Vietnam faces several challenges. Financial constraints are a major issue, as schools often lack funds for field trips, limiting the organization of outdoor learning activities. Additionally, there is a significant shortage of high-quality, up-to-date instructional materials and standardized assessment tools, which hinders teachers' access to reliable resources needed to effectively support their lessons. Challenges from educational institutions and the community are significant, including limited support from schools and parents and coordination issues with nature reserve staff. Schools lack support and cooperation between teachers, and many parents do not see the value of outdoor learning, causing reluctance in student participation. Complex administrative procedures and curriculum misalignment with nature reserves add to the barriers teachers face. However, the 2018 curriculum addresses these issues by granting teachers autonomy and flexibility in their teaching plans. They can create lesson units that integrate practical content and adjust timings between sections without altering total instructional hours. The school's educational plan can further support this by incorporating nature reserve and environmental protection content into extracurricular activities. External risks, such as unstable weather and remote locations of nature reserves, significantly impact student safety and teaching quality. Lastly, challenges related to teaching organization and teacher factors present obstacles: variations in student proficiency, lack of cooperation, low teacher motivation due to the subject's perceived lack of importance, and reluctance to innovate teaching methods. Many teachers also lack knowledge and practical experience with nature reserves, and health issues further affect their teaching effectiveness.

In summary, enhancing the effectiveness of nature reserve-based teaching in Vietnam requires more significant investment from educational institutions and the community, along with additional resources and funding. Developing comprehensive instructional materials and providing regular training will equip teachers with essential skills and methodologies, from organizing hands-on activities to using technology, such as videos or nature-based imagery, for illustration. Collaboration between schools and nature reserves and funding from Non-Governmental Organizations (NGOs) and environmentally responsible businesses will further facilitate outdoor learning, allowing students to gain real-world experience.

Conclusion and Recommendation

Firstly, teachers predominantly use videos, images, questions, exercises, and real issues related to nature reserves, in which the use of illustrative visual aids is the most common. Although outdoor learning offers benefits that classroom teaching cannot fully replicate, the frequency of outdoor activities remains low among teachers, particularly in nature reserves. Addressing this issue requires strengthening teachers' skills in organizing outdoor activities and designing instructional activities aligned with curriculum objectives, such as real-world project-based learning and experiential learning, and integrating outdoor learning into the curriculum.

Secondly, differences in project-based, experiential, context-based, and practical teaching methods between urban and rural teachers that teachers do not widely adopt. These methods require organizational skills, high costs, and extensive preparation. Therefore, their implementation is significantly impacted by the educational gap between rural and urban areas, including infrastructure, teacher expertise, and support from schools and the community. Addressing these gaps, investment in infrastructure such as educational equipment and internet access is essential, along with increased access to online resources and professional development programs for teachers, including modern teaching techniques and educational technology integration.

Thirdly, teachers recognize the value of integrating nature reserves but face challenges such as lack of funding, insufficient support, difficulty linking curriculum content to reserves, and limited access to updated data. Therefore, several solutions are proposed to improve nature reserve-based education, such as developing teacher expertise through short courses by environmental and educational experts, integrating a formal curriculum, increasing support from nature reserve staff, and funding from NGOs and environmentally responsible businesses.

Future research can build on these improvements by developing a strategic framework to integrate nature reserves into the formal curriculum through two flexible approaches. The first approach is bringing the nature reserve into the classroom by leveraging existing databases, utilizing online resources, digital models, and virtual reality technology to provide students with an immersive nature experience within the classroom setting. The second approach involves taking the classroom to the nature reserve, allowing students direct access to observe and apply exploratory skills in a natural environment. Combining these two methods will enable students to engage with nature from multiple perspectives, enhancing their knowledge, skills, and environmental consciousness.

Conflict of Interest

The authors declare no conflicts of interest in this study. This research is entirely an intellectual endeavor initiated by the authors without any external funding.

References

Akkaş, E., & Eker, C. (2021). The effect of phenomenon-based learning approach on students' metacognitive awareness. *Educational Research and Reviews, 16*(5), 181– 188. https://files.eric.ed.gov/fulltext/EJ1296934.pdf

Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. *Quality Progress, 40*(7), 64–65. https://www.bayviewanalytics.com/reports/asq/likert-scales-and-data-analyses.pdf

Bryman, A. (2012). *Social research methods* (4th ed.). Oxford University Press. https://www.academia.edu/97136619

Capps, D. K., & Crawford, B. A. (2013). Inquiry-based instruction and teaching about the nature of science: Are they happening? *Journal of Science Teacher Education, 24*(3), 497–526. https://doi.org/10.1007/s10972-012-9314-z

Chawla, L. (2007). Childhood experiences associated with care for the natural world: A theoretical framework for empirical results. *Children, Youth and Environments, 17*(4), 144–170. https://doi.org/10.1353/cye.2007.0010

Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning* (4th ed.). Wiley. https://doi.org/10.1002/pfi.4930420510

Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). John Wiley & Sons. https://fsapps.nwcg.gov/gtac/CourseDownloads/IP/Cambodia/FlashDrive/Supporting_Documentation/Cochran_1977_Sampling%20Techniques.pdf

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge. https://doi.org/10.4324/9781315456539

Collado, S., Rosa, C. D., & Corraliza, J. A. (2020). The effect of a nature-based environmental education program on children's environmental attitudes and behaviors: A randomized experiment with primary schools. *Sustainability, 12*(17), 6817. https://doi.org/10.3390/su12176817

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297–334. https://doi.org/10.1007/BF02310555

Dillon, J., Rickinson, M., Teamey, K., Morris, M., Choi, M. Y., Sanders, D., & Benefield, P. (2006). The value of outdoor learning: Evidence from research in the UK and elsewhere. *School Science Review, 87*(320), 107–111. https://escuelainnatura.com/wpcontent/uploads/2018/05/the_value_of_school_science_review_march_2006_87320_141.pdf

Eppler, M. J. (2006). A comparison between concept maps, mind maps, conceptual diagrams, and visual metaphors as complementary tools for knowledge construction and sharing. *Information Visualization, 5*(3), 202–210. https://doi.org/10.1057/palgrave.ivs.9500131

Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). SAGE.

Fullan, M. (2015). *The new meaning of educational change* (5th ed.). Teachers College Press.

Guo, P. J., Kim, J., & Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. In *Proceedings of the first ACM conference on Learning @ Scale* (pp. 41–50). ACM. https://doi.org/10.1145/2556325.2566239

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge. https://doi.org/10.4324/9780203887332

International Union for Conservation of Nature. (2013). *Protected areas governance and management* (Best Practice Protected Area Guidelines Series No. 21). IUCN. https://portals.iucn.org/library/sites/library/files/documents/PAG-021.pdf

International Union for Conservation of Nature. (2021). *Cultural and spiritual significance of nature: Guidance for protected and conserved area governance and management* (Best Practice Protected Area Guidelines Series No. 32). IUCN. https://portals.iucn.org/library/node/2089

Jordan, C., & Chawla, L. (2019). A coordinated research agenda for nature-based learning. *Frontiers in Psychology, 10*, 766. https://doi.org/10.3389/fpsyg.2019.00766

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*(1), 31–36. https://doi.org/10.1007/BF02291575

Kellert, S. R. (2002). Experiencing nature: Affective, cognitive, and evaluative development in children. In P. H. Kahn & S. R. Kellert (Eds.), *Children and nature: Psychological, sociological, and evolutionary investigations* (pp. 117–151). MIT Press. https://doi.org/10.1007/978-1-4613-3539-9_8

Kolb, D. A. (2015). *Experiential learning: Experience as the source of learning and development* (2nd ed.). Pearson Education. https://dl.icdst.org/pdfs/files3/c960fd4ba0e6e861d2af44103707fc96.pdf

Kuo, M., Barnes, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in Psychology, 10*, 305. https://doi.org/10.3389/fpsyg.2019.00305

Larson, L. R., Green, G. T., & Castleberry, S. B. (2011). Construction and validation of an instrument to measure environmental orientations in a diverse group of children. *Environment and Behavior, 43*(1), 72–89. https://doi.org/10.1177/0013916509345212

Lohr, S. L. (2019). *Sampling: Design and analysis* (2nd ed.). Chapman and Hall/CRC. https://doi.org/10.1201/9780429296284

Louv, R. (2008). *Last child in the woods: Saving our children from nature-deficit disorder*. Algonquin Books. https://doi.org/10.1001/archpedi.161.7.718

Marzano, R. J. (2003). *What works in schools: Translating research into action*. ASCD. https://files.ascd.org/staticfiles/ascd/pdf/siteASCD/video/WhatWorksinSchools.pdf

Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511811678

Minner, D. D., Levy, A. J., & Century, J. (2010). Inquiry-based science instruction—What is it and does it matter? Results from a research synthesis years 1984 to 2002. *Journal of Research in Science Teaching, 47*(4), 474–496. https://doi.org/10.1002/tea.20347

Ministry of Education and Training. (2018). *General education curriculum framework*. https://moet.gov.vn/content/tintuc/Lists/News/Attachments/8421/chuong-trinh-tong-the-ctgdpt-2018.pdf

Ministry of Education and Training. (2024). *Education and training sector database*. https://bgd.csdl.moet.gov.vn/Login.aspx

Ministry of Natural Resources and Environment. (2022). *National biodiversity report*. https://cebid.vn/bao-cao-da-dang-sinh-hoc-quoc-gia-nam-2022/

Moreno, R., & Mayer, R. (2007). Interactive multimodal learning environments. *Educational Psychology Review, 19*(3), 309–326. https://doi.org/10.1007/s10648-007-9047-2

Narli, S. (2010). An alternative evaluation method for Likert type attitude scales: Rough set data analysis. *Scientific Research and Essays, 5*(6), 519–528. https://academicjournals.org/journal/SRE/article-full-text-pdf/891397319354

Phan, T. T. H., Nguyen, L. H. S., & Kieu, T. N. (2023). Teaching the topic of "Ecosystem" (Biology Grade 12) based on context: A case study at Ba Vi National Park, Hanoi City. *VJE Journal of Education, 23*(Special Issue 9), 152–158. https://tcgd.tapchigiaoduc.edu.vn/index.php/tapchi/article/view/1191

Standing Committee of the National Assembly of the Socialist Republic of Vietnam. (2022). *Amendments and supplements to a number of articles of Resolution No.1210/2016/UBTVQH13 on urban classification (Resolution No.26/2022/UBTVQH15)*.

Tien, T. K. N., Duan, N., & Thuy, T. D. D. (2024). Understanding of the living world of high school students in the Mekong Delta, Vietnam. *Kasetsart Journal of Social Sciences, 45*, 95–102. https://so04.tci-thaijo.org/index.php/kjss/article/view/269472/181741

UNESCO. (2023). *Global education monitoring report 2023: Southeast Asia*. United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000387824_vie

Waite, S. (2011). Teaching and learning outside the classroom: Personal values, alternative pedagogies and standards. *Education 3–13, 39*(1), 65–82. https://doi.org/10.1080/03004270903206141

Wood, R. M. (2023). A review on education differences in urban and rural areas. *International Research Journal of Educational Research, 14*(2), 1–3. https://doi.org/10.14303/2141-5161.2023.254

Yavuz, G., Günhan, B. C., Ersoy, E., & Narli, S. (2013). Self-efficacy beliefs of prospective primary mathematics teachers about mathematical literacy. *Journal of College Teaching & Learning, 10*(4), 279–287. https://doi.org/10.19030/tlc.v10i4.8124

Yokuş, G. (2020). Integrating outdoor school learning into formal curriculum: Designing outdoor learning experiences and developing outdoor learning framework for pre-service teachers. *International Journal of Education Technology and Scientific Researches, 5*(13), 1330–1388. https://doi.org/10.35826/ijetsar.276

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Community-based water management competencies of agriculture and technology college teachers: A needs assessment

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Abstract

This research aims to study, assess, and prioritize the needs regarding learning competencies in community-based water management programs in Thai agriculture and technology college (CAT) instructors. The sample group was CAT teachers who participated in a training project to promote knowledge and learning competency in community-based water management. This Activity was part of the 2023 Royal Initiative Community-based Water Management Project. The sample group of 36 CAT water management instructors was obtained by purposive sampling. The research tool used was a needs assessment questionnaire. It is a 5-rating scale consisting of three aspects including knowledge (K), attitude (A), and practice (P). The index of item objective congruence (IOC) was 0.88, and the reliability of the questionnaire was 0.97. Data analysis used descriptive statistics, including the mean and standard deviation (*SD*), and analysis needs assessment with the modified PNI index value ($PNI_{modified}$). The research results found that teachers have high expectations regarding learning competencies in water management, both individually and overall. In contrast, the Actual condition of both individual aspects and the overall picture is moderate to high. Moreover, for the needs assessment regarding teachers' competencies in learning about water management, the aspect with the highest PNI value was cognitive competence (0.21), followed by practical competence (0.16) and affective competence (0.10).

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Introduction

Thailand's Royal Initiative promotes community-based water management, where local communities, rather than government agencies, lead water management efforts. This initiative encourages communities to come together to learn, exchange experiences, and share knowledge that can be directly applied to local water management challenges. The project is implemented through Thai agriculture and technology colleges (CAT) across Thailand, which play a central role in developing a water management curriculum and teaching framework known as the 'Cholakorn Course.'

Each CAT is expected to take an active role in supporting local community water management projects. As the primary hub, each CAT organizes educational activities, conducts training sessions, and transfers knowledge to surrounding communities. Teachers at each college are vital figures in this initiative, as they are responsible for structuring and delivering the curriculum and guiding the learning process within the community.

A community-based water management project under Thailand's royal initiative was launched to enhance personnel skills and develop a workforce specialized in water resource management. This initiative aims to create a model and learning resource for sustainable water management, natural resource conservation, and environmental stewardship, particularly to aid communities facing flood and drought challenges. In 2023, a training program was conducted to share knowledge on community-based water management principles inspired by the royal initiative. This program involved 53 teachers nationwide from 24 agricultural and technological colleges, focusing on building expertise in water management theory and practice.

The training emphasized systematic thinking skills, starting with systems thinking, and included practical steps such as surveying and data collection to inform community water planning and optimize water usage. Collaborative learning and innovative approaches were prioritized, enabling teachers to return this expertise to their institutions and local communities. A field study held in April 2023 at Buriram College of Agriculture and Technology in Mueang District, Buriram Province, provided hands-on learning and practical application of these skills.

Each CAT serves as a critical educational institution for vocational training, with 47 locations distributed across Thailand (Poungsuk & Junlek, 2024). As of November 2024, 16 colleges have engaged in the community-based water management project under the royal initiative, integrating the "Chonlakorn Course" into their regular teaching curriculum. The "Chonlakorn Course" is also offered to students during the regular academic term. At the same time, an additional program, the "Agricultural Water Management Course (Associate Section), Vocational Certificate level," is available for community members and other interested participants.

CAT teachers play a crucial role in this initiative, working closely with communities to understand and address local agricultural and water resource challenges. This aligns with a vision initiated by Dr. Kanlaya Sophonpanich during her tenure as Thailand's Deputy Minister of Education. Dr. Kanlaya proposed enhancing the knowledge and skills of CAT teachers and students in water management. Her efforts led to establishing the "Community-based Water Management Project according to the royal initiative" and the subsequent creation of the "Chonlakorn Course," designed to build community-centered, sustainable water management expertise.

Literature Review

Teaching Competencies

Teachers' competencies in community-based water management encompass essential skills and knowledge that CAT teachers strive to develop for effective teaching and learning. These competencies aim to ensure that students and participants acquire a solid understanding of water management principles and can apply this knowledge to address water-related challenges effectively and appropriately. Such competencies align with 21st-century learning skills, focusing on practical problem-solving, critical thinking, and adaptability. The specific competencies, as outlined in Table 1, are classified as follows:

Table 1 Learning competencies in community-based water management of CAT teachers

Critical Competencies for Students (CAT teachers teaching the Chonlakorn course):	21st Century Skills	Importance/Benefits
Understanding of knowledge	Learning skills and innovation	Support the learners' creativity and perform concept analysis, lessons learned, and knowledge summarization.
Proficiency in using technology for learning assistance	Information technology, media, and technology skills	Enables learners to analyze and select application software, information, media, and various technologies effectively.
Proficiency in thinking and problem-solving	Thinking and problem-solving skills (PSS), including Critical and systematic thinking	To support learners in analyzing, differentiating, and identifying the critical aspects of water management issues, facilitating further knowledge development and problem-solving using various analytical tools.
Proficiency in utilizing life and work skills	Social and collaborative skills	To support students in developing communication skills and building positive relationships, including working effectively with others.
Application/development/ knowledge expansion	Learning skills and innovation	To support learners in developing their creativity, expanding their knowledge, and applying it appropriately to the context of various communities.

The ADDIE Learning Model

In designing a learning model for community-based water management and the learning development process, the principles for designing systematic teaching and learning are followed. The principle of instructional system design (ISD) refers to teaching and learning activities according to the ADDIE Model. The ADDIE model was developed as an instructional design framework commonly used in education, corporate training, and military contexts (Shakeel et al., 2023). It originated in the 1970s as part of instructional systems development in the U.S. military, specifically within the Center for Educational Technology at Florida State University (Molenda, M. H. (2022). Developed to ensure efficient and systematic approaches to instructional design, ADDIE stands for:

- Analysis: Identifying the learning needs, objectives, and constraints.
- Design: Structuring content, defining learning objectives, and planning instructional strategies.
- Development: Creating and assembling instructional materials.
- Implementation: Delivering or distributing the training program.
- Evaluation: Assessing the program's effectiveness and learner outcomes, including formative (ongoing) and summative (final) evaluations.

Although initially developed for military applications, the ADDIE model has since become a foundation in various fields for creating instructional programs and courses (Abuhassna et al., 2024), thanks to its precise, iterative structure that can be customized for diverse educational and training needs. It has also influenced more contemporary instructional design models and remains famous for its flexibility and systematic approach.

Needs Assessment

Initially developed by the United Nations Development Programme (UNDP) in the 1990s, the needs assessment methodology serves as a systematic process to identify and prioritize gaps between current and desired conditions. This methodology is widely applied in research to collect and analyze data on social, economic, and environmental needs (Chanyawudhiwan et al., 2023; Chimnoy et al., 2023; Shea, 1997; Ul Haq, 1995). It emphasizes identifying actionable priorities for meaningful, cost-effective improvements (Royal Academy, 2012; Wongwanich, 2015).

Concept and Evolution

The concept of "needs" has evolved over decades, beginning with Bode's work in 1938, where "felt needs" were first introduced as a critical construct (Huxtable, 1938). Modern needs assessment involves gap analysis, systematically identifying discrepancies between actual and desired conditions, and prioritizing actions to address the most critical issues (Sapkota, 2023). In the context of competency development, Khang et al. (2023) emphasize its importance in evaluating professional performance.

Operational Steps

Needs assessment typically follows five steps (Sleezer et al., 2014).These include: (1) Define objectives: Identify the goals of the assessment; (2) Evaluate current conditions: Assess existing knowledge, skills, and environmental factors; (3) Analyze gaps: Compare current conditions with desired outcomes; (4) Prioritize needs: Rank the identified needs based on significance; and (5) Develop solutions: Propose strategies to address prioritized needs.

Educational Applications

Needs assessment plays a pivotal role in fostering competency development and guiding policy decisions within the education sector. Chimnoy et al. (2023) explored academic management strategies across 353 Thai private elementary schools, revealing the necessity for transformative changes in three key areas: curriculum design, teaching and learning processes, and the measurement and evaluation of learning outcomes. Similarly, Suksup and Sukkamart (2019) identified critical human resource management needs among Thai education administrators, emphasizing priorities such as recruitment strategies and workforce planning. Addressing digital competency, Ussarn et al. (2022) assessed gaps in digital literacy among students at Tak Community College, pinpointing spreadsheet software skills as the most pressing area for improvement. Furthermore, Yurayat and Seechaliao (2021) examined the mental health needs of Thai undergraduate students, underscoring the importance of implementing accessible online counseling services to provide timely support. Together, these studies highlight how targeted needs assessments can address diverse educational challenges, ultimately enhancing both administrative strategies and student outcomes.

Priority Needs Index (PNI)

A widely used tool for prioritizing needs is the Priority Needs Index (PNI) and its modified version ($PNI_{Modified}$). $PNI_{Modified}$ is commonly used in educational research to rank priorities.

Therefore, prioritizing needs is an essential process in needs assessment research. The prioritization technique used in this research was the $PNI_{modified}$ method, which is a prioritization technique for paired response data in a group of methods that use the principle of evaluating differences (Wongwanich, 2015) with the calculation formula as follows:

Demand = expected condition – actual condition (1)

Priority Needs Index modified ($PNI_{modified}$)

Formula (PNI modified) = (I-D) / D (2)

Here, "I" (Importance) represents the desired level of expectation, and D (Degree of Success) indicates the current level of reality.

Implications for Planning

Needs assessment provides critical insights for strategic planning and resource allocation. It supports decision-making by highlighting high-priority areas, allowing organizations to design cost-effective and impactful interventions. By identifying gaps in competencies, resources, and operational conditions, needs assessment ensures that development efforts are targeted and measurable.

Teachers' Learning Competencies

Thailand's Office of the Education Council (OEC) (2021) defines "Competencies" as the ability to apply skills, knowledge, attitudes, and various personal attributes to effectively perform tasks or solve problems, achieving a desired level of success. Competencies are expressed through measurable and evaluable practical behaviors, encompassing the integration of knowledge, skills, attitudes, characteristics, and other abilities that contribute to individual or group success in work.

This definition aligns with Spencer and Spencer (1993) conceptualization of work competencies, which include motives, traits, and self-concept. Similarly, Pamuji and Limei (2023) view competency as inherent personality characteristics that drive individuals to perform effectively and meet the criteria of their professional responsibilities. In another study, Chanyawudhiwan et al. (2023) explored digital competencies among 230 students in Thai open universities. Their findings identified five critical components of digital competency: problem-solving using digital devices, digital technology skills, working knowledge, adaptability to the digital world, and digital communication skills.

In the context of curriculum development, Fatimah and Masduqi (2017) conducted an analytical evaluation of competency-based curriculum implementation in English for secondary school students in Indonesia. Since its introduction in 2004, this approach has garnered significant interest and collaboration from educators.

The findings affirm that a competency-based curriculum enhances teachers' abilities more effectively than traditional curricula.

Klaharn (2017) focused on assessing and prioritizing the needs of Thai teachers to improve their measurement and evaluation of analytical thinking competence. A needs assessment methodology involving 440 teachers from four regions and Bangkok revealed significant gaps between the desired and current competency levels, with high need competence but medium reality competence. The $PNI_{modified}$ findings highlighted the necessity of training programs to address these gaps, with plans for future curriculum development to enhance teachers' skills in this critical area.

From an analysis of these and other domestic and international reports, documents, and studies, the term "learning competencies in community-based water management" remains undefined. While there is research on community-based water management in academic databases, these studies primarily focus on the social dimensions of water management or specific competencies required for water resource management.

This gap highlights the novelty of integrating educational theoretical concepts into research on community-based water management. Existing literature frequently discusses the elements, importance, and benefits of water resource management learning, emphasizing: (1) Knowledge and understanding; (2) Critical thinking and problem-solving abilities; (3) Adaptability to various life and work contexts; and (4) Skills for applying, developing, and expanding knowledge. For example, studies in this domain often examine these aspects, providing a foundation for further exploration and development of the concept (Grau et al., 2019; Thatrak & Lopradit, 2023).

Methodology

Population and Sample Group

The population for this study comprised 57 teachers from Thai CAT who participated in a 2023 training program to enhance knowledge and learning competencies in community-based water management programs under a Royal Initiative. This program was part of the Royal Initiative on community-based water management and included teaching and learning activities from the community-based water management curriculum (Chonlakorn Curriculum).

A sample group of 36 teachers was selected from this population using purposive sampling. The purposive sampling method was used to ensure regional representation across 14 CAT institutions and to include teachers directly responsible for the water management curriculum (Table 2). To achieve this, at least one teacher from each participating college was selected, with priority given to teachers who expressed readiness and availability to implement the curriculum. The college directors were contacted to nominate potential participants, and a registration form was distributed via Google Form to collect demographic and professional information for final sample selection. This process ensured that the sample captured diverse perspectives while aligning with the study's objectives.

The choice of 36 participants was guided by practical and methodological considerations (Wuttikamonchai et al., 2024). The sample size balances the need for sufficient representation across geographic regions while maintaining a manageable scope for qualitative and quantitative data analysis. Previous studies employing purposive sampling in similar contexts (e.g., educational or community-based intervention studies) have demonstrated that such a sample size is adequate for capturing meaningful data while allowing for regional diversity and feasibility of data collection.

The sampling details are presented in Table 2, which illustrates the distribution of the population and sample across the 16 participating CAT institutions. All training materials and assessments were conducted in Thai, the primary language of the participants.

Table 2 Population and sample group classified by CAT province

Agriculture and Technology College Provinces	Population	Sample group
Chiang Mai	3	1
Kamphaeng Phet	3	2
Khon Kaen	2	1
Buriram	3	1
Payao	2	2
Phang-Nga	3	1
Mahasarakham	5	5
Roi-et	3	3
Nakhon Rachasima	6	6
Lamphun	3	1
Sisaket	5	4
Sa Kaeo	5	3
Sukhothai	5	2
Ubon Ratchathani	5	2
Yasothorn	2	1
Udon Thani	2	1
Total	57	36

Research Tools

The research tool was a needs assessment form designed to evaluate current and desired learning competencies in community-based water management among CAT teachers. The questionnaire comprised two sections:

- Section 1: Respondent demographic information, presented in a checklist format.
- Section 2: Assessment of actual and desired learning competencies in community-based water management.

The questionnaire utilized a five-level Likert scale, ranging from 'Very High' to 'Very Low' (Table 3), comprising 35 items across three domains, including Knowledge (K), Attitude (A), and Practice (P). The instrument demonstrated strong validity and reliability, with an Index of Item Objective Congruence (IOC) of 0.88 and an overall Cronbach's Alpha coefficient of 0.97 (Table 4).

Table 3 The score ranking, level, level criteria, and interpretation of average criteria

Score ranking	Score interpretation	Average criteria	Average meaning
5	Very High	4.50-5.00	Very High
4	High	3.50-4.49	High
3	Moderate	2.50-3.49	Moderate
2	Low	1.50-2.49	Low
1	Very Low	1.00-1.49	Very Low

Table 4 Reliability of the questionnaire overall and for each aspect

Needs aspects	IOC	Reliability (α)
Knowledge: K	0.93	0.98
Attitude: A	0.90	0.97
Practice: P	0.80	0.96
Overall	0.88	0.97

Data Collection

Data were collected from CAT teachers who participated in the 2023 Chonlakorn Course on community-based water management under the Royal Initiative Project. Thirty-six online questionnaires were distributed via Google Forms between March and July 2023, achieving a 100 percent response rate. The questionnaire assessed actual and desired learning competencies in community-based water management.

Data Analysis

The data analysis involved three methods: (1) Descriptive Statistics: Frequencies and percentages were used to summarize primary data on CAT teachers; (2) Learning Competencies Assessment: The actual and desired states of learning competencies in community-based water management were analyzed using mean and SD and interpreted according to predefined average criteria; (3) Prioritization of Needs: The Priority Needs Index Modified ($PNI_{modified}$) approach was applied to determine and rank competency gaps across three domains (Knowledge, Attitude, and Practice). The $PNI_{modified}$ formula is as follows:

$$PNI_{modified} = (I-D)/D \quad (1)$$

Where: $PNI_{modified}$ = the priority needs or problems; I = the average value of the desired condition; and D = the average value of the actual condition.

Results

General Information of Respondents

The study included 36 respondents, comprising 31 males (86.11%) and five females (13.88%). Respondents were grouped into three age ranges: 18 participants (50%) were between 25 and 35 years old, 11 participants (30.56%) were aged 35 to 45, and seven participants (19.44%) were in the 45 to 55 age range.

Regarding educational background, the majority (27 respondents, 75%) held a bachelor's degree, followed by eight respondents (22.22%) who had completed a master's degree. Only one respondent (2.78%) had not achieved a university degree. These distributions provide an overview of the demographic characteristics of the sample group, which are summarized in Table 5.

Table 5 Frequencies and percentages of respondents classified by status (n=36)

	Participants	Percentage
Gender		
Male	31	86.11
Female	5	13.88
Age		
25–35	18	50.00
35–45	11	30.56
45–55	7	19.44
Education level		
Less than a bachelor's degree	1	2.78
Bachelor's degree	27	75.00
Master's degree	8	22.22

CAT Teachers' Learning Competencies: Overall Desired vs. actual

Table 6 summarizes the overall evaluation and prioritization of CAT teachers' learning competencies in community-based water management based on the $PNI_{modified}$ index. The results indicate that the desired learning competencies are rated high (M = 3.97, SD = 1.00), while the actual competencies are rated moderate (M = 3.48, SD = 1.10).

Across the three competency domains—Knowledge, Attitude, and Practice—the desired state generally exceeds the actual state, highlighting areas for improvement. Specifically:

• Knowledge Competencies: Teachers expressed a strong desire for greater knowledge and understanding in defining problems (M= 3.80, SD = 1.11), but their actual competencies in this domain were moderate (M= 3.11, SD = 1.18).

• Attitudinal Competencies: High levels of interest, commitment, and responsibility were evident in the desired state, with all mean scores exceeding 4.0. actual competencies in this domain were consistently rated as high, though slightly lower than desired.

• Practical Competencies: Teachers showed a strong desire for practical skills, such as the ability to search for information (M= 4.04, SD = 0.85) (Fikri et al., 2022). However, actual skills in this domain, such as using GIS, remained moderate (M= 3.12, SD = 1.22)

Table 7 details the evaluation and prioritization of needs results for teachers' learning competencies. The aspect with the highest PNI value was knowledge (K=0.21), followed by practice (P=0.16) and attitude (A=0.10).

Knowledge (K) Desired and Actual Conditions

Table 8 shows the evaluation and prioritization of the needs results for CAT teacher learning competencies in the knowledge and understanding aspect (K), classified into K1 sub-aspects (10 items) and K2 sub-aspects (4 items).

Table 6 Desired and actual learning competencies of CAT teachers (mean and SD)

Learner Competency Components	Desired			Actual		
	M	*SD*	Level	*M*	*SD*	Level
Knowledge (K)						
Knowledge competencies	3.78	1.16	High	3.15	1.26	Moderate
Knowledge and understanding in defining the problem	3.80	1.11	High	3.11	1.18	Moderate
Attitude (A)			High			
Willingness to learn	3.98	1.03	High	3.62	1.07	High
Interest in learning and having a learning method	4.15	0.90	High	3.76	1.04	High
Academic reasonableness	4.21	0.89	High	3.71	1.05	High
Be committed and responsible	4.17	0.93	High	3.85	0.98	High
Practice (P)			High			
Ability to use GIS	3.66	1.14	High	3.12	1.22	Moderate
Ability to search for information	4.04	0.85	High	3.51	1.00	High
Total	3.97	1.00	High	3.48	1.10	Moderate

Table 7 Results of the evaluation and prioritization needs of learning competencies

Learner Performance Components	Variable	Condition		PNI	Priority
		Desired (I)	Actual (D)	(I-D)/D	
Knowledge	(K)	3.79	3.13	0.21	1
Knowledge competencies.	(K1)	3.78	3.15	0.20	2
Knowledge and understanding in defining the problem.	(K2)	3.80	3.11	0.22	1
Attitude	(A)	4.13	3.74	0.10	3
Willingness to learn.	(A1)	3.98	3.62	0.10	6
Interest in learning and having a learning method.	(A2)	4.15	3.76	0.10	5
Academic reasonableness.	(A3)	4.21	3.71	0.13	4
Be committed and responsible.	(A4)	4.17	3.85	0.08	7
Practice	(P)	3.85	3.32	0.16	2
Ability to use GIS.	(P1)	3.66	3.12	0.17	3
Ability to search for information.	(P2)	4.04	3.51	0.15	3

Table 8 Results of the desired and actual conditions of knowledge (K) and its sub-aspects

Knowledge (K)	Condition		PNI (I-D)/D	Priority
	Desired (I)	Actual (D)		
1. Knowledge competencies (K1)	3.78	3.15	0.20	2
1.1 Knowledge and understanding of the water cycle system (in the atmosphere, on the ground and underground)	3.72	3.08	0.21	3
1.2 Knowledge and understanding of the meteorological system	3.75	3.11	0.21	3
1.3 Knowledge and understanding of surface water systems (Hydrology)	3.81	3.22	0.18	5
1.4 Knowledge and understanding of groundwater systems (Hydrogeology)	3.69	3.11	0.19	4
1.5 Knowledge and understanding of water resources database and information	3.81	3.08	0.23	1
1.6 Knowledge and understanding of community water source	3.86	3.25	0.19	4
1.7 Knowledge and understanding of Geography in each region of Thailand	3.75	3.14	0.19	4
1.8 Specific water source/place/location/condition/size/capacity of community water sources in their area	3.69	3.11	0.19	4
1.9 Ability to consider the learner model to help organize water management learning	3.81	3.22	0.18	5
1.10 Ability to consider selecting appropriate tools to solve water source problems	3.86	3.17	0.22	2
2. Knowledge and understanding in defining the problem (K2)	3.80	3.11	0.22	1
2.1 Knowledge and understanding of teaching problems in water management	3.89	3.14	0.24	1
2.2 Knowledge and understanding of water source problems in their community areas	3.78	3.14	0.20	3
2.3 Understanding the fundamental problems of overall water management	3.75	3.08	0.22	2
2.4 Understanding the learning problems for sustainable water management	3.78	3.08	0.22	2

Attitude (A) Desired and Actual Conditions

Table 9 shows the evaluation and prioritization of the needs results for CAT teacher learning competencies in the attitude aspect (A), classified into A1 sub-aspects (5 items), A2 sub-aspects (3 items), A3 sub-aspects (2 items), and A4 sub-aspects (4 items).

Practice (P) Desired and Actual Conditions

Table 10 shows the evaluation and prioritization of the needs results for CAT teacher learning competencies in the practice aspect (P), classified into P1 sub-aspects (5 items) and P2 sub-aspects (2 items).

Table 9 Results of the desired and actual conditions of attitude (A) and its sub-aspects

Attitude (A)	Condition		PNI (I-D)/D	Priority
	Desired (I)	Actual (D)		
1. Intention to learn (A1)	3.98	3.62	0.10	2
1.1 Realize the importance and needs for the development of water management knowledge	3.89	3.67	0.06	4
1.2 Access the value of community-based water management program correctness according to academic principles	4.00	3.64	0.10	2
1.3 With a good attitude towards water management learning	4.08	3.61	0.13	1
1.4 Understand the benefits of developing analytical thinking skills to solve water management problems	4.00	3.69	0.08	3
1.5 Additional study and research knowledge outside of the classroom	3.92	3.47	0.13	1
2. Interested in learning and know a learning method (A2)	4.15	3.76	0.10	2
2.1 Be enthusiastic about information systems practice for water management	4.14	3.72	0.11	1
2.2 Ability for creativity and application	4.19	3.81	0.10	2
2.3 Work as groups to exchange ideas with each other	4.11	3.75	0.13	2
3. Academic reasons (A3)	4.21	3.71	0.13	1
3.1 Realize the need to develop the teaching and learning of water management according to academic principles	4.19	3.75	0.12	2
3.2 Expand the correct knowledge of water management according to academic principles as an educational lesson	4.22	3.67	0.15	1
4. Commitment and responsibility (A4)	4.17	3.85	0.08	3
4.1 Attentive in completing assigned tasks during each study period	4.11	3.81	0.08	3
4.2 Study and research additional information outside of the classroom	4.19	3.75	0.12	1
4.3 Responsible for the working success	4.25	3.92	0.08	2
4.4 Participate in teams and group work	4.14	3.94	0.05	4

Table 10 Results of the desired and actual conditions of practice (P) and its sub-aspects

Practice (P)	Condition		PNI (I-D)/D	Priority
	Desired (I)	Actual (D)		
1. Ability to use GIS software (P1)	3.66	3.12	0.17	1
1.1 Ability to use GIS programs very well	3.56	3.11	0.14	5
1.2 Ability to identify problems with using GIS programs	3.64	3.11	0.17	3
1.3 Ability to use GIS programs to analyze spatial data appropriately	3.61	3.06	0.18	2
1.4 Ability to identify problems and examine the various spatial data	3.72	3.11	0.20	1
1.5 The knowledge gained can be used to design and planning for teaching and learning of water management in the community	3.75	3.22	0.16	4
2. Ability to search for information (P2)	4.04	3.51	0.15	2
2.1 Ability to search for websites or tools to help plan water management	3.94	3.47	0.14	2
2.2 Knowledge in accessing information resources beneficial to learning for water management	4.14	3.56	0.16	1

Discussion

This study evaluated the learning competencies of ATC teachers in community-based water management, focusing on the Knowledge (K), Attitude (A), and Practice (P) domains. By identifying gaps between desired and actual conditions and prioritizing these needs using the $PNI_{modified}$ index, we aimed to provide actionable insights for enhancing teacher preparedness. This section discusses the implications of the findings, connects them to broader frameworks and literature, and highlights future directions for research and practice.

Knowledge (K)

The Knowledge domain emerged as the highest-priority area, with a significant gap between desired and actual conditions (PNI = 0.21). Within this domain, the most critical needs were understanding teaching problems in water management (K2.1, PNI = 0.24) and knowledge of water resources databases (K1.5, PNI = 0.23).

These findings underscore the importance of problem-solving and data literacy in water management education. Problem-based learning (PBL), which emphasizes real-world problem-solving and critical thinking, has been identified as an effective method for equipping educators to address complex issues in sustainability and resource management (Barrows, 1986). Enhancing teachers' ability to access and utilize water resource databases aligns with global initiatives, such as UNESCO's (2020) emphasis on improving data literacy for sustainable water management.

Attitude (A)

While the Attitude domain ranked lower overall (PNI = 0.10), specific sub-aspects, such as academic reasoning (A3, PNI = 0.13), highlighted the need to expand knowledge based on academic principles. "Expanding correct knowledge of water management as an educational lesson" (A3.2, PNI = 0.15) emerged as the highest-priority attitudinal need.

These results suggest that fostering a positive academic orientation and analytical mindset is essential for teachers to become effective facilitators of community-based water management. Studies show that attitudes significantly influence teaching effectiveness, particularly in motivating students to engage with complex environmental problems (Richardson, 1996). Analytical reasoning, in particular, is vital for navigating the multifaceted challenges of water sustainability (Morvan & Jenkins, 2017).

Practice (P)

The Practice domain demonstrated substantial needs, particularly in the ability to search for information (P2, PNI = 0.15) and GIS-related skills (P1, PNI = 0.17). The item "Accessing information resources beneficial to water management" (P2.2, PNI = 0.16) was the highest-priority practical need, followed by "Identifying spatial data problems using GIS" (P1.4, PNI = 0.20).

These findings highlight the importance of equipping teachers with technical skills for applied water management. GIS has been increasingly recognized as a critical tool for analyzing spatial data, planning interventions, and visualizing community-specific challenges (Singh & Raghubanshi, 2014). Information literacy, including the ability to search for and utilize relevant data, is similarly critical in supporting decision-making and teaching in resource management contexts (Head et al., 2013).

Connections to Broader Frameworks

The prioritization of competencies identified in this study aligns with global priorities, such as the Sustainable Development Goals (SDGs). For example:

- SDG 6 (Clean Water and Sanitation): Developing teacher competencies directly supports efforts to improve water management practices at the community level.
- SDG 4 (Quality Education): Equipping educators with the necessary knowledge, attitudes, and practices ensures they can effectively teach and inspire others in sustainable resource management.

Additionally, the findings resonate with educational theories emphasizing experiential learning, such as Kolb's (2014) model, which advocates integrating concrete experiences (e.g., GIS training) with reflective learning processes.

Broader Implications

The gaps identified in this study have implications for teacher development and broader community outcomes, as educators play a crucial role as facilitators of change, and addressing their competency gaps can:

- Enhance Community Resilience: By equipping teachers to address local water challenges, communities can adopt more effective and sustainable management practices.
- Support Lifelong Learning: Teachers with strong analytical and technical skills can CAT as lifelong learners and mentors, perpetuating a culture of continuous improvement in water management.

Future Directions

1. Intervention Design – Future studies should explore the impact of targeted interventions, such as:
    - Workshops on GIS and data literacy.
    - Problem-solving modules focusing on local water challenges.
    - Resources to support teachers in accessing water management databases.
2. Expanded Research – Additional studies could investigate:
    - Longitudinal changes in teacher competencies following interventions.
    - The relationship between teacher competencies and student/community outcomes in water management.
    - Comparisons across regions to identify context-specific needs.
3. Integration into Curriculum – Incorporating water management-focused training into teacher education programs could ensure these competencies are addressed systematically, supporting pre-service and in-service teachers.

Conclusion

This study highlights critical gaps between CAT teachers' desired and actual competencies in community-based water management, with desired competencies rated as high (mean=3.97, *SD* = 1.00) and actual competencies rated as moderate (mean=3.48, *SD* =1.10). These gaps are most pronounced in the knowledge domain (PNI = 0.21), followed by practice (PNI = 0.16) and attitude (PNI = 0.10).

Community-based water management represents new knowledge for many CAT teachers, which explains the high expectations for cognitive competencies, such as problem-solving and understanding foundational principles of water management. However, implementation challenges, including limited time, high workloads, and insufficient tools and equipment, continue to hinder progress. Addressing these barriers is essential for ensuring the success of initiatives like the "Chonlakorn" curriculum, which relies on well-prepared teachers to sustain its goals.

By prioritizing the development of cognitive, practical, and attitudinal competencies through targeted interventions and support systems, CAT teachers can be better equipped to address water management challenges and contribute to sustainable educational practices. These efforts align with broader sustainability goals, such as SDG 6 (Clean Water and Sanitation) and SDG 4 (Quality Education), ensuring that teachers play a central role in fostering community resilience and environmental stewardship.

Conflict of Interest

The authors declare that there is no conflict of interests regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication or falsification, double publication or submission, and redundancies have been ultimately observed by the authors.

References

Abuhassna, H., Alnawajha, S., Awae, F., Adnan, M. A. B. M., & Edwards, B. I. (2024). Synthesizing technology integration within the ADDIE model for instructional design: A comprehensive systematic literature review. *Journal of Autonomous Intelligence, 7*(5). https://doi.org/10.32629/jai.v7i5.1546

Barrows, H. S. (1986). A taxonomy of problem-based learning methods. *Medical Education, 20*(6), 481–86. https://doi.org/10.1111/j.1365-2923.1986.tb01386.x

Chanyawudhiwan, G., Mingsiritham, K., & Brahmawong, W. (2023). An analysis of digital competencies of the digital open universities. *Kasetsart Journal of Social Sciences, 44*(4), 1101–08. https://tinyurl.com/3uezk3uy

Chimnoy, W., Xupravati, P., & Siribanpitak, P. (2023). Academic management strategies of private elementary schools based on the concept of quality citizenship attributes in the 21st century. *Kasetsart Journal of Social Sciences, 44*(4), 1039–50. https://tinyurl.com/zhkjcsnh

Fatimah, F., & Masduqi, H. (2017). Research trends in EFL writing in Indonesia: Where art thou. *Journal of Teaching and Education*, (1), 89–98. https://tinyurl.com/4r3689nr

Fikri, A., Mahdum, M., & Isjoni, I. (2022). The development of local history learning model based on progressivism to promote historical thinking skills. *Ta'dib, 25*(1), 105–16. https://doi.org/10.17977/um048v29i1p48-57

Grau, J. B., Tarquis, A. M., Martín-Sotoca, J. J., & Antón, J. M. (2019). High-level education on integrated water resources management for sustainable development. *Journal of Technology and Science Education, 9*(3), 295–307. https://doi.org/10.3926/jotse.361

Head, A. J., Van Hoeck, M., Eschler, J., & Fullerton, S. (2013). What information competencies matter in today's workplace? *Library and Information Research, 37*(114), 74–104. https://lirgjournal.org.uk/index.php/lir/article/view/557

Huxtable, Z. L. (1938). Learning outcomes following self-directed and formally guided responses in controlled situations. *The Journal of Experimental Education, 6*(4), 406–412. https://doi.org/10.1080/00220973.1938.11010105

Khang, A., Jadhav, B., & Birajdar, S. (2023). Industry Revolution 4.0: Workforce competency models and designs. In *Designing workforce management systems for Industry 4.0* (pp. 11–34). CRC Press. https://doi.org/10.1201/9781003357070

Klaharn, R. (2017). The need assessment for improving the competence of Thai teachers in the measurement and evaluation of analytical thinking. *PUPIL: International Journal of Teaching, Education and Learning, 1*(2), 1–16. https://doi.org/10.20319/pijtel.2017.12.116

Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. FT Press.

Molenda, M. H. (2022). History and development of instructional design and technology. In O. Zawacki-Richter & I. Jung (Eds.), *Handbook of open, distance and digital education* (pp. 1–18). Springer. https://doi.org/10.1007/978-981-19-0351-9_4-1

Morvan, C., & Jenkins, W. J. (2017). *An analysis of Amos Tversky and Daniel Kahneman's judgment under uncertainty: Heuristics and biases*. Macat Library.Office of the Education Council. (2021). *Education in Thailand 2019–2021*. https://backoffice.onec.go.th/uploads/Book/1926-file.pdf

Pamuji, S., & Limei, S. (2023). The managerial competence of the madrasa head in improving teacher professionalism and performance at MI Al-Maarif Bojongsari, Cilacap District. *Pengabdian: Jurnal Abdimas, 1*(2), 66–74. https://doi.org/10.55849/abdimas.v1i2.158

Poungsuk, P., & Junlek, P. (2024). *Agricultural education systems in Thailand: Policy and direction towards sustainable development goals*. https://ap.fftc.org.tw/article/2762

Richardson, V. (1996). The role of attitudes and beliefs in learning to teach. In J. Sikula (Ed.), *Handbook of research on teacher education* (2nd ed., pp. 102–19). Macmillan. Royal Academy. (2012). *Dictionary of educational vocabulary* (Royal Institute ed.). Arun Printing. (In Thai)

Sapkota, B. D. (2023). Role of primary stakeholders in needs assessment for local development planning. *KMC Research Journal, 7*(1), 17–28. https://doi.org/10.3126/kmcrj.v7i1.65069

Shakeel, S. I., Al Mamun, M. A., & Haolader, M. F. A. (2023). Instructional design with ADDIE and rapid prototyping for blended learning: Validation and its acceptance in the context of TVET Bangladesh. *Education and Information Technologies, 28*(6), 7601–30. https://doi.org/10.1007/s10639-022-11471-0

Shea, M. A. (1997). *The UNDP's human development index: A user's guide*. https://tinyurl.com/4cemu8xb

Singh, J., & Raghubanshi, A. S. (2014). Analyzing spatial patterns of water quality using GIS. *Environmental Monitoring and Assessment, 186*(4), 2247–59.

Sleezer, C. M., Russ-Eft, D. F., & Gupta, K. (2014). *A practical guide to needs assessment*. John Wiley & Sons.

Spencer, L. M., & Spencer, S. M. (1993). *Competence at work: Models for superior performance*. John Wiley & Sons.

Suksup, C., & Sukkamart, A. (2019). Human resource management needs of Thai basic education. *Revista Espacios, 40*(17). https://www.revistaespacios.com/a19v40n17/19401711.html

Thatrak, D., & Lopradit, W. (2023). Learning process in water resource management of Ban Mae Jok Fa community, Thung Phueng Subdistrict, Chae Hom District, Lampang Province. *Journal of Community Development and Quality of Life, 11*(1), 78–88 https://so02.tci-thaijo.org/index.php/JCDLQ/article/view/259725

Ul Haq, M. (1995). *Reflections on human development*. Oxford University Press.

UNESCO. (2020). Data literacy for sustainable water management. *UNESCO Reports on Water, 4*(1), 12–19.

Ussarn, A., Pimdee, P., & Kantathanawat, T. (2022). Needs assessment to promote digital literacy among students in Thai community colleges. *International Journal of Evaluation and Research in Education, 11*(3), 1278–84. https://doi.org/10.11591/ijere.v11i3.23218

Wongwanich, S. (2015). *Needs assessment* (3rd ed.). Chulalongkorn University Press.

Wuttikamonchai, O., Pimdee, P., Ployduangrat, J., & Sukkamart, A. (2024). A needs assessment evaluation of information technology student mobile website design skills. *Contemporary Educational Technology, 16*(1), ep494. https://doi.org/10.30935/cedtech/14173

Yurayat, P., & Seechaliao, T. (2021). Needs assessment to develop online counseling program. *International Education Studies, 14*(7), 59–71. https://tinyurl.com/y4ypty9s

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Cognitive surveillance in public spaces for epidemiological control in Ecuador

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Abstract

The COVID-19 pandemic has underscored the limitations of public health infrastructure and leadership in epidemiological containment and prevention in Ecuadorian cities. Given this problem, this study emphasizes the necessity of generating localized data to inform public decision-making, leveraging socio-technological innovations to support spatial planning processes. This article presents the design and implementation of a model aimed at risk prevention of epidemiological contagion in public spaces and social congregation areas. The model enables real-time identification of behavioral patterns associated with contagion risks, facilitates the urban spaces redesign to promote health, and supports care networks to address socio-spatial needs arising from pandemic scenarios. The research integrates theoretical and empirical advancements in epidemiological surveillance, utilizing collective intelligence mediated by disruptive technologies. We employ a mixed methods approach that combines quantitative and qualitative analyses, integrating primary data from citizen surveys and public space surveillance reports provided by the Municipality of Chone. The findings led to the development of a collaborative and anonymous surveillance software prototype featuring three core functionalities: (a) participatory surveillance by public space users, (b) assisted surveillance mechanisms, and (c) care network integration. The study advocates for governmental adoption of this cognitive model by integrating a "COVID-19 Community" function into the existing Cognitive Urban Planning web platform. This addition would enable operational training and the systematic recording of epidemiological incidents, supporting urban resilience and public health management in intermediate cities.

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Introduction

This article is part of the research project entitled "Cognitive model of community surveillance for COVID-19 epidemiological infection risks" within the call made by Giz. This call was made to finance applied research projects that contribute to responding to the pandemic caused by COVID-19 and the construction of healthy cities from the perspective of climate change, sustainable urban development and public health. The lines of action of this study are healthy and cognitive cities, the generation of local information for decision-making against COVID-19, and community epidemiological surveillance models for the control of COVID-19.

The call stated that a healthy city is a place where the development of habitat and sustainable housing must be considered integrally, promoting collective participation, mainly in search of teamwork with the different actors of society, whose intervention strengthens the exchange of knowledge and experience in relevant and essential issues that are a priority in the territory. This city is conceived as one where the risks that threaten urban health can be prevented through citizen action. Included among these risks are those that promote epidemiological infection.

This study seeks to promote citizen participation and awareness about epidemiological risks by applying a cognitive model of community surveillance of infection risks in the context of the COVID-19 pandemic. Based on this objective, the research tries to answer the following question: How can communitarian surveillance help prevent infection risks in the context of the COVID-19 pandemic? Additionally, it tries to respond to: What are the population criteria for communitarian surveillance to improve the COVID-19 pandemic? What is the procedure for applying communitarian surveillance on the territory? Moreover; How could the Tecnologías de la Información y Comunicación (TICs) support the communitarian surveillance process?

In this sense, developing strategies and mechanisms for community control of risks against public health, which support decision-making supported by a collaborative and inclusive planning system, with the support of systems with geographic information approaches and artificial intelligence techniques in real-time, is presented as a viable option. It allows the application of a community surveillance model to control and prevent epidemiological risks. In this model, citizens can contribute to the identification of risk points through incident reporting processes, as well as the provision of real-time perceptions to determine a geo consensus of the population and the analysis of structured data patterns (taken from the platform, official databases), as well as unstructured ones (declared social networks).

Similarly, this cognitive prototype aspires to generate local information for public decision-making to face COVID-19. It addresses methodological innovations to ensure prosperity for cities based on access to knowledge and support for the decision-making process for land planning. In this context, the need to design a community surveillance model to control and prevent epidemiological risks was considered. With this model, citizens using the Cognitive Urban Planning (PUC) system[1] (Recalde et al., 2020) can contribute to identifying risk points through incident reporting processes and providing real-time perceptions that allow for determining a geo-consensus of the population.

On the other hand, countries with deficient public health systems and weak planning and leadership processes to take prevention and control measures in the territories have suffered the onslaught of high waves of resurgence of COVID-19. They have little chance of controlling the virus's transmissibility in public spaces and places of social gathering, where the risks are still present through new imported variants, which threaten higher rates of contagion

Such conditions force all the society actors to find strategies to converge towards innovative ways of risk prevention to avoid the spread of new and more potent virus strains. In this way, the research processes allow us to implement the PUC conceptual framework. The PUC is a model that articulates the potential of collective intelligence, geographic information systems and cognitive systems as tools to face the city's urbanization problem, developing a new governance system to support timely and efficient decision-making based on participatory work software products in real-time (Jiménez-Pacheco et al., 2019).

In this scenario, we wonder if the urban community of Chone Canton (Ecuador) is interested in exploring a collaborative surveillance model to counteract the risks

[1] The Cognitive Urban Planning (PUC) system was born from an inter-university research project that won the INEDITA national call of the National Secretariat of Higher Education of Ecuador in 2018. It is based on a web application that promotes collaborative citizen urban planning within the framework of cognitive cities, in order to support the decision-making of local governments and face the challenges proposed by the United Nations in the New Urban Agenda.

of epidemiological infection by COVID-19. A model of community surveillance of infection risks is considered to improve the decision-making process of municipalities for the control and prevention of epidemiological risks in urban areas. Consequently, the study proposes the design of a cognitive model of community surveillance for to prevent of risks of infection by COVID-19 with application in the intermediate city of Chone, which can be replicated in urban areas of the cantons of Ecuador in cases of epidemiological outbreaks. This model made it possible to build the desired software prototype and apply it within the framework of this research project.

Social Surveillance Approach in Public Spaces in the Context of COVID-19

The expansion of COVID-19 has affected all communities to a greater or lesser degree. All countries have implemented social and public health measures to stop its spread, which include limitations on national and international travel, stay-at-home orders, and closure of public activities and facilities, among other measures. Thus, in the context of stopping some restrictions that public health authorities consider on some of these measures, solid surveillance must be established to control the spread of COVID-19 and guide the continuous application of control measures (Ibrahim, 2020).

Prevention of contagion

The goal of COVID-19 surveillance is to limit the spread of the disease, enable public health authorities to manage the risks of COVID-19, and allow social and economic activities to resume as long as possible. States, in coordination with World Health Organization (WHO) recommendations, should also undertake surveillance action to monitor long-term trends in COVID-19 transmission and virus changes.

Countries such as New Zealand, Cuba and Australia, which have successfully overcome the processes of resilience to the ravages of COVID-19, showed good performance based on the capacity of the political leadership to face and contain the effects of the pandemic in their countries (Beldarraín Chaple & Gillies-Lekakis, 2020). However, this meant taking drastic measures of social distancing, closing borders and isolating cities, provinces, and states; carrying out large diagnostic campaigns (tests) in the population at risk; as well as the existence of public and accessible health systems, which were able to respond to the care needs of the affected population. Vietnam, China and Singapore also obtained flattering results for containing COVID-19 deaths per million inhabitants (0.5, 3 and 5 respectively). In addition, its surveillance strategies have been its best allies in the fight against the virus (Worldometer, 2021).

Ibrahim (2020) provides an overview of surveillance strategies that states should consider as part of the integral national surveillance of COVID-19. This research emphasizes the need to adapt and strengthen existing national systems where appropriate and to expand surveillance capabilities as needed. Their study is based on the WHO guidance document on global surveillance of human infection by COVID-19 (World Health Organization [WHO], 2020). This document establishes that the national surveillance strategies of the member countries must provide sufficient capacity to inform the WHO about the global surveillance of COVID-19.

Ibrahim (2020) provides a comprehensive classification of surveillance types, from routine to active and passive. In addition, it expresses the importance of helplines, surveys, and participatory surveillance through electronic or digital surveillance. Given the difficulty of containment, the author proposes the need for new surveillance trends for undetected COVID-19 cases to combat new transmission chains.

For the Ministry of Public Health of Ecuador (MSP by its initials in Spanish), epidemiological surveillance is a fundamental process for public health and improvement in the response of health services. It constitutes the second essential function of public health since it is a tool that allows for the collection, consolidation, analysis, and dissemination of strategic information for decision-making on various events of epidemiological and public health interest. Thus, epidemiological surveillance provides the basic materials for designing and applying intervention measures, offering a scope to deepen and update prevention and control actions (Subsecretaria Nacional de Vigilancia Epidemiológica, 2020). In this regard, the MSP has developed the Integrated Epidemiological Surveillance System in two areas:

- Indicator-based surveillance: consists of the systematic collection of information, analysis and interpretation of structured data from surveillance systems.
- Event-based surveillance: consists of capturing, filtering and verifying information on events that may have an impact on public health, coming from different official and unofficial sources.

The institutional role in public spaces

Evidence in early 2021 showed that pre-COVID-19 rules on physical distancing were based on outdated science. Since the distribution of viral particles depends on many factors, including airflow, in this way,

it is suggested that SARS-CoV-2 can travel more than 2 meters through actions such as coughing and screaming. Therefore, the rules on distancing must reflect the multiple factors that affect this risk, such as ventilation, occupancy and exposure time, both in open and closed places, without neglecting that the transmissibility of the virus in outdoor spaces and places of congregation is closely linked to the quality of ventilation, the length of stay, the use of a mask, physical distancing and the type of activity that is carried out (Jones et al., 2020).

This situation has allowed many Latin American states to decide to implement drastic control over the use and occupation of public space, generating a scenario of excessive surveillance, although insufficient in the fight against the pandemic in the territories. In Latin America, the limited quality of public spaces in lower-income neighborhoods is aggravated by the lack of security, as criminal groups have taken functional control of these spaces. In Ecuador, Chile, Bolivia and Peru, the pandemic has led authorities to reassert control of the streets to enforce quarantine and restrict movement, making these spaces safer for health personnel or essential services but unusable for the general public (Honey-Rosés et al., 2020). This condition creates a powerful precedent, and public opinion is divided on how much police state we are willing to accept in exchange for safer cities based on institutionalized surveillance, aggravating the levels of segregation and fragmentation of the Latin American city.

A mixed system of institutional and citizen responsibility has been chosen in other geographies. Such is the case in Vietnam, where a neighborhood watch plan has been implemented. In this country, which a single party governs, political conditions have aligned the military and institutional services with the efforts of organized groups in society. In the state reports, the surveillance culture is revealed as a key factor that helps explain the neighbors' disposition as informants of non-compliance with health regulations. It is thought that this approach could hardly work in more open societies, but the importance of adequate health policies supported by citizen surveillance systems in countries with limited hospital resources is affirmed (Ebbighausen, 2020; Fleming, 2020). This reality is replicated in countries like Cuba or Thailand, where, in the absence of last-generation technology, the dense network of neighborhood committees, police and neighborhood guards go to the residences of those infected to monitor their evolution and warn of possible suspected cases (Arana, 2020).

Keys to community surveillance to prevent epidemiological contagion in public spaces

Ibrahim (2020) makes several recommendations regarding improving epidemiological surveillance that allows a safe return to urban life, considering long-term trends and changes in the virus. Among various adoption measures, it suggests that more training is needed for official and voluntary surveillance. This should result in the implementation of technological practices through active surveillance, with innovative methods for data collection and collaborative tasks that add value to the control of the pandemic. It is cautioned, however, that the design of surveillance systems must be appropriate for each country.

The World Health Organization guide (WHO, 2020) highlights the importance of community individuals and their role in COVID-19 surveillance. When people cannot access care tests in a primary health network, community-based surveillance can help identify clusters of infected people and monitor and report health events to local authorities. Thus, participation in tracking infections and cluster identification are other vital ways individuals and communities contribute to COVID-19 surveillance.

In this sense, the WHO incorporates participatory surveillance of diseases so that citizens can self-report the signs or symptoms of the disease without the need to resort to a laboratory or to an evaluation by a health care provider. Disease participatory surveillance is based on voluntary reporting and is often facilitated through specific smartphone applications. Data collected from participatory surveillance may also provide clues of changes in health-seeking behavior. Consequently, health organizations worldwide agree that it is essential to ensure that prevention strategies for COVID-19 are implemented in urban areas where the risks of infection are not adequately monitored for prevention purposes and study of epidemiological transmission patterns.

So, while we may be at the beginning of a new era for digital and electronic surveillance, are we prepared to handle the current challenges of COVID-19 and, at the same time, to make real the potential of the new technology of the future? Under the geospatial technology approach, Sameer (2020) recounts the development of various smartphone applications during the COVID-19 pandemic, some of which use location for proximity, and others that do not use location services of the mobile device to preserve privacy.

Attention should be paid to the fine line where institutional epidemiological surveillance systems sit, where violations of users' civil liberties are likely to be experienced (Fleming, 2020). Fleming's study (2020) reveals the risk of social segregation and fragmentation

in structuring new urban spaces based on intelligent surveillance. Critics of these technologies cite data filtration, false positives, privacy violations, harassment towards disease carriers, and, ultimately, misuse of data by authorities. Here, the challenge arises of configuring a predominantly community surveillance model that provides certainty of health care but also facilitates processes of solidarity and mutual support; that is, software for collective work and practical purposes of service among community citizens.

Social participation in affected areas

For community participation in the face of COVID-19, Navarro Machado et al. (2020) show a descriptive study in the Municipality of Cumanayagua, Cuba, in which 627 people participated in the Active Population Screening Process (APSP-COVID). Active screening is the action that seeks to diagnose individual health status in population groups to establish existing risk factors and discover hidden morbidity early. It is a tool that facilitates the detection of relevant diseases in the epidemiological profile. In this framework, the statistics generated by the APSP-COVID were centralized in the Statistics Department Direction of the municipality, from where the information was officially disseminated.

Pola García et al. (2020) show that addressing community participation and communication during a pandemic is not easy. Therefore, each territory must develop its approach based on the strengths, capacities, health assets and weaknesses of its context and reality, assuming the need for collaborative spaces to manage the common problem of the socio-health crisis. This will allow the identification of needs in various dimensions: information transmission, monitoring of needs, emotional support, care, coverage of basic needs, identification of vulnerable people and groups, identification of resources and assets for health and well-being, prevention, and others.

Following this idea, the Ministry of Health, Government of Spain (2020) points out that community networks are collaborative structures to manage property or common problems around the socio-sanitary crisis caused by COVID-19 in a given territory. These networks can comprise citizens, administrations, professionals, or technical personnel, possibly contributing sectoral potentialities that are complementary to reaching the entire population efficiently and forcefully. In this sense, for the construction of our cognitive model, the structure of actors from the Spanish network has been reconciled within a community network with local relevance due to its role and function (Table 1).

Table 1 Functions by role of actors at the local level

Role	Function
Community leader	Assuming your responsibility as a protagonist of the community well-being of those you represent. Identifying vulnerable people and groups, as well as barriers to access to information or approved measures. Paying attention to digital and language gaps. Tracking needs in a changing context. Transmitting information (health protection and promotion measures, local epidemiological situation, resources or assets in the community, get off false news, protect against stigma, etc.). Coordinating coverage of basic needs. Coordinating care (for children, elderly, sick, people with functional diversity, caregivers, both family and paid, etc.). Seeking measures to prevent infection, detect cases and contacts, care, quarantine support, and provide treatment.
Citizenship	Knowing and detecting needs and resources. Being trusted interlocutors. Participating according to the ability to mobilize own resources. Looking for associations to mobilize own resources, professionals, volunteers, communication channels. Identifying and accessing the most vulnerable population.
Professionals and technicians	Maintaining direct relationship with citizens. Facilitating the implementation of various measures. Acting as transmitters of trust between institutions, citizens and vice versa. Ensuring continuity and closeness to the population. Providing emotional accompaniment.
Administration (counterpart of the project)	Developing measures in the face of new contexts of need. Guaranteeing measures to protect citizens and volunteers. Providing information on preventive measures. Coordinating services. Mobilizing or redistributing resources. Identifying resources, assets for health and well-being (support groups, associations, volunteers, neighborhood networks, collaborating establishments, socio-health services, etc.).

Methodology

The methodological design is part of the applied research processes through a pluralism that holistically addresses the research object. The work perspective establishes, in the first place, the look at the theoretical and empirical advances in the processes of epidemiological surveillance in the public space from collective intelligence. From here, it is based on the mixed quantitative and qualitative analysis of the information collection that includes primary and secondary sources of information: territorial planning instruments, citizen surveys and control reports of the public space of the Gobierno Autónomo Descentralizado Municipal de Chone (GADM-Chone, 2015). The deepest qualitative phase involves the participation of the relevant actors of the community in the urban space of Chone through action-participatory research techniques (Stolterman & Wiberg, 2010), carried out in the territory and channeled through physical and virtual means (Figure 1).

Characterization of Territorial Management for COVID-19

The canton of Chone (Ecuador) is part of the province of Manabí and is located to the northwest of the Ecuadorian territory in the coastal region. It has a population of 126,491 settled in an area of 3,570 km^2. The urban parishes Chone and Santa Rita show a population increase of around 9.12 percent, measured in 2010. In general, most of the population is concentrated in areas where essential services, education, and health infrastructure are available, preferably in proximity and good accessibility. Therefore, the population concentration in the Chone canton is in the south-central sector of the Chone central parish.

According to the Municipal GADM-Chone (2015), the coverage of public health services is concentrated mainly in the Chone cantonal capital, where the cantonal hospital is located and where the residents of other parishes of the canton go. However, for those who live in the parishes of Convento and Chibunga, accessibility to the hospital is almost zero since the distance is around three hours by car. For this reason, sometimes, they prefer to go to the province of Santo Domingo. There are several health facility projects planned and others under construction.

Currently, in the context of municipal regulation and control of events in the public space in the period of the COVID-19 pandemic, the GADM-Chone, through its control instances, reports operations for the following factors in frequency order:

- Control of drinkers and consumers in public spaces.
- Control of capacity in public establishments (crowds).
- Control of biosecurity standards (use of a mask, physical distancing, use of alcohol or disinfectant gel).
- Misuse of public spaces (informal vendors, sales and free movement at times and places not allowed).
- Citizen Security (thefts, fights).

Data Collection of the Urban Population of Chone

Socio-spatial information was collected in the urban parishes of Chone through a semi-structured survey. This survey made it possible to diagnose the cognitive context of epidemiological surveillance through the identification of the community's perceptions and the definition of key actors for experimentation with the prototype. The aim is to determine the characteristics of the surveillance model for a technological tool that contributes to preventing infection risks of the pandemic in the public space.

Target population: citizens over 16 years old from the urban parishes of Chone (Chone and Santa Rita). The total number of voters established in those two urban parishes who attended the electoral process of February 2021 elections were taken as a reference to obtain the sample (Table 2).

Table 2 Sample of the study population by parish

Urban Parish	Voting population	Percentage	Sample (# surveys)
Chone	54,896	78	299
Santa Rita	15,860	22	84
Total	70,756	100	383

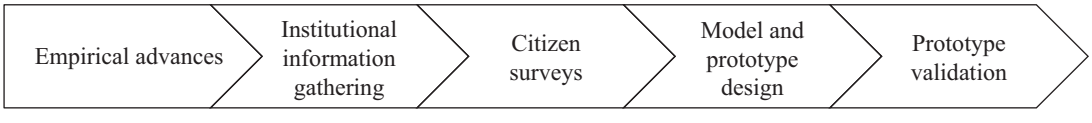


Figure 1 General research process

To obtain the sample, the following mathematical expression was applied:

$$\text{Sample size} = \frac{\frac{z^2\ x\ p\ (1\text{-p})}{e^2}}{1+\left(\frac{z^2\ x\ p\ (1\text{-p})}{e^2\ N}\right)}$$

Where:
N = Population size (70,756 inhabitants)
e = Error range (5%)
z = Confidence level (z = 1,96)

Thus, with a margin of error of 5 percent, the total sample is 383 surveys. Table 2 shows the equivalent percentage of the study population adjusted with the corresponding sample by parish.

Collection and processing methods: The applied methodology was face-to-face in the study parishes, and it was developed through interviews with the community. The survey involved collecting data using the Pencil And Paper Interviews (PAPI) method and processing it through the Google Forms platform. The data were exported to Excel sheets for graphing. From the processed data, an intentional sample of community leaders and representatives who participated in the validation of the prototype was identified.

The collection of information in the field took place continuously from Sunday 7 to Wednesday 10 of February, 2021. This was during the time of compulsory attendance to vote in the first round of presidential elections in Ecuador. Participation was voluntary, without offering any type of incentive to the surveyed citizens. The processing of the data was carried out by using descriptive statistics techniques.

Prototype Validation Process

The methodological design is completed with the validation phase of the software prototype in the territory through collaborative workshops with citizens who expressed their willingness to collaborate as community vigilantes in the survey phase. The workshops were held in May 2021. Once a focus group made the required adjustments for volunteer security guards in the workshops, the prototype was implemented as a mobile application interconnected with the PUC system (https://puc.ec/).

Results

The surveyed population was mainly between 16 and 38 years old, with 48 percent of men and 50 percent of women participating. The three main occupations declared were dealer, housewife, and student. The family group of the respondents was concentrated between 3 and 5 members. These families reside mainly in the urban neighborhoods of San Cayetano and Santa Rita in the Chone canton.

The most relevant perception results indicated that a percentage of 43 percent of the population of Chone consider that the COE is not efficient in controlling the epidemiological infection, in contrast to 57 percent who think that it is efficient. In this sense, 90 percent of the population sample believes it is necessary to implement new community surveillance mechanisms. Regarding the perception of public places and places of social encounter with the greatest probability of epidemiological infection, the surveyed population indicated that the places of mass supply, public transport, squares or parks, streets and urban services are the spaces with the greatest risk.

Regarding the wishes of the population, 86 percent would agree with anonymously alerting the control authorities about potential risks of epidemiological infection in public spaces; 81 percent with anonymously alerting another citizen of this situation. It is identified that 42 percent show interest in participating as a volunteer in the prevention of infection risks in public spaces; and another 48 percent express interest in participating through a mobile application in the control of infection risks in their neighborhoods. In addition, 92 percent of the urban population reports having at least one smart mobile phone device.

It is important to point out that the survey was used to identify an intentional population sample of eight watchers and community leaders, who were strategic collaborators in the validation of the model and experimentation with the software prototype.

Community Surveillance Model for Public Spaces on Epidemiological Contagion Alert

Epidemiological surveillance includes the systematic and continuous collection, analysis, interpretation and dissemination of data related to a health event to take regulatory and preventive actions. Surveillance is a fundamental part of public health practice. Real-time analyses of epidemiological data are urgently needed to raise awareness of the problem and to carry out rapid

interventions. Identifying the risks of transmission in the public space, as well as new suspected cases, will be essential for the effectiveness of public health interventions and for preventing the pandemic spread (Ibrahim, 2020). Therefore, surveillance of COVID-19 in the public space implies developing an alert system to prevent the spread of the disease, identify and monitor patterns of risk behaviors and apply targeted prevention and control measures. Likewise, the pandemic has strongly impacted social ties, with material and subjective consequences produced by urgent socio-spatial needs. In this sense, activating networks of caring for the other is required to counteract the symptoms that reproduce social inequality from the incentive of cooperative and mutual solidarity practices in the urban environment (Gallo-Acosta, 2020).

Model design

The epidemiological surveillance model is based on the systems that reinforce the cognitive human factor (Thagard, 2016); it studies the information obtained from the GADM-Chone on the municipal control of activities by COVID-19, as well as the survey results to the citizens. The technical sheet of the cognitive model (Table 3) is established from the perception of citizen desire about the spaces of most significant risk, the preferred channels for reporting risk alerts, and their willingness to report risk threats anonymously to the authorities and other citizens in the environment.

Roles assigned to the citizen

- Public space User. – Ordinary citizen who is carrying out activities in places characterized as public and social gathering spaces (streets, squares, parks, public transport, public facilities, leisure services, etc.).
- Community watcher. – Citizen interested in monitoring a sector or neighborhood, through a flexible tour of the public space, generating alerts for public institutions, as well as validating the registry of care services related to social needs due to the pandemic. In addition, the community guard must validate and register the care services of his monitoring sector (Figure 2).
- Care server. – Individuals or groups that provide health care services, social care, and distribution of food and supplies related with health and alike, to cover social needs in the pandemic situation.
- Care seeker. – People who face a social need in their homes due to the pandemic crisis.

Functions of the cognitive model

- Participatory surveillance. – Control of epidemiological risk in the use and occupation of public spaces and places of social gathering through anonymous alerts reported en masse on nearby devices of other users about improper health behavior, using a text channel (Figure 2).
- Assisted surveillance. – Control of epidemiological risk in the use and occupation of public space and social gathering places through anonymous alerts reported promptly to instances of institutional control about a specific sanitary incompletion, using text, voice and image channels (Figure 2).
- Activation of a care network. – Creation of a bank of care services through the validation and registration of services to meet the social needs arising from the pandemic crisis, to find solutions based on solidarity and non-monetary exchange and to develop a culture of mutual support (Figure 2).

Table 3 Data sheet of the cognitive model

Cognitive strategies	• To prevent risks of epidemiological infection in public spaces • To identify behavioral patterns of risk of epidemiological transmission in the public space for the design of healthy and resilient cities • To promote the development of networks for care and mutual support in the face of socio-spatial needs due to epidemiological events	
Territorial application	Urban parishes of the Chone canton (Chone, Main Canton, and Santa Rita)	
Principal actor	Citizen who carries out activities in public space	
Roles	Main	• Public space user • Community watcher
	Secondary	• Care server • Care seeker
Functions	• Participatory surveillance • Assisted surveillance • Activation of the care network	

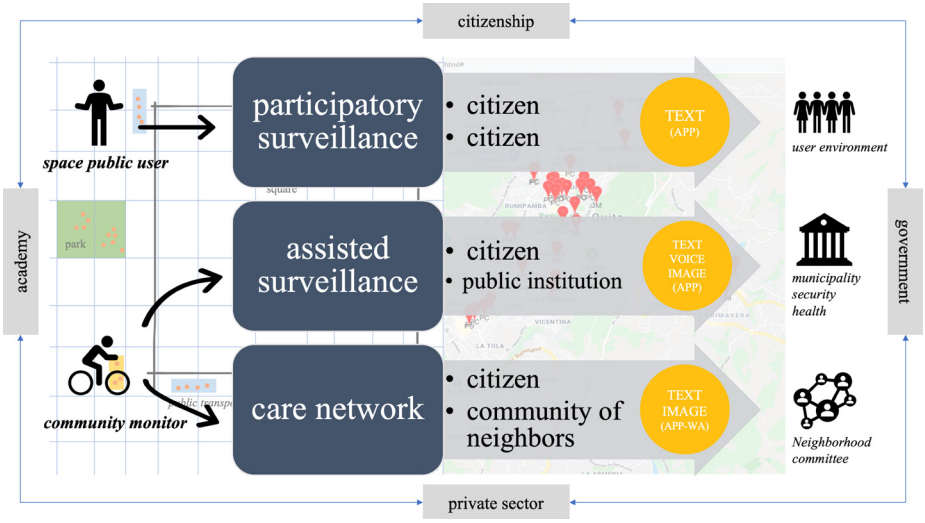


Figure 2 Diagram of the model of community surveillance in public spaces

Regarding the experimentation processes in the territory, it is recommended that the promoter of participation in these processes be the community watcher in the figure of the self-identified community leaders and representatives. The community watcher must access a group of people previously willing to collaborate in the prevention of risks by COVID-19 and who are preferably located in the same sector or neighborhood of residence (Figure 3). Similarly, Table 4 summarizes the processes by each actor, which will be represented in the software prototype.

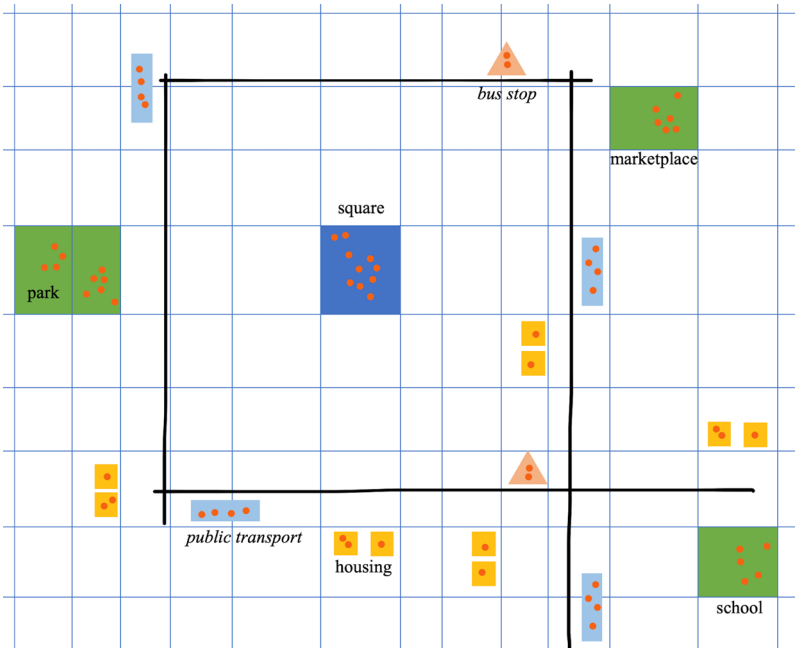


Figure 3 Typology of public sites where the community watcher works

Table 4 Cognitive actions carried out by each actor

Role	Function	Type of alerts	Transmitter	Receivers	Channel
Public space user	Participatory surveillance	• Physical distancing. • Improper use of mask. • Not wearing a mask.	Citizen user of the public space.	Users of the application who are within a radius of 50 meters.	Text (APP)
Community watcher	Assisted Surveillance	• Capacity of squares and parks, premises and public transport. • Biosafety standards in premises and events.	Community watcher	• UPC • ECU 911 • GAD Chone	Text Voice and image (APP)
	Activation of a care network	Validation and registration of care services associated with the pandemic crisis.	Community watcher	Users of the application within the surveillance perimeter.	Text (APP)

Validation and experimentation of cognitive model in Chone

A group of volunteer community watchers was established (Table 5) to operate the prototype within a strategic circuit that enables a flexible route in an assigned urban sector. It allowed linking various points of interest (market, plaza, bus station, school, etc.). Care centres, restaurants, etc.) within the framework of the epidemiological risks present in the territory and the functions pre-established in the model. The residential influence of the watcher was used as a surveillance area. The experimentation of the prototype was based on the information provided by the COVID-19 control instances of the canton. The adjusted prototype was translated through the development of the mobile application entitled "Cuidémonos", which is monitored by the PUC platform (Figure 4).

Table 5 Identified volunteer community watchers

Names and Last names	Parish	Neighborhood sector	Position in the neighborhood board
Miguel Alejandro Moreira Barreto	Santa Rita	Parque las Madres	Treasurer, inhabitant
Silva Vera	Boyacá	Boyacá	President
Santos Romero Edison Daniel	Chone	Naranjo 2	President
Fanny Caicedo	Chone	–	President
Galo Hidalgo	Chone	Cauca	President
Carlos Enrique Salaborria Navarrete	Chone	Calle 14 de Agosto	Member
Solorzano Cedeño Lito	Santa Rita	Los Sauces	President
José Cedeño	Chone	–	Member

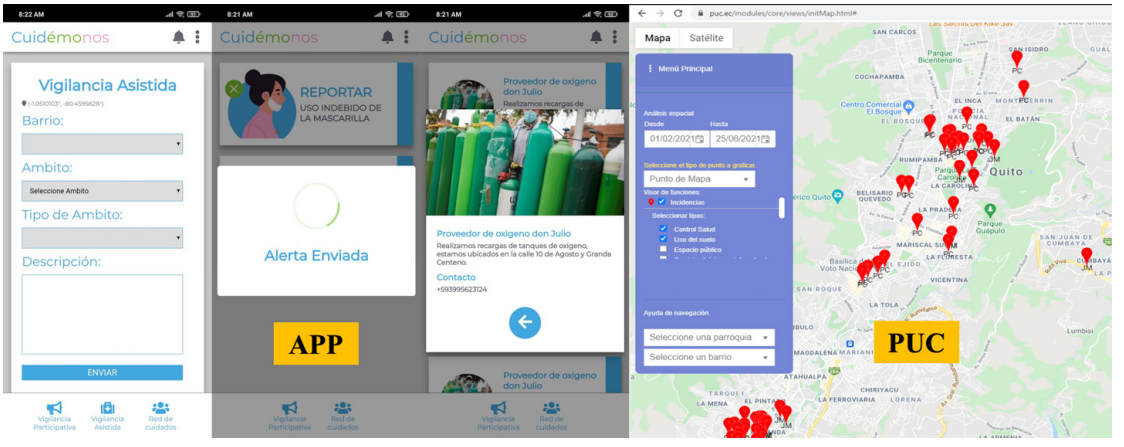


Figure 4 Interfaces Cuidémonos App and PUC web platform

Discussion

The results obtained and the validation in the territory show some insight into the significance of community surveillance, which could improve to reduce territory risk; in the next paragraphs, this research discusses the theoretical and empirical evidence that show the positive effects of combining community surveillance with the TICs. In this sense, Ibrahim (2020), and Worldometer (2021), agree when they mention that in the context of stopping some restrictions that public health authorities consider on some of these measures, it is essential that solid surveillance be established to control the spread of COVID-19 and guide the continuous application of control measures. This research confirms the ideas posed by the authors since, with the Chone populations, 90 percent of the population believes it is necessary to implement new community surveillance mechanisms; these mechanisms have to cover places of mass supply, public transport, squares or parks, streets, and urban services are the spaces with the most significant risk. Such also agrees Jones et al. (2020).

The World Health Organization guide (WHO, 2020) and Ibrahim (2020) highlight the importance of individuals in the community and the role they can play in COVID-19 surveillance and the implementation of technological practices through the application of active surveillance, with the use of innovative methods for data collection and collaborative tasks that add value in the control of the pandemic; moreover, Sameer (2020) recounts the development of various applications for smartphones in the COVID-19 pandemic, some of which use location for proximity and others that do not use location services of the mobile device in order to preserve privacy. Based on these experiences and the territory diagnosis, the epidemiological surveillance model is based on the systems that reinforce the cognitive human factor; the technical sheet of the cognitive was established from the perception of citizen desire about the spaces of most significant risk; the preferred channels for reporting risk alerts; and their willingness to report risk threats anonymously both to the authorities and to other citizens in the environment (see section 5.1. Model Design).

Navarro Machado et al. (2020) conducted a descriptive study in the Municipality of Cumanayagua, Cuba, where 627 people participated in the Active Population Screening Process (APSP-COVID). In section 5.4, Validation and experimentation of cognitive model in Chone, the proposed model was appropriately adjusted to the cantonal reality of an intermediate city with the capacity to replicate at the national level. In this context, the challenges of preventing epidemiological infection in the public space are met through the designed prototype to contribute to the public health system and alleviate the institutional burden of epidemiological risk prevention. In turn, the experimentation phase confirmed the initiative of social participation in adherence to the desire for collaboration and mutual help.

Conclusion

Within the framework of the Cognitive Urban Planning software application, the incorporation of this model is recommended as a function called "COVID-19 Community", from the conceptual category of participation in the co-creation of the city. The work software tools must allow the autonomous development of the two main roles through the execution of the three assigned functions: "participatory surveillance", "assisted surveillance" and "care network". The participation of the role of "public space user" must be open without any registration, while the participation of "community watcher" will imply to get out in a timely manner.

It is planned to develop future experiments under the patronage of the government and the academy, with the purpose of training the application and capturing incidences of infection in the public space. This will contribute to the construction of healthy cities, tending to improve the epidemiological control with reports in real time over the territory and monitored from the Cognitive Urban Planning platform.

The opportunities of this cognitive surveillance prototype are encouraging due to its practical and intuitive processes. In the future, municipalities of intermediate cities must be responsible for rebuilding the social fabric in neighborhoods since trust and collaboration between neighbors are the raw material for the application's usability. Finally, urban planning must recognize the importance of technology incorporating collaborative practices to develop participation processes supported by cognitive intelligence and geographic information systems.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

Arana, I. (2020, April 28). *Vietnam utiliza la vigilancia vecinal para mantener a raya el virus* [Vietnam uses neighborhood surveillance to control the spread of the virus] *La Vanguardia*. https://www.lavanguardia.com/internacional/20200428/48771891807/vietnam-utiliza-la-vigilancia-vecinal-para-mantener-a-raya-el-virus.html [in Spanish]

Beldarraín Chaple, E., & Gillies-Lekakis, S. (2020). *La pandemia de COVID-19, estudio de casos: Australia, Nueva Zelandia y Cuba* [The COVID-19 pandemic, case study: Australia, New Zealand, and Cuba]. *Revista Habanera de Ciencias Médicas*, *19*(6), 1–23. https://www.redalyc.org/journal/1804/180465572014/html/ [in Spanish]

Ebbighausen, R. (2020, April 16). *Vietnam ha logrado frenar la pandemia ¿cómo?* [How Vietnam has managed to stop the pandemic?]. Deutsche Welle Mundo. https://p.dw.com/p/3bKbl [in Spanish]

Fleming, S. (2020, April). *Vietnam muestra cómo se puede contener COVID-19 con recursos limitados* [Vietnam shows how COVID-19 can be contained with limited resources]. World Economic Forum. https://es.weforum.org/stories/2020/04/vietnam-muestra-como-se-puede-contener-covid-19-con-recursos-limitados [in Spanish]

Gallo-Acosta, J. (2020). *El cuidado de sí y de los otros: el sujeto y el comunismo en la época del coronavirus en Latinoamérica* [Care of oneself and others: The subject and communism in the era of coronavirus in Latin America]. *Analéctica, 6*(39). https://doi.org/10.5281/zenodo.3840742 [in Spanish]

Gobierno Autónomo Descentralizado Municipal del Cantón Chone (GADM-Chone). (2015). *Plan de Desarrollo y Ordenamiento Territorial del Cantón Chone (2014–2019)* [Development and land use plan of the Chone Canton (2014–2019)]. https://www.chone.gob.ec/pdf/lotaip2/documentos/pdot.pdf [in Spanish]

Honey-Rosés, J., Anguelovski, I., Chireh, V. K., Daher, C., Konijnendijk van den Bosch, C., Litt, J. S., Mawani, V., McCall, M. K., Orellana, A., Oscilowicz, E., Sánchez, U., Senbel, M., Tan, X., Villagomez, E., Zapata, O., & Nieuwenhuijsen, M. J. (2020). The impact of COVID-19 on public space: An early review of the emerging questions – design, perceptions and inequities. *Cities & Health*, *suppl. 1*, S263–S279. http://10.1080/23748834.2020.1780074

Ibrahim, N. K. (2020). Epidemiologic surveillance for controlling COVID-19 pandemic: Types, challenges and implications. *Journal of Infection and Public Health*, *13*(11), 1630–1638. https://doi.org/10.1016/j.jiph.2020.07.019

Jiménez-Pacheco, P., Puente Garrido, D. E., Recalde, L. K., & Meza Hormaza, J. A. (2019, October 2–4). *Modelo de planificación urbana cognitiva para un prototipo de acceso a la vivienda y urbanismo colaborativos* [Cognitive urban planning model for a prototype of access to housing and collaborative urbanism]. In *XIII CTV 2019 Proceedings: XIII International Conference on Virtual City and Territory: Challenges and Paradigms of the Contemporary City* (13th ed., Barcelona, Spain) http://dx.doi.org/10.5821/ctv.8514 [in Spanish]

Jones, N. R., Qureshi, Z. U., Temple, R. J., Larwood, J. P. J., Greenhalgh, T., & Bourouiba, L. (2020). Two metres or one: What is the evidence for physical distancing in COVID-19? *BMJ*, *370*, m3223. https://doi.org/10.1136/bmj.m3223

Ministry of Health, Government of Spain. (2020). *Redes comunitarias en la crisis de COVID-19* [Community networks in the COVID-19 crisis]. https://www.mscbs.gob.es/profesionales/saludPublica/prevPromocion/Estrategia/docs/ImplementacionLocal/Redes_comunitarias_en_la_crisis_de_COVID-19.pdf [in Spanish]

Navarro Machado, V. R., Moracén Rubio, B., Santana Rodríguez, D., Rodríguez González, O., Oliva Santana, M., & Blanco González, G. (2020). *Pesquisa activa comunitaria ante la COVID-19. Experiencias en el Municipio de Cumanayagua* [Active community inquiry facing COVID-19: Experiences in the Cumanayagua municipality]. *MediSur*, *18*(3), 388–395. http://medisur.sld.cu/index.php/medisur/article/view/4654 [in Spanish]

Pola García, M., Domínguez García, M., Escartín Lasierra, P., Shafi Tabatabaei, N., Martínez Pecharromán, M., & Benedé Azagra, C. (2020). *Aproximación a la respuesta comunitaria a la pandemia por COVID-19 de los equipos de Atención Primaria de Salud aragoneses* [Approach to the community response to the COVID-19 pandemic of Aragonese primary healthcare teams]. *Revista Comunidad 22*(2), 1–10. https://comunidad.semfyc.es/aproximacion-a-la-respuesta-comunitaria-a-la-pandemia-por-covid-19-de-los-equipos-de-atencion-primaria-de-salud-aragoneses/ [in Spanish]

Recalde, L., Jiménez-Pacheco, P., Mendoza, K., & Meza, J. (2020). Collaboration-based urban planning platform: Modeling cognition to co-create cities. In *2020 Seventh International Conference on eDemocracy & eGovernment*. https://doi.org/10.1109/ICEDEG48599.2020.9096708

Sameer, S. A., Khan, M., Nissar, S., & Banday, M. (2020). Assessment of mental health and various coping strategies among general population living under imposed COVID-lockdown across world: A cross-sectional study. *Ethics, Medicine and Public Health*, *15*, 100571. https://doi.org/10.1016/j.jemep.2020.100571

Stolterman, E., & Wiberg, M. (2010). Concept-driven interaction design research. *Human–Computer Interaction*, *25*(2), 95–118. https://doi.org/10.1080/07370020903586696

Subsecretaria Nacional de Vigilancia Epidemiológica. (2020). *COVID-19, lineamientos generales de vigilancia epidemiológica. Versión 6* [COVID-19, general guidelines for epidemiological surveillance. Version 6]. Ministerio de Salud Pública del Ecuador. https://www.salud.gob.ec/wp-content/uploads/2020/08/Lineamientos_generales_COVID-19-04-08-2020-FE-DE-ERRATAS.pdf [in Spanish]

Thagard, P. (2016). Emotional cognition in urban planning and design, in J. Portugali and E. Stolk (Eds.). *Complexity, cognition, urban planning and design* (pp. 197–213). Springer.

World Health Organization. (2020). *Surveillance strategies for COVID-19 human infection: Interim guidance*. World Health Organization. https://apps.who.int/iris/handle/10665/332051?locale-attribute=es&

Worldometer. (2021). *COVID-19 coronavirus pandemic*. https://www.worldometers.info/coronavirus/

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Guidelines for developing a healthy prison and preparedness before inmates in correctional institutions towards sustainable development in Thailand

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Abstract

This research article explores the development of healthy prisons and the preparation of female inmates for sustainable reintegration into society. The study aims to assess the historical, theoretical, and practical aspects of healthy prison environments, focusing on the current conditions and challenges faced by female inmates. Using a qualitative research approach, data were collected from 24 key informants, including female prison administrators and staff. The study identifies significant barriers such as overcrowding, outdated facilities, and inadequate healthcare, which adversely affect inmates' physical and mental well-being. Overcrowding, driven by rising inmate populations, contributes to stress, health issues, and limited activity space, while insufficient medical personnel and facilities further constrain health care delivery. Additionally, the study highlights barriers in preparing female inmates for release, including educational deficits, inadequate vocational training, and limited access to essential resources. Educational programs often fail to align with inmates' interests or market needs, and vocational training is hampered by financial and logistical constraints. Moral and spiritual development is also challenged by psychological issues and limited support networks. To address these challenges, the study recommends a multifaceted approach that includes enhancing prison infrastructure, improving educational and vocational programs, and supporting mental and emotional well-being through family and community involvement. Effective prison reform requires collaboration among relevant agencies to ensure that female inmates are successfully reintegrated into society and can achieve long-term sustainability.

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Introduction

The national development plan, as outlined in the 20-Year National Strategic Plan (2018–2037), the 12th National Economic and Social Development Plan (2017–2021), the 13th National Economic and Social Development Plan (2023–2027), and the Sustainable Development Goals (SDGs), emphasizes the enhancement and development of human capital. This focus is directed towards fostering a society of opportunities and fairness. The government's policy on the rehabilitation of former inmates aims to improve the quality of life and well-being of communities. Consequently, the Department of Corrections has been tasked with increasing the effectiveness of inmate rehabilitation programs, aiming to reform the attitudes and behaviors of prisoners to reintegrate them as responsible citizens. The Department of Corrections is committed to its core mission of ensuring that the custody and rehabilitation of inmates align with judicial rulings. This involves the development of organizational capacity and human resources to address the rehabilitation and reintegration of inmates under the Department's jurisdiction. The key objectives include maintaining high standards in the custody of inmates, overseeing the evaluation and treatment of drug-dependent prisoners, and improving behavioral rehabilitation to facilitate the successful reintegration of reformed individuals into society. Additionally, the Department focuses on enhancing the efficiency of its custodial practices and addressing the issue of drug abuse within prisons (Department of Corrections, 2022).

The Global Prison Trends 2023 report highlights critical issues such as the global prison population, which has surged to 11.5 million, leading to overcrowded facilities. This overcrowding has strained prison healthcare systems, with higher rates of infectious diseases and inadequate mental health services (Ismail et al., 2021). The rising cost of living has further exacerbated budget constraints, making it difficult for families to support incarcerated relatives. In Thailand, as of March 1, 2024, the female prison population stood at 34,599, with most inmates convicted of drug-related offenses (Department of Corrections, 2022). This situation has led to unmanageable overcrowding, posing significant challenges to inmate rehabilitation and prison health. Improving prison health is crucial for achieving the SDGs. Ensuring that incarcerated individuals have access to healthcare services during their confinement demonstrates the government's commitment to upholding human rights. This effort aligns with the SDGs' focus on human development, particularly in eradicating poverty, promoting health and well-being, and providing quality education. Prison health is directly linked to SDG Goal 3, which aims to ensure healthy lives and promote well-being for all at all ages, and Goal 5, which emphasizes gender equality and the empowerment of women and girls.

Prisons in Thailand are a significant element of sustainable social development, as they play a crucial role in controlling and rehabilitating offenders to reintegrate into society effectively. However, prison management continues to face numerous challenges, particularly concerning female inmates, a group with distinct needs and circumstances compared to their male counterparts. According to the Department of Corrections, as of 2022, the number of female inmates in Thailand has been steadily increasing, accounting for approximately 15 percent of the total inmate population. Key issues affecting female inmates include overcrowding, lack of mental health support, and insufficient preparation for reintegration into society.

Moreover, the conditions in prisons highlight gender inequalities and difficulties in accessing basic resources for female inmates (Department of Corrections, 2022). Since the enactment of the Corrections Act of 1939, significant changes have been made in the design and improvement of prisons nationwide, including the separation of areas by gender and a focus on detaining offenders according to the justice process. However, the rapid rise in the female inmate population has led to overcrowding and shortages of essential facilities, adversely affecting their quality of life and health. Gender-specific issues such as reproductive health, pregnancy, and childcare within prisons pose major barriers to accessing fundamental rights. Additionally, spatial and regulatory limitations exacerbate social and administrative challenges for female inmates. The emotional strain of being separated from families and loved ones has sparked new calls for reform in the treatment of inmates, strongly supported by Princess Bajrakitiyabha. Her advocacy, particularly during the 2008 conference in Vienna, has driven new perspectives and momentum to align prison development with human rights principles and international standards (Hawanont & Watthanothai, 2018).

This research aims to explore solutions for improving prison conditions and addressing the specific needs of female inmates in Thailand. It also seeks to examine the role of sustainable development in shaping prison policies and practices. The findings are expected to contribute to the development of more inclusive and

effective strategies for managing female inmates and promoting social equity within the criminal justice system. The researcher emphasizes the approach of "Healthy Prisons" as a strategy for empowering inmates positively. This approach focuses on the development of basic public health and an integrated health system. It involves transforming prisons into spaces where inmates can engage in activities that foster positive experiences and creative learning, thereby promoting physical, mental, social, and intellectual well-being. This approach aims to enhance the quality of life for inmates, enabling them to reintegrate into society as law-abiding citizens upon release. The integrated rehabilitation approach seeks to create a prison environment that closely mirrors the outside world, both physically and in terms of daily life, fostering a positive mindset among inmates. By the end of their sentences, former inmates should be better equipped to reintegrate into society and avoid recidivism.

Literature Review

The researcher has undertaken an extensive literature review to establish a conceptual framework for the study "Guidelines for Developing Healthy Prisons and Preparing Female Inmates for Sustainable Reintegration." This framework integrates key aspects of sustainable development, with a particular emphasis on Sustainable Development Goal (SDG) 3, which aims to ensure healthy lives and promote well-being for all at all ages, and SDG 5, which focuses on achieving gender equality and empowering women and girls. The "Healthy Prison" concept, central to this framework, encompasses four essential domains: the well-being of living and sleeping environments, the quality of daytime activities and lifestyle, nutritional well-being, and access to health care and medical services. The study further explores the importance of pre-release preparation in three critical areas: vocational training, education, and moral and ethical development. Moreover, the research addresses the challenges and limitations in developing healthy prison environments and preparing inmates for reintegration, alongside the processes and models necessary for effective implementation. Sustainable prison development, aligned with the broader SDGs, particularly SDG 3, 4, and 5, highlights the necessity of improving prison health and education to reduce inequalities and ensure that incarcerated individuals, often among the most vulnerable and marginalized populations, are not "left behind" (Ismail et al., 2021). The COVID-19 pandemic has exacerbated existing health disparities, making it more imperative than ever to protect the rights of inmates by ensuring their access to quality healthcare and education during confinement, thereby supporting the overarching goals of the SDGs related to social well-being, gender equality, and quality of life.

The Concept of Treating Female Inmates

The concept of treating female inmates reflects an evolving approach within society, where justice has historically been administered to ensure fairness for victims and maintain social order. The methods of treatment, while varying across cultures, traditions, and legal systems, serve as a means of punishment that aligns with the severity of the offense committed. Kant's Theory of Punishment (Kant, 1999) has significantly influenced the development of justice systems, with four primary theories of punishment being particularly relevant: (1) Retributive Theory—grounded in Kant's work, it posits that punishment should be a just recompense for the crime committed, with the severity of the punishment reflecting the severity of the offense to uphold societal justice. Failure to punish would equate to condoning the crime. (2) Deterrence Theory—originating from classical criminology, this theory argues that punishment should deter future crimes by instilling fear of consequences in both the offender and potential offenders. (3) Rehabilitative Theory—rooted in positive criminology, it emphasizes the reformation of offenders, aiming to reintegrate them into society through education, training, and psychological support. (4) Social Protection Theory—advocated by social defense schools, it focuses on safeguarding society by isolating offenders to prevent future crimes (Brooks, 2003).

In contemporary practice, the treatment of offenders has shifted towards a dual focus on control and rehabilitation, providing offenders with opportunities to reform and reduce recidivism. Effective rehabilitation requires the classification of inmates based on their individual characteristics, ensuring that treatment is appropriately tailored. This process involves several key steps: (1) studying the individual histories of inmates, (2) analyzing and categorizing inmates based on collected data and behavior, and (3) monitoring and evaluating the outcomes of these classifications. Such classifications facilitate the design of rehabilitation activities that are most effective for each group of inmates, ultimately contributing to their successful reintegration into society (Chaichompoo, & Thertudomtham, 2022; Khantee et al., 2015).

The Concept of Healthy Prison

The study of the concept of well-being by the World Health Organization reveals that well-being encompasses three primary dimensions: physical, mental, and social. These dimensions are dynamic and can evolve with changing times and societal contexts (Chokewiwat, 2009). Additionally, an expanded understanding of well-being identifies five dimensions: physical, emotional, social, mental, and spiritual well-being (Butler, 2001), reflecting the diverse and interconnected aspects necessary for improving quality of life. In the prison context, the concept of a "Healthy Prison" aims to create an environment conducive to fostering inmates' well-being in all dimensions. This is achieved through activities and management practices focused on rehabilitating relationships with families and communities, as well as preparing inmates to reintegrate into society as quality citizens (Chokewiwat, 2009). The development of a healthy prison involves the integration of health, rehabilitation, and social development dimensions to establish an environment that supports sustainable well-being for inmates while enhancing opportunities for adaptation and effective reintegration into society.

In conclusion, the concept of a healthy prison, as outlined by Wajanasara and Archavanitkul (2021), presents a holistic approach to inmate well-being. By focusing on enhancing self-care capabilities, reducing disease risks, and increasing access to healthcare, prisons can directly improve the physical health of inmates. Additionally, promoting vitality, fostering positive thinking, and nurturing healthy relationships address the mental and emotional aspects of well-being. Maintaining family roles and creating opportunities for reintegration into society further support social rehabilitation, ensuring that inmates are better prepared for successful reentry. Together, these components foster a supportive and transformative environment that not only focuses on inmate health but also on long-term societal reintegration.

Concepts of Preparation for Release

The training and behavioral correction of inmates are essential processes in preparing them for reintegration into society with potential and without reoffending (Department of Corrections, 2022). These efforts focus on three key areas: 1) Vocational Training for Inmates: Vocational training enhances skills and provides opportunities for lawful employment (Sutthisorn, 2019); 2) Educational Opportunities for Inmates: Education programs aim to enable inmates to develop themselves into good citizens through tailored learning experiences. By categorizing inmates based on their backgrounds, these programs enhance knowledge and qualities essential for becoming responsible members of society (Hutapat, 2013); 3) Moral Training: Moral training reinforces ethical values and mental resilience. This involves integrating Buddhist principles into a systematic and sustainable behavioral development process. (Dhirabhaddo et al., 2018) Collectively, these efforts highlight the importance of holistic care and development for inmates, ensuring they can return to society as valuable and contributing members.

Figure 1 presents the conceptual framework of the study, illustrating how concepts, theories, academic literature, and related research, together with the perspectives of administrators and staff of the women's correctional institution, contribute to the development of guidelines for healthy prisons and pre-release preparedness in correctional institutions towards achieving the Sustainable Development Goals.



Figure 1 Conceptual framework

Methodology

The researcher has established the research methodology using a qualitative approach, specifically a phenomenological approach, which focuses on studying individuals' life experiences (Holloway, 1997). This study employed two research approaches: (1) Documentary Research: This method involves collecting and analyzing secondary data from academic documents, concepts, theories, articles, and previous research related to pre-release preparation in both Thai and international contexts. This approach helps in referencing and supporting the study with existing literature. (2) Field Research: This method gathers primary data through in-depth interviews with key informants. The qualitative research process involves interviewing individuals who have significant knowledge and involvement in the subject matter. Structured interview questions are designed to elicit comprehensive responses, allowing for an in-depth understanding of the topic.

Population and Key Informants

The researcher defined the population and sample for this study by selecting key informants from eight female correctional institutions across the country. Employing purposive sampling, the study targeted individuals with significant involvement and expertise. The sample comprised two groups: Group 1 included eight senior executives from the eight institutions, while Group 2 consisted of sixteen staff members, two from each institution, who possessed knowledge of healthy prisons and expertise in pre-release preparation with a minimum of five years of experience. A purposive sampling technique was used to select 24 key informants from eight female correctional institutions.

Measurement

The data collection tool for this research is a semi-structured interview guide. The interview questions are developed based on a review of relevant literature, theoretical concepts, and expert recommendations. The semi-structured interview guide covers the following areas: The interviews will cover various topics, including SDGs, healthy prisons, and the challenges and limitations in developing such environments. Additionally, the discussions will focus on pre-release preparation, exploring the processes, steps, methods, and models involved in both developing healthy prisons and preparing inmates for release. Special attention will be given to strategies specifically designed for female inmates to ensure their successful reintegration into society, aligning with the broader objectives of sustainable development.

The interview guide was created based on a thorough review of textbooks, academic documents, and relevant theories. It was reviewed by five experts for content validity and revised accordingly. The tool's quality was verified through an Item-Objective Congruence Index (IOC) and triangulation to ensure validity and reliability before analysis.

To ensure the quality of the interview instrument, the researcher employed comprehensive methods for data verification, analysis, and integration. This process included triangulation to enhance validity and reliability. For reliability, the researcher assessed the credibility of data sources, adherence to criteria, transferability to other contexts, and the avoidance of bias from both informants and the researcher. Confirmability was achieved by clearly outlining the procedures and steps for data collection and analysis, allowing interested parties to verify the accuracy and completeness of the research findings and reports.

The researcher employed two primary methods for data collection. First, secondary data were gathered from academic sources, including theories, articles, and research, to build a theoretical foundation. Second, primary data were collected through 24 in-depth interviews with key informants, focusing on the development of healthy prisons and inmate reintegration. The process involved obtaining permission from the Department of Corrections, scheduling interviews with executives and staff from eight female correctional institutions and recording and transcribing the discussions for analysis and academic reporting.

Data Analysis

Data analysis involved integrating information from semi-structured interviews to gain diverse perspectives and in-depth insights. The following steps were taken:

Data Reduction: The data from 24 interviews were summarized to focus on key questions.

Data Organization: The reduced data were categorized into themes.

Conclusion and Interpretation: The context was considered to derive meaningful insights, which were then used to develop a conceptual framework and discuss the findings, along with recommendations for further research.

Results

The data analysis from key informants in the qualitative research titled "Guidelines for Developing a Healthy Prison and Preparedness Before Inmates in Correctional Institutions Towards Sustainable Development Goals in Thailand" is a process focused on understanding the in-depth experiences of informants regarding the prison environment and preparation for reintegration into society. The findings reveal the complex perspectives of inmates and stakeholders involved in the development of healthy prisons, through narratives reflecting their needs, challenges, and approaches to aligning prison development with the SDGs. The data gathered enable the researcher to identify key factors that support the development of healthy prisons across various dimensions, including creating a health-promoting environment, supporting educational and vocational opportunities, and enhancing the mental resilience of inmates. These factors ensure that the development of healthy prisons is both sustainable and aligned with international standards. The following are the basic details of the key informants.

1. The personal factors of the 24 key informants are divided into two groups: the group of female correctional institution executives and the group of female correctional staff, Table 1 shown as detailed below:

From Table 1, the analysis of the personal factors of 24 key informants can be summarized as follows:

All 24 key informants were female, with the majority falling between the ages of 41–50 (37.50%). Most had a bachelor's degree (66.67%), and their work experience ranged predominantly from 11–15 years (33.33%). In terms of job positions, 33.33 percent were directors, another 33.33 percent were welfare and inmate assistance officers, 16.67 percent were correctional operations officers, and 16.67 percent were inmate development officers.

2. The development of healthy prisons and preparation for the release of inmates in female correctional institutions toward sustainable development revealed that the development of female correctional institutions aligns with the SDGs as follows:

2.1) Sustainable Development Goal (SDG) 3: Ensure healthy lives and promote well-being for all at all ages. All eight female correctional institutions have established guarantees for good health and well-being within the institutions. The integration of cooperation from all relevant sectors has been implemented, with the organization's core policies set for concrete action. Compliance with the Department of Corrections standards and the Bangkok Rules has been applied to care for and provide welfare for children born in prison and to care for inmates with disabilities or elderly inmates appropriately. Additionally, appropriate education is provided to inmates.

Table 1 The personal factors of the 24 key informants

The personal factors		Quantity	Percentage
Gender	Female	24	100
	Male	-	-
Age	Under 30 years old	2	8.34
	30–40 years old	6	25.00
	41–50 years old	9	37.50
	51–60 years old	7	29.16
Education levels	Bachelor's degree	16	66.67
	Master's degree	8	33.33
	Doctoral degree (Ph.D.)	-	-
Work experience	Less than 5 years of experience	3	12.50
	5–10 years of experience	5	20.83
	11–15 years of experience	8	33.33
	16–20 years of experience	4	16.67
	More than 20 years of experience	4	16.67
Positions	Director of the Female Correctional Institution	8	33.33
	Welfare and Inmate Assistance Officer	8	33.33
	Correctional Operations Officer	4	16.67
	Inmate Development Officer	4	16.67

Source: obtained from primary data

2.2) Sustainable Development Goal (SDG) 5: Achieve gender equality and empower all women and girls. All eight female correctional institutions ensure equal care for female inmates in all dimensions, including physical, mental, and social aspects, without discrimination. The development of behavior and habits for female inmates and girls is promoted through classification, medical treatment, education, vocational training, welfare, and preparation for release, tailored to the needs of each inmate. This is done to ensure that operations are effective and sustainable in line with the Sustainable Development Goals.

3. The development of healthy prisons toward sustainable development involves processes and models for the development of healthy prisons, with an emphasis on proper and adequate management to meet the needs of inmates, collaboration with internal and external agencies, proactive work, and multidisciplinary cooperation. This ensures that operations are effective and lead to the sustainable development of healthy prisons. The development is divided into four areas, as follows:

3.1) Health and Living Conditions: It was found that the organization of appropriate and sufficient bedding and living spaces has been implemented, with improvements made to inmate dormitories. Restrooms have been provided for elderly and disabled inmates, and bedding is regularly cleaned to reduce skin disease issues. Inmates are provided with adequate space, and patients are assigned to separate rooms designated for sick inmates.

3.2) Health and Daytime Living Conditions: It was found that inmates have sufficient space for daytime activities, in accordance with the Department of Corrections' regulations. Areas are allocated for vocational training activities. From Monday to Friday, inmates carry out personal duties and engage in work according to their skills, in addition to participating in various vocational training activities such as sewing, weaving, handicrafts, carpentry, cooking, and beverage preparation. Vocational training is tailored to each inmate's interests and context. On Saturdays and Sundays, inmates are given rest and time for personal activities as appropriate.

3.3) Health and Nutrition: It was found that the correctional facilities provide meals that meet established nutritional standards, with three freshly cooked meals served daily, carefully controlled for sweetness, fat, and salt. A nutritionist oversees the food preparation process, ensuring quality and compliance with health requirements. Raw materials are inspected for freshness and quality, and food samples are kept for seven days for safety. While the meals meet the Department of Corrections' standards, taste preferences may vary among inmates. Inmates can also purchase additional food from an on-site kitchen or receive food from visitors, with payments made via fingerprint scanning and deducted from their accounts.

3.4) Health Care and Access to Medical Services: Inmates have access to comprehensive healthcare services, including initial health screenings, ongoing treatment, and medication. Medical and dental services are provided weekly, with nurses available daily to care for ill inmates. A doctor visits three times a week, and telemedicine services ensure that all inmates can access medical care. Psychiatric support is also available, with 24-hour care for inmates. Pregnant inmates receive designated spaces for breastfeeding and childcare, and children born in the facility can stay with their mothers for up to three years. Afterward, children are either sent to relatives or transferred to external care if necessary, ensuring their well-being.

4. Preparation for Release of Inmates: The process is carried out according to the policies of the Department of Corrections. It was found that all eight women's correctional facilities have developed the quality of life for inmates and prepared them for release. The process, steps, methods, and forms of preparation for release involve categorizing inmates from the time of intake, during their sentence, and after their release to meet their individual needs and potential. Personal history and background information are evaluated to create individualized rehabilitation plans, aimed at developing behavior based on their needs and capabilities. The preparation process focuses on three main areas:

4.1) Vocational Training: It was found that all eight women's correctional facilities offer vocational training programs designed to prepare inmates for life after release. These programs focus on rehabilitation, behavioral modification, and skill development in real-world settings, including restaurants, massage therapy, beauty salons, agriculture, and crafts. Inmates undergo a 12-week intensive training that covers physical, mental, and social preparation for reintegration into society. The programs align with labor market demands and provide career paths, with collaboration from government, private sectors, and communities. Inmates also receive emotional and social support, including guidance on entrepreneurship and job networking, ensuring they are well-equipped for successful reintegration.

4.2) Education: All eight women's correctional facilities provide education and training programs. Every inmate receives basic education and the opportunity to pursue higher education. Inmates are given the chance to

complete compulsory education through both formal and alternative educational systems. Vocational training is provided according to the standards set by the Department of Skill Development or vocational education institutions. However, it was found that some inmates do not fully recognize the importance of education. As a result, the correctional facilities enforce compulsory education for all inmates while they are incarcerated. One challenge is the loss of inmates' educational credentials, which hampers the continuation of their education. The facilities assist in following up with educational institutions, and in cases where educational documents cannot be retrieved, inmates are required to start their studies anew.

4.3) Moral Training: Inmates receive moral training based on their respective religions, including Buddhism, Christianity, and Islam. Buddhist inmates participate in daily alms-giving activities and invite monks to receive offerings, which help purify their minds. Religious activities are also conducted on significant religious holidays. Furthermore, there are individual rehabilitation programs to correct, heal, and develop inmates' behavior. These programs include various training sessions that are tailored to the specific needs of each inmate, and they involve ongoing evaluations of inmates' attitudes and behaviors before, during, and after the training, as well as post-release.

5. Women's correctional facilities face significant challenges in developing healthy prisons, primarily due to overcrowding, limited space, and inadequate sanitation. With only 1.6 square meters per inmate and outdated dormitories, living conditions are substandard. Limited space for daily activities, poor segregation, and budget constraints affecting food quality further exacerbate the situation. The correctional staff stated,

"Inmates spend their days by engaging in vocational training and doing tasks they are skilled in from Monday to Friday, with weekends off on Saturday and Sunday. Each inmate has time to rest, read books, exercise, and write letters to their families, which helps reduce stress."

Healthcare is also compromised by staff shortages and insufficient medical resources, despite efforts to coordinate with external hospitals and use Telemedicine. These issues hinder the delivery of adequate healthcare, especially when external transfers are necessary. The correctional staff stated,

"The facility lacks necessary medical equipment, requiring inmates to be sent outside for treatment, and there is a shortage of resident medical personnel within the correctional facility."

The information reflects the challenges and limitations in caring for female inmates in correctional facilities, highlighting issues that require development and improvement. Efforts should focus on enhancing the quality of life for inmates, not only in terms of physical and mental health but also in improving living conditions and creating an environment conducive to rehabilitation and self-development.

6. The preparation of inmates for release faces significant challenges, including limited resources and mismatched vocational training programs, insufficient educational records, and low inmate engagement in moral development activities. The correctional officers shared that

"Inmates lack financial resources to start a career after release, and the funds allocated for post-release employment are limited and insufficient to meet demand. Some inmates do not meet the eligibility criteria for receiving these funds. Moreover, the government's funding system for post-release employment is slow and does not meet the urgent needs of inmates after their release. Additionally, most inmates come from families with low income, so they do not have the capital to start a business on their own from the funds provided by the correctional facility. As a result, they often resort to their previous occupations and may reoffend."

Vocational training lacks technological support and relevant course diversity, while educational progress is hindered by lost records and limited family support. Additionally, moral training programs struggle with low participation and resistance from inmates, making effective rehabilitation difficult. These factors create barriers to successful reintegration into society. The correctional officers shared that

"Inmates are not interested in education because they believe that studying will not be beneficial. Therefore, it is necessary to foster a positive attitude towards education among the inmates, helping them recognize its importance. Regarding moral training, inmates show little interest in participating as they prefer activities that generate income. It is necessary to use attendance checks and scoring to encourage inmates to join the moral training activities."

"Inmates do not prioritize it, but they will turn to it when they are in situations where they need emotional support, such as when they have to hear the verdict, they seek sacred things to pray for various matters, etc."

From the analysis of the limitations or obstacles in preparing inmates for release in terms of vocational training, education, and moral development, it is recommended to add vocational training courses that match labor market demands, provide modern and up-to-date vocational training programs, and promote funding for inmates post-release to help them start their careers.

Conclusion and Recommendation

To achieve sustainable development in healthy prisons for female inmates, a systematic and ongoing approach is essential. This involves collaboration with relevant agencies at both policy and operational levels, supported by adequate personnel, funding, knowledge, and resources. Staff must engage in comprehensive planning, analysis, and evaluation, addressing obstacles and refining practices based on performance outcomes and recommendations. Such an approach ensures effective and sustainable development, preparing female inmates for reintegration and fostering long-term improvements in correctional systems. A visual summary of this approach is illustrated in Figure 2.

From Figure 2 can be explained as follows: Based on the research findings, a systematic approach to developing female correctional facilities can be outlined through Input, Process, Output, Outcome, and Impact factors. Input factors include comprehensive screening and assessment of inmates' personal data, criminal history, and health conditions, which guide classification and the creation of tailored behavioral development plans. Process factors involve planning and implementing health-related activities, pre-release programs, vocational training, and education aligned with market needs. Output factors focus on ensuring inmates leave with improved health, vocational skills, and basic needs support. Outcome factors are categorized into short-term, mid-term, and long-term results, with the aim of reducing recidivism, promoting societal acceptance, and ensuring successful reintegration. Impact factors emphasize improvements in quality of life, economic stability, and reduced crime rates, though challenges such as familial, economic, or social barriers to reintegration must be addressed for effective rehabilitation and societal reintegration of female inmates.

The pre-release preparation for female inmates should be systematic, convenient, and accessible, avoiding complexity and ensuring long-term sustainability. Collaboration is crucial among the operational system, inmates, staff, and relevant agencies, including both public and private sectors, to enhance and create a network for developing inmates' behaviors and capacities in preparation for release.

Regarding Health Needs of Female Inmates, compared to male inmates, female inmates exhibit greater health needs. For instance, more than two-thirds of female inmates face mental health issues, compared to over one-third of male inmates. Additionally, female inmates experience higher rates of alcohol addiction and are often marginalized from their communities, exacerbating mental health problems (Prison Reform, 2019). Health support in prisons typically focuses on disease prevention and screening rather than health promotion or improvement due to limited resources and the prioritization of maintaining a safe and disease-free environment. However, psychiatric data indicate that certain diseases are more prevalent in prisons compared to the general community (Woodall et al., 2021).

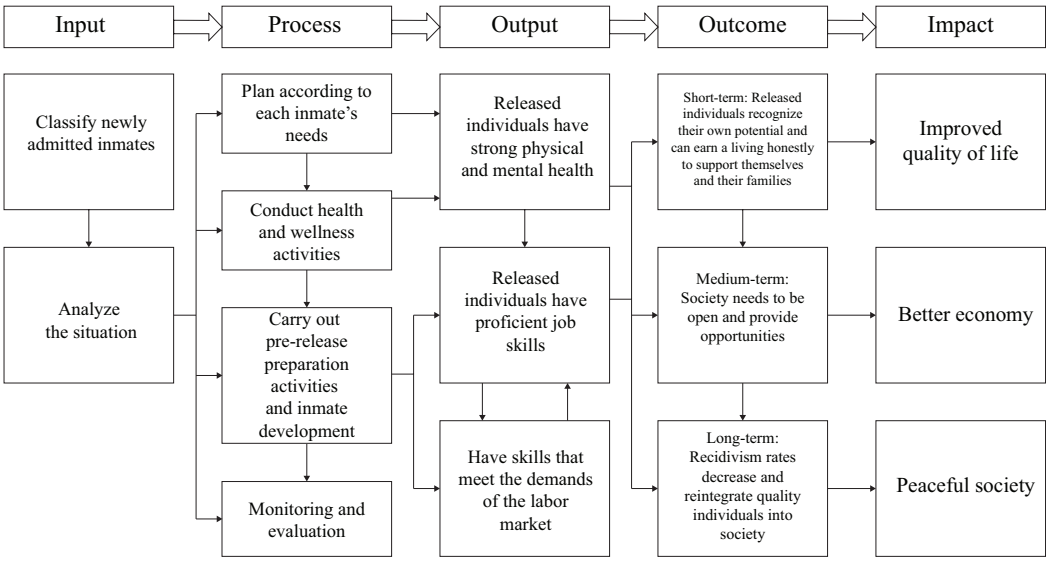


Figure 2 Guidelines for developing healthy prisons for female inmates towards sustainable development

This highlights the challenges and limitations in caring for female inmates and underscores the need for improvements to enhance their quality of life. Addressing both physical and mental health, as well as providing a supportive environment for rehabilitation and self-development, is crucial. Implementing recreational and exercise activities, along with various programs, can significantly improve the quality of life for female inmates.

Pre-release preparation involves rehabilitative practices to help inmates reintegrate into society as productive citizens. This approach encompasses four key elements: (1) the staff or rehabilitators, (2) the rehabilitation facility, (3) the methods or programs used, and (4) the inmates themselves. Staff should possess moral qualities, including compassion and kindness, and should be motivated and engaged in their work with inmates to foster motivation, attention, and reflection in their roles. The success of pre-release programs is contingent on staff attitudes towards inmates. Negative attitudes from staff involved in the pre-release program can undermine the effectiveness of the program and impede successful outcomes.

Establishing a clear framework for the development of correctional facilities is essential to enhance the physical environment, reduce inmate stress, and improve data management systems. This framework should focus on analyzing welfare provisions and customizing pre-release preparations to meet individual inmate needs. Administrators and staff must fully understand wellness-oriented correctional systems and embrace wellness principles to ensure appropriate inmate treatment. Cultivating a positive correctional culture and fostering a supportive attitude towards correctional work are key for sustainable development. Effective program planning should integrate systems for screening, classification, vocational training, education, and post-release support to ensure inmates are equipped with skills for employment and self-sufficiency. Collaboration with stakeholders, including government agencies, businesses, and civil society, is vital to create job opportunities for former inmates, reduce recidivism, and alleviate societal pressures. A central coordination unit should be established to facilitate communication between correctional facilities and released inmates, offering targeted support such as funding, transportation, and employment opportunities to ensure successful reintegration into society.

Implications

Practical Implications: Developing effective pre-release preparation policies requires a holistic approach that includes clear communication, collaboration with partner organizations, and a comprehensive strategy starting with health screenings, education, and vocational training. Correctional officers play a key role in guiding inmates, while improved living conditions and data management foster sustainable development. Collaboration with government bodies and civil society is essential for reducing recidivism and supporting post-release employment.

Theoretical Implications: The SDGs, especially Goal 3 (Good Health and Well-being) and Goal 5 (Gender Equality), provide a crucial framework for improving correctional facilities, particularly for female inmates. Ensuring access to healthcare, education, vocational training, and respect for women's rights is essential for successful reintegration and personal growth, aligned with international standards such as the Bangkok Rules.

Policy Implications: The SDGs provide a valuable framework for developing core policies in correctional facilities, ensuring alignment among staff and administrators. Collaboration with partner agencies is essential to create a supportive network for inmates, reducing recidivism and fostering legitimate career paths. Key to success is well-trained correctional staff, standardized procedures, health screenings, and tailored referrals. Education, vocational training, mental health support, and resilience-building are crucial for inmates' future success. Staff play a vital role in guiding inmates, and focusing on both staff and inmate development helps facilitate successful reintegration and sustainable practices in correctional systems.

Recommendations for Future Research

Research into the welfare of correctional staff is crucial for enhancing their morale and motivation, which in turn is expected to improve the effectiveness of wellness-oriented correctional facilities and pre-release preparation programs. Additionally, evaluating inmate feedback on intensive pre-release programs is essential for refining these programs to increase their success rates. Understanding the perspectives of inmates who have participated in these programs can provide valuable insights for program improvement. Furthermore, a detailed examination of post-release support for inmates who have completed intensive pre-release preparation is

necessary. This research should assess the effectiveness of these programs in reducing recidivism rates and determine the overall success of post-release support initiatives.

Conflict of Interest

The author declares that there is no conflict of interest.

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References

Brooks, T. (2003). Kant's Theory of Punishment. *Utilitas, 15*(2), 206–244. https://doi.org/10.1017/S0953820800003952

Butler, J. T. (2001). *Principles of Health Education and Health Promotion* (3rd ed.). Clorado Morton.

Chaichompoo, N., & Thertudomtham, T. (2022). ข้อเสนอเชิงนโยบายในการกำหนดมาตรการและแนวทางการปฏิบัติต่อผู้ต้องขังที่ต้องเฝ้าระวังการก่ออาชญากรรมสะเทือนขวัญ. [Policy recommendations for establishing measures and guidelines for handling inmates who require monitoring for committing heinous crimes]. *Journal of Social Work, 30*(1), 50–90. [in Thai]

Chokewiwat, V. (2009). การศึกษาว่าด้วยมิติทั้ง 4 ของสุขภาพ. [Study on the four dimensions of health]. *Journal of Public Health Research, 3*(3), 323–335. https://kb.hsri.or.th/dspace/handle/11228/2861 [in Thai]

Department of Corrections. (2022). *Thailand Annual prison Report 2022*. https://www.fidh.org/IMG/pdf/thailande791angweb.pdf

Hawanont, N., & Watthanothai, T. (2018). *วิถีเรือนจำสุขภาวะ. [The path to health-promoting prisons]*. Health-Promoting Prisons Project, supported by the Thai Health Promotion Foundation (ThaiHealth). [in Thai] https://dol.thaihealth.or.th/Media/Pdfview/44267ecf-57bb-ed11-80fd-00155d1aab66

Holloway, I. (1997). *Basic Concepts for Qualitative Research*. Wiley-Blackwell.

Hutapat, B. (2013). STOU's educational management for prisoners in prisons and correctional institutions. *Journal of Modern Management, 11*(1), 33–47.

Ismail, N., Lazaris, A., O'Moore, E., Plugge, E., & Stürup-Toft, S. (2021). Leaving no one behind in prison: Improving the health of people in prison as a key contributor to meeting the Sustainable Development Goals 2030. *BMJ Global Health Journal, 6*(3), e004252. https://doi.org/10.1136/bmjgh-2020-004252

Kant, I. (2010). *The critique of pure reason*. A Pennsylvania State University Electronic Classics Series Publication. reason-kant.pdf

Khantee, P., Phutrakul, K., & Trimek, C. (2015). *ทฤษฎีอาชญาวิทยา: หลักการงานวิจัย และนโยบายประยุกต์.* [*Criminology theory: Principles, research, and applied policy]*. Rangsit University Press. [in Thai]

Prison Reform. (2019). *Bromley briefings prison fact file*. Prison Reform Trust. https://prisonreformtrust.org.uk/wp-content/uploads/2020/01/Bromley-Briefings-Prison-Factfile-Winter-2019.pdf

Sutthisorn, S. (2019*). คู่มือการปฏิบัติงานเจ้าหน้าที่ควบคุมผู้ต้องขังฝึกวิชาชีพ [Operational Manual for Officers Supervising Vocational Training for Inmates]*. Maha Sarakham Provincial Prison. http://www.correct.go.th/popmaha/image/120.pdf [in Thai]

Dhirabhaddo, P. N., Phoowachanathipong, K., & Ariyasripong, A. (2018). การเสริมสร้างจริยธรรมสำหรับผู้ต้องขังในเขตกรุงเทพมหานคร [Enhancing Ethics for Inmates in the Bangkok Area]. *MCU Peace Studies Review Journal, 6*(4), 1347–1361. [in Thai]

Wajanasara, K., & Archavanitkul. K. (2021). *ก้าวแรกของปฐมภูมิในเรือนจำกับชีวิตต้องขังที่กำหนดสุขภาพ [The first step of primary care in prisons and the life of inmates that defines health]*. Population and Social Researchers Association, Institute for Population and Social Research, Mahidol University. https://ipsr.mahidol.ac.th/wp-content/uploads/2022/03/Report-File-629.pdf [in Thai]

Woodall, J., Freeman, C. & Warwick-Booth, L. (2021). Health-promoting prisons in the female estate: An analysis of prison inspection data. *BMC Public Health, 21*, 1582. https://doi.org/10.1186/s12889-021-11621-y

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Implementation of the house assimilation policy through the involvement of community counselors in Padang correctional center, Indonesia

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Abstract

This study aims to describe the Implementation of the House Assimilation Policy through the Involvement of Community Counselors in Padang Correctional Center, Indonesia. This study is a type of qualitative research using descriptive methods, and the selection of informants in this study used purposive sampling techniques. Interviews, observations, and documentation were carried out as the data collection technique for this study. Ten informants were selected from Prison Management, Community Counselors, and Clients. The results of this study found that the implementation of the housing assimilation policy can be explained as follows: first, serving correctional clients to fulfil mandatory reporting requirements. Second, coordinating with families and local government officials within the supervision framework for correctional clients. Third, providing motivation and assistance to clients facing challenges. Fourth, implementing specialised activities for correctional clients has also been carried out smoothly. Fifth, conducting community research by officers has been carried out well.

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Introduction

The government, through related institutions, is required to provide community development to prisoners in the form of various programs (Granados et al., 2023; Hsieh et al., 2021; Majeed et al., 2023; Tucker et al., 2023). The assimilation policy focuses on preparing prisoners to live decently after serving their sentence (Genders & Player, 2022; Jaegers et al., 2020; Mollaei et al., 2020). The current assimilation policy for prisoners is different from the previous assimilation program, namely, the assimilation of prisoners whose crimes fall into the category of Government Regulation of the Republic of Indonesia Number 99 of 2012 concerning the Requirements and Procedures for the Implementation of the Rights of Inmates. In this regulation,

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assimilation is given explicitly to prisoners who commit violations of the law, such as terrorism, crimes against state security, drugs, corruption, serious human rights crimes, and so on. Meanwhile, in the Regulation of the Minister of Law and Human Rights Number 10 of 2020, the house assimilation policy is not given to prisoners who commit violations of the law as stated in the regulation. Prisoners who commit drug abuse crimes can be given a house assimilation program if the prisoner is sentenced to a minimum of 5 years in prison. Another difference is that assimilation related to this regulation can be carried out in the Correctional Institution or outside the Correctional Institution environment by collaborating with third parties by carrying out an activity or working in a social institution, and the security of its implementation is the responsibility of the Correctional Institution. Meanwhile, in the Regulation of the Minister of Law and Human Rights Number 10 of 2020, the assimilation policy is implemented for prisoners in their respective houses under the supervision of the Correctional Center.

This is based on the government's considerations regarding the excess housing capacity in most Correctional Institutions and Detention Centers in Indonesia. Therefore, providing house assimilation is one of the options for preventing the spread of COVID-19 in Prisons and Detention Centers. Prisoners who receive the house assimilation program are the task and responsibility of community counsellors. Community Counsellors are part of an organised correctional system to help prisoners become whole human beings, admit their mistakes, improve themselves, not re-involve themselves in criminal activities, and be able to reintegrate into society, play an active role in development, and be able to live as good and responsible citizens (Pande, 2018). Therefore, community counsellors play an essential role in the law enforcement process by providing assistance, guidance, and supervision to correctional clients (Day et al., 2022; Franco-Paredes et al., 2021; Jang et al., 2022; Katey et al., 2022; Tadros et al., 2021), including supervision of prisoners who receive the house assimilation program.

Supervision is an effort aimed at preventing deviations. Supervision is essential because if a prisoner commits a violation or deviation, the prisoner will potentially repeat his actions (Rahmasari, 2020; Rowe et al., 2022). Prisoners supervised by community counsellors and receiving a house assimilation program are called correctional clients based on Law No. 12 of 1995 concerning Corrections. Community counsellors are in an agency called the Padang Class I Correctional Center. Syahrizal (2020) states that correctional clients who receive assimilation policies are not entirely free, but they are still under supervision outside the institution by community counsellors. Correctional clients must meet requirements and obligations while undergoing the house assimilation program. The requirements for implementing house assimilation have been regulated in the Regulation of the Minister of Law and Human Rights Number 10 of 2020 concerning the Requirements for Granting Assimilation for Prisoners in the Context of Preventing and Handling the Spread of COVID-19, namely: (1) having good behaviour as evidenced by not being subject to disciplinary punishment in the last six months; (2) actively participating in the development program properly; and (3) having served half of the sentence.

The house assimilation policy could be one step toward reducing the spread of COVID-19 in prisons/detention centres. However, it does not rule out the possibility of other problems that community counsellors will encounter. Based on observations conducted at the Padang Class I Correctional Center, the author found problems community counsellors face in carrying out their role in the house assimilation program. Although community counsellors have tried to supervise correctional clients, in its implementation, there are still correctional clients who commit violations while undergoing house assimilation. According to data that the author has obtained from the Correctional Database System, in 2020–2021, 18 correctional clients re-committed violations of the law while undergoing the house assimilation program, a total of 281 correctional clients. One case of law violation a client committed while undergoing house assimilation was reported by the Posmetro Padang Newspaper on June 30, 2020. A correctional client with the initials RF was shot in the leg because he tried to escape using his stolen motorbike by fighting back and almost hitting the Anti-Criminal Team of the Padang Police Criminal Investigation Unit. RF was arrested again for committing a crime, namely, being the mastermind behind a theft and motorbike theft in the *Anduring* area of Padang City on June 28, 2020. The perpetrator was successfully arrested in the *Alai Parak Kopi* area.

Based on these facts, the researcher is interested in conducting a study entitled "The Role of Community Guidance in the House Assimilation Program at the Padang Class I Correctional Center. The author chose this title to better understand the role of community guidance counsellors in the house assimilation program during the COVID-19 pandemic because additional new policies regulate the provision of assimilation for correctional clients, which are undoubtedly different from previous assimilation policies. In addition, the author wants

to know how much influence community guidance counsellors have in overcoming obstacles when assisting correctional clients undergoing house assimilation.

Literature Review

This study uses the concept of policy implementation as a conceptual framework for analysing research findings. As a conceptual basis, the literature study in this study will be explained as follows:

Policy Implementation

Policy implementation is a multifaceted process that involves executing and enforcing policies within an organisation or system to achieve intended outcomes. The effectiveness of this process is influenced by various factors, including the knowledge, beliefs, and attitudes of the implementers, as well as the contextual and systemic considerations they face during implementation. Understanding policy implementation requires a nuanced approach that considers both the original intentions of policymakers and the realities faced by those tasked with executing these policies (Moyo, 2008; Nic Giolla Mhichíl, 2014). A structured policy framework is essential for effectively guiding policy development and implementation. Such frameworks outline principles, guidelines, and processes that help ensure policies are well-conceived and practically applicable in real-world settings (Mills et al., 2009; Mitrakas, 2009).

The dynamic nature of policy implementation is best understood through a processual/contextualist perspective, which emphasises the importance of contextual factors and the evolving nature of the implementation process (Nic Giolla Mhichíl, 2014). This perspective allows for a deeper analysis of how policies are enacted and the challenges that may arise during this process. Implementation challenges are common and can significantly hinder the effectiveness of policy execution. These challenges may stem from inadequate resource allocation, lack of stakeholder engagement, or insufficient interagency collaboration (Esveld & Boody, 1997; Gaze, 1993; Kadel, 1992; Martin & Benatar 2008).

Effective resource allocation is critical, as it involves distributing necessary funding and personnel to support policy initiatives. The complexities of resource allocation decisions often reflect broader societal values and priorities, making them a significant health policy issue of the twenty-first century (Gaze, 1993). Stakeholder engagement plays a crucial role in policy implementation, ensuring that the perspectives of those affected by the policies are considered. Engaging stakeholders can help bridge the gap between scientific recommendations and practical policy execution, fostering a collaborative environment that enhances the likelihood of successful implementation (Gazzola & Colombo, 2013; Hansen & Spitzeck, 2010; Seddaiu et al., 2015). Interagency collaboration is vital for achieving common policy goals, particularly in complex social service delivery contexts where multiple agencies must work together to serve the same population (Esveld & Boody, 1997). Finally, monitoring and evaluation (M&E) processes are essential for tracking the implementation of policies and assessing their outcomes. These processes ensure accountability and facilitate learning, allowing for adjustments to be made as necessary to improve policy effectiveness over time (Mark & Pfeiffer 2011). Successful policy implementation requires a comprehensive understanding of the interplay between various factors, including frameworks, stakeholder engagement, resource allocation, and ongoing evaluation.

This study becomes the basis for policymakers to evaluate the benefits of implementing the home assimilation policy and whether it can be continued further after the pandemic by focusing on improving the quality of community guidance to ensure its benefits for prisoners undergoing this program. This also contributes to reducing prison overcapacity, which is still a significant problem in Indonesia's criminal and correctional policies. Furthermore, on a broader scale in the literature, this home assimilation policy can be a model in the international prisoner development process that focuses on improving behaviour to return to society and not repeating unlawful actions after being released.

Relevant Studies

The paper emphasises that intersectoral community re-entry efforts are crucial for supporting individuals released from correctional facilities, particularly during the COVID-19 pandemic. These efforts can facilitate successful assimilation by addressing public safety and community rebuilding, especially for those serving excessively long sentences who pose unacceptable safety risks. Proper management of community guidance during re-entry can mitigate health inequities and enhance the effectiveness of incarceration strategies, ultimately benefiting both the individuals and the communities they reintegrate into (Franco-Paredes et al., 2021). The paper focuses on the inclusion and well-being of

children with disabilities in a refugee camp context, utilising a community-based system dynamics approach to understand stakeholder perspectives on educational inclusion (Werner et al., 2021).

Community guidance plays a crucial role in the assimilation policy within correctional centres by facilitating the development of comprehensive community re-entry plans. These plans should involve collaboration between prison officials and community-based programs to provide essential services such as housing, income support, healthcare, and COVID-19-related education. Practical community guidance ensures that released individuals are better prepared to reintegrate into society, reducing recidivism and enhancing public safety. This holistic approach addresses the needs of both the incarcerated population and the broader community, promoting a healthier society (Blonigen et al., 2022). The paper highlights the importance of comprehensive guidance for COVID-19 prevention and control in custodial settings, emphasising that effective assimilation policies must consider the unique needs of individuals in correctional facilities. Community guidance facilitates safe reintegration by addressing overcrowding, ensuring adequate transition planning, and promoting mental health support. The recommendations identified in the review reflect the necessity of collaboration between correctional authorities and community resources to enhance the health and well-being of incarcerated individuals and staff during public health crises (Pearce et al., 2021).

The study provides insights into the high levels of psychiatric morbidity among prisoners, emphasising that responsive disorder is closely related to increased violence and suicidal recidivism. It suggests that the need for acute psychiatric care in these inmates is more reflective of long-standing psychological vulnerabilities rather than environmental stressors, contributing to a better understanding of mental health issues within the prison system (D'Orta et al., 2021). The study demonstrated that after participating in the 1-day Community-Based Participatory Action Research grounded training program, probation staff exhibited increased buy-in to the graduated response system, a greater understanding of its principles, and a stronger intention to implement behaviours aligned with this structured juvenile probation case management system (Brogan et al., 2021).

The study identified challenges and opportunities for improving dementia care in Australian prisons, highlighting the need for interdisciplinary approaches and collaboration between corrective services and external organisations to enhance the care continuum for older prisoners living with dementia (Du Toit & Ng, 2021). The paper identifies three key barriers to implementing shared decision-making among adults under community supervision with mental illness: a lack of role clarity, a predilection for risk avoidance, and stigma toward supervisees. Understanding these barriers is crucial for developing effective strategies to enhance engagement in community corrections services (Matejkowski, 2021).

The paper highlights the role of guidance professionals in facilitating the conversion of resources into capabilities for marginalised students, particularly Indigenous women, by providing sensitive and proactive service delivery that addresses their unique systemic barriers and needs (Joncas & Pilote, A, 2021). The paper highlights that officer training in correctional supervision programs is linked to an enhanced application of evidence-based practices, which can lead to more effective supervision of clients. It also indicates that such training is associated with lower rates of client recidivism, suggesting that well-trained officers can contribute to better outcomes for individuals under community supervision (Labrecque & Viglione, 2021). In relevant research, more detailed highlights can be seen in Table 1 below:

Table 1 Relevant research contributions

No	Paper Title	Findings	Contribution to this research
1.	Decarceration and community re-entry in the COVID-19 era. Lancet Infectious Diseases (Franco-Paredes et al., 2021)	The main finding indicates that properly managed correctional depopulation can significantly reduce COVID-19 morbidity and mortality while addressing existing socioeconomic and health inequities.	Provides an overview of prison management to improve social, economic, and health quality.
2.	Using a community-based system dynamics approach for understanding inclusion and wellbeing: a case study of special needs education in an eastern African refugee camp (Werner et al., 2021)	Using a community-based system dynamics approach, the study provided a causal loop diagram illustrating the interconnections between various factors affecting inclusion and well-being. It also offered prioritised recommendations to enhance educational inclusion in the refugee camp.	Provides conceptual reinforcement about the importance of inclusive education in client development.

Table 1 Continued

No	Paper Title	Findings	Contribution to this research
3.	Depopulation or vaccination? Tackling the COVID-19 crisis in African prisons (Katey et al., 2022)	Implementing these strategies together can significantly reduce the spread of COVID-19 in correctional facilities, thereby enhancing the health and well-being of prisoners and protecting the broader community.	Provides an overview of the implementation of prison protection policies with a focus on health and welfare.
4.	A rapid review of early guidance to prevent and control COVID-19 in custodial settings (Pearce et al., 2021)	The results highlighted the availability of comprehensive guidance early in the pandemic but also pointed out significant gaps in the implementation of these measures globally. This indicates a need for improved adherence to recommendations to effectively reduce COVID-19 transmission and its impact on individuals in custody and staff.	Provides an overview of prison management policies focusing on prisoners' and staff's health protection.
5.	Determinants of Revolving Door in an Acute Psychiatric Ward for Prison Inmates (D'Orta et al., 2021).	The results suggest that the frequent inpatient admissions in this population are not primarily driven by environmental stressors but rather reflect a long-standing vulnerability related to their psychological profiles and criminal status.	Reinforcing the concept of environmental management policies in prisons in reducing the vulnerability of prisoners from a psychological perspective and their criminal status.
6.	Shifting probation culture and advancing juvenile probation reform through community-based, participatory action research-informed training (Brogan et al., 2021).)	This result indicates a positive shift in the organisational culture of juvenile probation departments, demonstrating readiness for change towards a structured case management system that aligns with research on adolescent development and youth behaviour change.	Contributing to strengthening behavioural management for adolescents who are clients in the correctional facility.
7.	Improving Care for Older Prisoners Living With Dementia in Australian Prisons (Du Toit & Ng, 2021)	The main finding of the study is that there are significant challenges and opportunities in providing care for older prisoners living with dementia in Australian prisons. The study identified possible models of care, uncovered invisible issues related to dementia care in prisons, and proposed next steps for improving care.	Contributing to strengthening the concept of correctional services, especially in terms of care for elderly prisoners.
8.	Challenges to Employing Shared Decision-Making With Adults Under Community Supervision Who Have a Mental Illness (Matejkowski, 2021)	Review research on shared decision-making in community corrections. Identify barriers to implementing shared decision-making for supervisees.	Contributing to decision-making methods in prison governance.
9.	The role of guidance professionals in enhancing the capabilities of marginalised students: the case of Indigenous women in Canada (Joncas & Pilote, A, 2021)	The main finding of the research is that guidance professionals can significantly enhance the capabilities of marginalised students, particularly Indigenous women, by facilitating their access to resources and understanding their unique needs and systemic barriers.	Contributing to strengthening the concept of client guidance by facilitating access to needed resources.

Methodology

This research was conducted using a qualitative approach and descriptive methods. The location of the research was conducted at the Padang Class I Correctional Center Office. Meanwhile, the technique used to select informants was Purposive Sampling, where the author deliberately selected informants based on a consideration that could provide maximum data (Sugiyono, 2012). The objective of purposive sampling is to classify or identify a sample within a research study according to criteria explicitly established by the investigator. Samples are acquired by a researcher utilizing predefined criteria or attributes. The following is a list of the names of informants in this study, which can be seen in Table 2:

Table 2 List of interview informants

No	Informant Identity
1.	Head of Adult Client Guidance Section
2.	Head of Sub-Section of Registration of Adult Client Guidance
3.	Community counsellors 1
4.	Community counsellors 2
5.	Community counsellors 3
6.	Correctional Clients 1
7.	Correctional Clients 2
8.	Correctional Clients 3
9.	Correctional Clients 4
10.	Correctional Clients 5
11.	Correctional Clients 6

Primary and secondary data were obtained in the study of the Role of Community Guidance in the House Assimilation Program at the Class I Padang Correctional Center. The data collection techniques are observation, interviews, and documentation studies. The instrument used in collecting research data is used as material for interview guidelines developed from the concept of public policy. So that the interview guidelines become questions asked of research informants. Research ethics are important to ensure that the subjects in the research are respected and not harmed during the research process. Research subjects have rights that must be respected, such as dignity, privacy, and confidentiality.

In this study, the data collection technique of triangulation is necessary to test the validity of the data. Triangulation is a technique of combining data from various data collection techniques and existing data sources. In this study, the author uses data analysis techniques to answer the problem formulation. The data analysis is a systematic search and arrangement of data collected from interviews, field notes, and other sources to make it easier to understand and inform others (Sugiyono, 2012). Miles and Huberman classify the data analysis process into three components: data reduction, data presentation, and drawing conclusions, which are displayed in the results, discussion, and conclusion sections (Sugiyono, 2012).

Results and Discussion

The following will present the study's findings, namely, the Role of Community Guidance in the House Assimilation Program at the Padang Class I Correctional Center and the factors that influence the implementation of the house assimilation program for correctional clients. At the beginning of the COVID-19 pandemic in Indonesia, there was a change in the work system carried out by almost every government agency and private agency. The change in the work system was in the form of a work-from-home (WFH) policy from the previous work-from-office policy. The Padang Class I Correctional Center is one of the government agencies that implemented a work-from-office policy for its employees in order to reduce the spread of the COVID-19 pandemic in the agency because, at that time, several employees were infected with COVID-19 so the employees had to self-isolate.

The implementation of WFH and WFO policies at Padang Correctional Center is carried out using a shift system, namely, by dividing two groups, namely, the WFH group and the WFO group (with the note that they must comply with health protocols), which will later be rotated so that employees can do WFH alternately. Implementing this work shift aims to ensure that Padang Correctional Center can still carry out its duties and functions, both online and in person. In addition, it also aims to minimise crowds in the office and to maximise the implementation of health protocols.

The COVID-19 pandemic has affected not only Padang Correctional Center employees but also prisoners who are serving their sentences in prisons/detention centers. Therefore, in order for the goals of the correctional system to be achieved and to provide rights to these prisoners, the government has added a new policy related to the prisoner assimilation program, namely, the house assimilation program, which aims to reduce residential capacity and order to reduce the spread of the COVID-19 pandemic in prisons/detention centers.

This house assimilation program is undoubtedly good news for prisoners applying for integration rights (Buen et al., 2020; Kay, 2021; Mollaei et al., 2020; Peled-Laskov et al., 2019; Riggs, 2022). The inmates can serve half of their sentences in their respective houses after serving half of their sentences in the prison/detention center. Based on this, the author conducted interviews with correctional clients regarding the benefits of the assimilation program for correctional clients.

After the researcher conducted interviews on the benefits of house assimilation, the author got the same answers from several correctional clients. The existence of a house assimilation program during the COVID-19 pandemic is very beneficial for correctional clients. They can return to the house early to serve half of their sentence, meet their families, and continue their plans

that were put on hold because they could not be done while serving their sentence in the Prison/Detention Center. As previously explained, what is meant by a community counsellor is a functional law enforcement official who carries out community research, guidance, supervision, and assistance to children inside and outside the criminal justice process. Community counsellors play a vital role in implementing the house assimilation program, especially supervising correctional clients. Community counsellors will supervise correctional clients from when the client is submitted for house assimilation until the client has completed house assimilation. Then, the correctional client will receive integration rights. Supervision of correctional clients is included in the duties and functions of community counsellors at the Padang Class I Correctional Center. In detail, the roles, duties, and authorities of community counsellors can be seen in Table 3 below:

Table 3 Roles, duties, and responsibilities of community counselors

Role	Task	Responsibilities
1) Helping/supporting to strengthen motivation. The stages of building relationships in empathetic and emotional situations full of acceptance and understanding are motivational factors that are no less important for correctional clients in reviewing various behaviours so far.	1) Law enforcement officers. Community counsellors have the task and function of participating in all stages of juvenile criminalisation. Their position is equal to that of other law enforcers, such as prosecutors, judges, and police.	1) Community research is a research activity carried out by a community counsellor to find out the background of a correctional client.
2) Providing information. Correctional clients need help understanding their circumstances and what happens to them about their social status and life.	2) Community officers. Community counsellors are the key players in achieving the correctional system's goals. In other words, they can guide correctional clients so that the community environment will accept and integrate them well.	2) Assistance: The community counsellor tries to accompany the client in facing problems, helping the client overcome these problems and bringing positive changes into the client's life.
3) Providing opportunities to express feelings. It is really important for correctional clients to have a safe emotional attitude and express feelings, strengths, disappointments, hopes, and aspirations.	3) Functional officers. Community counsellors need exceptional experience and skills to carry out their duties and functions as community counsellors. Therefore, to fill a functional position, a community counsellor must have special skills or expertise and meet specific requirements (Firdaus, 2019).	3) Guidance, namely, providing direction and guidance to improve the quality of piety to God Almighty, actions, and physical and mental health of correctional clients.
4) Providing assistance to create changes in the social environment. Community counsellors will help families make an effort to help the client's adaptation process, such as making certain changes, both while the client is serving a sentence and after the client is released.		4) Supervision, namely, monitoring and broadcasting activities for implementing the correctional client guidance service program, providing recommendations in the litmus report, determination, or judge's decision.
5) Assisting in behavioural reorganisation. This critical assistance is aimed at correctional clients who have severe personal problems that require a long time to resolve, such as drug problems.		5) Community observation team meeting: an activity carried out by the community observation team to provide recommendations or direction regarding the implementation of correctional services (Firdaus, 2019).
6) Assisting in decision-making. Correctional Agency considers correctional clients to consider various options or choices that remain open as a way out of their problems and circumstances rationally		

Based on the research findings, it can be seen that community counsellors have carried out their roles through their duties and functions. In carrying out their work, community counsellors try to do their best so that the implementation of their duties and functions can run as they should. Community counsellors carry out their duties and functions of supervision of correctional clients undergoing house assimilation. Community counsellors will carry out their supervision duties if the client has received an Integration decision in the form of conditional release or leave. In its application in the field, community counsellors must also have good skills and abilities so that the objectives of supervision of correctional clients can run optimally. From this explanation, it can be seen that the role of community counsellors can be based on existing duties and functions and guided by applicable regulations. To see more clearly, the author will describe what roles community counsellors play toward correctional clients undergoing house assimilation policies.

Serving Correctional Clients to Fulfill Mandatory Reporting Requirements

One form of supervision by community counsellors on clients undergoing house assimilation is serving clients who are required to report. Correctional clients are required to report once a week. Mandatory reporting activities were only online when COVID-19 pandemic cases increased. Research findings show that when the COVID-19 health protocol regulations began to be relaxed, correctional clients living in Padang City carried out mandatory reporting directly to Padang Correctional Center to meet the relevant community counsellor. Meanwhile, correctional clients outside Padang carry out mandatory reporting online. Every time they carry out mandatory reporting services, community counsellors are required to take documentation in the form of photos or screenshots that will be attached to the house assimilation report.

In serving the mandatory reporting of correctional clients who are convicts in drug cases or cases that have the potential to reoccur, the community counsellor will ask whether the client is still in contact or still meets with his old friends before he was convicted. This is because there is a possibility that the correctional client will be influenced again to commit a crime. Therefore, the community counsellor plays a role in advising and, as much as possible, preventing the correctional client from making the same mistake.

During mandatory reporting, the community counsellor asks about the client's condition, whereabouts, activities carried out during house assimilation, whether the client has difficulty mingling with the community, and so on. This mandatory reporting must be carried out routinely by the correctional client so that the community counsellor can monitor and know the client's condition during house assimilation and determine what obstacles the correctional client faces. In addition, the community counsellor always reminds the client to be careful while outside and try as much as possible not to commit crimes again due to the influence of friends or their environment.

Coordinating with Family and Local Government Officials in the Framework of Supervising Correctional Clients

The role played by community counsellors can also be seen in how community counsellors coordinate with other parties in supervising house assimilation clients. This coordination aims to ensure that supervising correctional clients is carried out correctly. Based on research findings, it can be seen that when collecting community research data in prisons/detention centers, community counsellors collect information related to correctional clients by asking prison/detention center officers about the conditions and behaviour of the clients while serving their sentences. This information can be used as a consideration when submitting house assimilation. In addition, community counsellors coordinate with local government officials when correctional clients are undergoing house assimilation. Before submitting house assimilation, the correctional client's guarantor reported this to the local government officials because this is included in the requirements for submitting house assimilation. Based on research findings, it can be seen that community counsellors check the validity of the data obtained from prisons/detention centers with the data available at the village head/village head office. Once the data match, the community counsellor will ask for the approval of the village head/village guardian regarding whether or not the correctional client is allowed to undergo house assimilation in the area. If the village head/village guardian does not allow it, the community counsellor will convey it to the structural official, and the assimilation application will be cancelled. The coordination of the community counsellor with this third party is carried out before the client receives house assimilation and when the client is undergoing house assimilation.

Providing Motivation and Assistance to Clients Facing Challenges

The role of the community counsellor is to motivate the client because every community counsellor is required to be an example or role model for the client by counselling the client concerned. This counselling is in the form of personality counselling, which can be seen from what crimes were committed by the client who was accompanied and guided and the readiness of this client when receiving a Decree for freedom so that this client, when undergoing house assimilation, does not return to the same crime or other crimes. As a form of its implementation, the community counsellor advises the correctional client undergoing house assimilation to continue his work or look for a new job. The role of the community counsellor is only to facilitate the correctional client in terms of mandatory reporting services, providing advice and motivation.

When undergoing house assimilation, sometimes clients feel inferior when mingling with society because of mistakes they have made previously. In addition, motivation is also provided so that correctional clients can be enthusiastic about continuing their lives after leaving the prison/detention center. Community counsellors motivate correctional clients by providing personality counselling, and each client receives different counselling depending on the type of crime and the problems they face. Community counsellors also see how ready and eligible the correctional clients are to get an Integration Decree by observing the development of the client's behaviour during house assimilation and advise correctional clients undergoing house assimilation to continue working or find new jobs.

The role of community counsellors is only to facilitate correctional clients in terms of mandatory reporting services, providing advice and motivation. Community counsellors cannot find new places or jobs because of limited abilities, circumstances, and time. During house assimilation, correctional clients are expected to be able to resume work or find new jobs on the condition that the correctional clients work in the same city as their residence and comply with health protocols while working. Correctional clients can start new businesses or do household gardening by using their abilities. These activities are, of course, still under the supervision of community counsellors.

When correctional clients are serving criminal sentences and also undergoing house assimilation, some correctional clients are depressed or will give up because of the situation. Community counsellors motivate clients so they do not get depressed and remain enthusiastic during house assimilation and for the future in living their daily lives and reflecting on their mistakes so as not to repeat the same actions (Giusto et al., 2021; Jordans et al., 2019; Wall et al., 2020).

The role of a community counsellor is to help correctional clients if they have problems related to home assimilation, with the note that these problems can be helped according to the community counsellor's abilities, such as finding solutions or providing advice. Whenever required to report, the community counsellor asks about the client's condition, including the obstacles while undergoing house assimilation, such as obstacles in work or negative views of the community towards the correctional clients. This is where the community counsellor tries to motivate the correctional clients so that they do not feel inferior in society. The community counsellor can help solve the client's problems, provided that the client does not lose contact with the community counsellor. Suppose the client changes his/her cellphone number. In that case, the client must notify the community counsellor so that the counsellor can monitor the client's condition while undergoing house assimilation.

It can be concluded that the role of the community counsellor is to motivate the community counsellor so that they can carry out valuable activities while undergoing house assimilation, such as continuing the work or business that has been pursued or wanting to continue their education. In addition, community counsellors try as much as possible to help clients who experience obstacles during house assimilation, be it obstacles in working or obstacles in the negative stigma of society towards correctional clients. Community counsellors try to help and motivate correctional clients so they do not become inferior as they must be confident when returning to society. Therefore, smooth communication between community counsellors and correctional clients is essential so the supervision process can run according to its objectives.

Implementing Specialized Activities for Correctional Clients

Community counsellors at the Class I Padang Correctional Center are essential in assisting the program activities in the Correctional Center, which aims to enable correctional clients to return to society with their potential and abilities. Therefore, the Class I Padang Correctional Center holds independent guidance in the form of training every year for correctional clients in order to improve the abilities and skills of these clients. In implementing

the independent guidance training, the Class I Padang Correctional Center partners with third parties who will later assist the Correctional Center to help smooth the implementation of these activities. The third party that assists the Correctional Center in independent guidance can be called the Community Group Concerned with Corrections. This independent training is conducted face-to-face at the Class I Padang Correctional Center office. This independence training is conducted face-to-face at the Padang Class I Correctional Center office. It is only provided for clients in the Padang City area due to the relatively long distance and to anticipate the spread of COVID-19. In 2021 and 2022, the Padang Class I Correctional Center collaborated with several Community Group Concerned about Corrections partners and held independence guidance training, including:

1) Flower arrangement training (2021)
2) Barista training (2021)
3) Light Air conditioner (AC) service training and AC installation (2022)
4) High Pressure Laminate-coated furniture training (2022)
5) Smartphone service training (2022)

Based on the research findings, it can be seen that house assimilation clients have not obtained independence training because the house assimilation program is included in supervision. Therefore, these house assimilation clients emphasise being at the house first. Suppose the client has received their integration rights later in the form of Conditional Release or Conditional Leave. In that case, the client can participate in independence training at the Padang Class I Correctional Center. However, the Padang Class I Correctional Center also holds activities that can be participated in by house assimilation clients even though the clients do not receive independence training. On August 24-26, 2022, the Padang Class I Correctional Center held a personality guidance activity, which was carried out for three days at the Padang Class I Correctional Center.

The activities carried out on the first day included providing material in the form of an introduction to the Padang Correctional Center, the Main Duties and Functions of the Correctional Agency, the rights and obligations of correctional clients, the mandatory reporting flow for correctional clients, and the sanctions received by clients if they violate the provisions of the Padang Correctional Center. On the second day were the outbound activities, and on the last day was the implementation of a Focus Group Discussion, which discussed the problems faced by correctional clients. During the activity, correctional clients were accompanied by their respective community counsellors. This activity is hoped to be beneficial for correctional clients and to change the perspective and mindset of clients to be better in the future. We can use this opportunity as well as possible and leave nasty things behind.

Conducting Community Research

The role played by community counsellors in the house assimilation program can also be seen in how the community counsellor conducts community research. Before a correctional client receives house assimilation, several administrative requirements must be met by the correctional client, one of which is a community research report called litmus, which the community counsellor makes after the community counsellor is appointed to guide the relevant correctional client. This community research contains information about the origin and condition of the inmate from the past before being given a criminal sentence, what caused the inmate to commit a crime, and after becoming a convict.

In addition, the community counsellor also finds out about his family background and how the client's life is in his residential environment. This litmus is one of the requirements for proposing house assimilation because, from the litmus results, a recommendation can be issued stating whether or not the inmate can be proposed for house assimilation. This community service data collection is carried out when the correctional client is still in the prison/detention center and to the guarantor's address, who will guarantee the correctional client during the house assimilation process. After the community counsellor has finished collecting the data, the community counsellor will report on the community research results.

This is where the community counsellor is required to make the community service results by the existing format. After completion, the structural official checks the community service report to see whether the format and contents are in the specified format and are by the Work Quality Standards standard, namely, the Work Result Quality Standard. If the format is by the standard, the community service report is approved by the structural official. The report of the results of the community service is given to the Correctional Database System section of the Padang Class I Correctional Center to be sent to the Prison/Correctional Center that proposed or requested the community service. Then, a recommendation is issued on whether or not the correctional client can receive house assimilation.

If the client has received a Decree for house assimilation, the Correctional Institution will hand over the prisoner to the Padang Class I Correctional Center. After that, the client registers in the Registration Room, and employees managing the Correctional Database System will input client data such as client identity, guarantor identity, etc. When the handover administration has been completed, the correctional client will meet with the previously appointed community counsellor and be given directions regarding their rights and obligations during house assimilation and prohibitions while undergoing house assimilation. All data on correctional clients who receive house assimilation are input into the Correctional Database System. This system is valid for viewing a summary of correctional client data such as the type of legal violation committed by the correctional client, the start and end dates of the client carrying out house assimilation, the date the client received his integration, and also includes the client's personal data and guarantor data. The task of the community counsellor is only to report and submit the results of the community service report to the Correctional Database System. It does not take part in inputting correctional client data.

As a form of protection for the community and supervision during the assimilation at the house and social reintegration, prisoners are supervised by Community Guidance Officers from the Correctional Center assisted by the police and prosecutors where the prisoners live. Prisoners undergoing the assimilation program at house and social reintegration must report to the Community Guidance Officer within a certain period. In addition, the community can also provide guidance and supervision to prisoners undergoing the assimilation program at house and social reintegration. If the community finds violations committed by prisoners, they can be reported to the Community Guidance Officer at the Correctional Center. If the prisoner commits a violation, the assimilation program at the house and social reintegration can be revoked as based on Article 12 of Regulation of the Minister of Law and Human Rights No. 43 of 2021, the assimilation program can be revoked if the client violates it.

The research on implementing the house Assimilation policy for prisoners through the involvement of Community Counselors is hoped to be the basis for improving future prisoner development policies. The government can design a more comprehensive prisoner development policy through capacity building and behavioural change to prepare prisoners to enter society more readily, typically after their sentence is completed. This policy also positively impacts reducing prison overcapacity in Indonesia, which is currently a fundamental problem.

The practice of prisoner development in other countries varies significantly due to different socio-cultural conditions. One of them, as conveyed by Granados et al. (2023) in their research, explains that they focus on improving the socio-emotional competence of prisoners, including social skills, emotional intelligence, and self-esteem, facilitating social reintegration and personal autonomy through structured workshops that focus on emotional awareness, regulation, empathy, motivation, assertiveness, teamwork, and conflict resolution. Meanwhile, Mathlin et al. (2022), in their research, discuss the factors that influence the success of reintegration for male criminals, emphasising the importance of prison care, family relationships, and support systems. This paper highlights the need for effective interventions and understanding the impact of prison visits on post-release outcomes.

Prisoner development policies in various countries should focus on how prisoners can be behaviorally restored and reintegrate into society after serving their sentences. This development can focus on an integrated approach, such as psychological, sociological, and welfare. Prisoners can be equipped with the soft and hard skills needed in society.

The challenges in implementing this home assimilation policy that need to be overcome are limited job opportunities and lack of skills possessed by Correctional Clients, which make them unable to work immediately, and often, this is what drives Correctional Clients to commit crimes again. Then, the influence of a less-than-good community environment also causes correctional clients to fall back into repeated criminal acts. In addition, the limited number of Community Counselors and online supervision patterns, as well as the wide area of work, make the quality of supervision of Correctional Clients less than optimal.

Conclusion and Recommendation

Based on the research findings and discussion, the following conclusions can be drawn:

1. Serving correctional clients to fulfil mandatory reporting requirements. This mandatory reporting must be carried out routinely by correctional clients so that community counsellors can unite and understand the client's condition while undergoing house assimilation and find out what obstacles correctional clients face while undergoing house assimilation.

2. Second, coordinating with families and local government officials within the supervision framework for correctional clients. When the client is undergoing house assimilation, the community counsellor also coordinates with the family of the correctional client to control the condition and circumstances of the correctional client so that they continue to comply with health protocols and the most important thing is to ensure that the correctional client does not repeat the crime.

3. Third, providing motivation and assistance to clients facing challenges. It can be concluded that community counsellors' role is to motivate correctional clients to carry out valuable activities while undergoing house assimilation, such as continuing the work or business they have been pursuing or wanting to continue their education.

4. Fourth, implementing specialised activities for correctional clients has also been carried out smoothly. It can be concluded that community counsellors cannot provide independence training to house assimilation clients because they are still under supervision and will receive independence training if they have received integration rights in Conditional Release.

5. Fifth, officers have conducted community research well. Community counsellors conduct community research by going into the field to meet correctional clients in prisons/detention centers, at the guarantor's address, and the local government office.

As for recommendations from this study: first, to reduce the repetition of criminal acts committed by correctional clients in implementing the house assimilation program as stated by several research results (Gautama & Subroto, 2022; Landrawan & Adnyani, 2023; Nurhidayah, 2022; Wijanarko, 2022), both the Prison and the Class I Padang Correctional Center should always be careful in assessing prisoners who will receive the house assimilation program. An inaccurate assessment can result in clients committing crimes again because they are not fully aware of the mistakes they have made previously and consider themselves free. Second, to anticipate any inconsistencies in the data of correctional clients, such as unsynchronised addresses and inactive mobile phone numbers, the Padang Class I Correctional Center should coordinate with the prison/detention center where the client is serving their sentence to find updated data from the correctional client. This aims to make it easier for community counsellors to conduct house visits and carry out mandatory reporting. Third, the Padang Class I Correctional Center needs to increase the number of human resources, especially for community counsellors, considering that currently the Padang Class I Correctional Center still lacks employees with community counsellor positions, considering that the working area of the Padang Class I Correctional Center can be said to be very broad because it covers 11 (eleven) areas consisting of four cities and seven districts.

This study has practical implications in emphasising the importance of the role of community counsellors in implementing the Home Assimilation policy for prisoners who have met substantive and administrative requirements. Starting with preparing Community Research (litmas), Guidance and Supervision, and the termination of Client Guidance. This study explains that guidance for correctional clients is the task of community counsellors who are required to monitor these activities with the aim of ensuring that during the Home Assimilation Program, clients experience obstacles when socialising with the surrounding environment. In addition, it monitors what activities are carried out by correctional clients when they return to social life.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References

Blonigen, D. M., Cucciare, M. A., Byrne, T., Shaffer, P. M., Giordano, B., Smith, J. S., Timko, C., Rosenthal, J., & Smelson, D. (2022). A randomized controlled trial of moral reconation therapy to reduce risk for criminal recidivism among justice-involved adults in mental health residential treatment. *Journal of consulting and clinical psychology*, *90*(5), 413–426. https://doi.org/10.1037/ccp0000721

Brogan, L., McPhee, J., Gale-Bentz, E., Rudd, B., & Goldstein, N. (2021). Shifting probation culture and advancing juvenile probation reform through a community-based, participatory action research-informed training. *Behavioral Sciences & The Law*, *39*(1), 6–25. https://doi.org/10.1002/BSL.2497

Buen, A., Lee, E., & Moss, S. A. (2020). Fostering openness to rehabilitation and reintegration of criminals into society in a fearful world: The moderating role of regulatory focus. *Victims & Offenders*, *15*(1), 103–118. https://doi.org/10.1080/15564886.2019.1694614

Day, A., Tamatea, A., & Geia, L. (2022). Cross-cultural practice frameworks in correctional settings. *Aggression and Violent Behavior*, 63, 101674. https://doi.org/10.1016/J.AVB.2021.101674.

Du Toit, S. S., & Ng, S. (2021). Improving care for older prisoners living with dementia in Australian prisons: Perspectives of external organizations. *The Gerontologist*, *62*(4), 543–555. https://doi.org/10.1093/GERONT/GNAB077

D'Orta, I., Herrmann, F. R., & Giannakopoulos, P. (2021). Determinants of revolving door in an acute psychiatric ward for prison inmates. *Frontiers in Psychiatry*, *12*, 626773. https://doi.org/10.3389/fpsyt.2021.626773

Esveld, L. E., & Boody, R. M. (1997). *Interagency collaboration: A view from the rural principal's chair*. https://files.eric.ed.gov/fulltext/ED411121.pdf

Firdaus, I. (2019). Peranan pembimbing kemasyarakatan dalam upaya penanganan overcrowded pada lembaga pemasyarakatan [The role of correctional adviser in overcrowded handling efforts in correctional institutions]. *Jurnal Ilmiah Kebijakan Hukum*, *13*(3), 339–358 https://doi.org/10.30641/kebijakan.2019.V13.339-358 [in Indonesian]

Franco-Paredes, C., Ghandnoosh, N., Latif, H., Krsak, M., Henao-Martinez, A. F., Robins, M., Barahona, L. V., & Poeschla, E. M. (2021). Decarceration and community re-entry in the COVID-19 era. *The Lancet Infectious Diseases*, *21*(1), e11-e16. https://doi.org/10.1016/S1473-3099(20)30730-1

Gautama, M., & Subroto, M. (2022). pelaksanaan pemberian asimilasi rumah bagi narapidana di lembaga pemasyarakatan kelas II B Sumedang di tahun 2022 [Implementation of house assimilation for prisoners in class II B Sumedang penitentiary in 2022]. *Law, Development and Justice Review*, *5*(1), 60–73. https://doi.org/doi:10.14710/ldjr.v5i1.16057 [in Indonesian]

Gaze, B. (1993). Resource allocation-the legal implications. *Journal of Contemporary Health Law and Policy*, *9*(1), 91–107. https://scholarship.law.edu/jchlp/vol9/iss1/8

Gazzola, P., & Colombo, G. (2013). Stakeholder engagement between managerial action and communication. *Annals of Faculty of Economics*, *1*(2), 97–105. https://ideas.repec.org/a/ora/journl/v1y2013i2p97-105.html

Genders, E., & Player, E. (2022). Long sentenced women prisoners: Rights, risks and rehabilitation. *Punishment & Society*, *24*(1), 3–25. https://doi.org/10.1177/1462474520933097

Giusto, A., Johnson, S. L., Lovero, K. L., Wainberg, M. L., Rono, W., Ayuku, D., & Puffer, E. S. (2021). Building community-based helping practices by training peer-father counselors: A novel intervention to reduce drinking and depressive symptoms among fathers through an expanded masculinity lens. *International Journal of Drug Policy*, *95*, 103291. https://doi.org/10.1016/J.DRUGPO.2021.103291

Granados, L., Suriá, R., Perea, C., Payá, C., Sánchez-Pujalte, L., & Aparisi, D. (2023). Effectiveness of a program for the development of socio-emotional competences in people admitted to a penitentiary center. *Frontiers in Public Health*, *10*, 1116802. https://doi.org/10.3389/fpubh.2022.1116802

Hansen, E. G., & Spitzeck, H. (2010). *Stakeholder governance: An analysis of BITC corporate responsibility index data on stakeholder engagement and governance*. https://dspace.lib.cranfield.ac.uk/server/api/core/bitstreams/69e581e5-be6f-4302-a8a0-b6434fe1e5ca/content

Hsieh, M. -L., Chen, K. -J., Choi, P. -S., & Hamilton, Z. K. (2021). Treatment combinations: The joint effects of multiple evidence-based interventions on recidivism reduction. *Criminal Justice and Behavior*, *49*(6), 911–929. https://doi.org/10.1177/00938548211052584

Nurhidayah, I., (2022). Assimilation program planning by the ministry of law and human rights in overcoming the spread of COVID-19 at the corporate institution. *International Journal of Educational Research and Social Sciences*, *3*(4), 1551–1558. https://doi.org/10.51601/ijersc.v3i4.449

Jaegers, L. A., Skinner, E., Conners, B., Hayes, C., West-Bruce, S., Vaughn, M. G., Smith, D. L., & Barney, K. F. (2020). Evaluation of the jail-based occupational therapy transition and integration services program for community reentry. *American Journal of Occupational Therapy*, *74*(3), 7403205030p1-7403205030p11. https://doi.org/10.5014/AJOT.2020.035287

Jang, S. J., Johnson, B. R., Anderson, M. L., & Booyens, K. (2022). Religion and rehabilitation in Colombian and South African prisons: A human flourishing approach. *International Criminal Justice Review*, *33*(3), 225–252. https://doi.org/10.1177/10575677221123249

Joncas, J. A., & Pilote, A. (2021). The role of guidance professionals in enhancing the capabilities of marginalized students: the case of indigenous women in Canada. *International Journal for Educational and Vocational Guidance*, *21*(2), 405–427. https://link.springer.com/article/10.1007/s10775-021-09474-3

Jordans, M. J., Luitel, N. P., Garman, E., Kohrt, B. A., Rathod, S. D., Shrestha, P., komproe. I. H., Lund, C., & Patel, V. (2019). Effectiveness of psychological treatments for depression and alcohol use disorder delivered by community-based counsellors: Two pragmatic randomised controlled trials within primary healthcare in Nepal. *British Journal of Psychiatry*, *215*(2), 485–493. https://doi.org/10.1192/BJP.2018.300

Kadel, S. (1992). *Interagency collaboration: Improving the delivery of services to children and families* (ERIC Document No. ED349511). https://eric.ed.gov/?id=ED349511

Katey, D., Abass, K., Garsonu, E. K., & Gyasi, R. M. (2022). Depopulation or vaccination? tackling the COVID-19 crisis in prisons in Africa. *Health & justice*, *10*, 12. https://doi.org/10.1186/s40352-022-00176-8

Kay, C. (2021). The impact of policy change on prisoner resettlement and community integration: A case of disproportionate response. *Critical Social Policy*, *41*(2), 315–325. https://doi.org/10.1177/0261018320957567

Labrecque, R. M., & Viglione, J. (2021). The impact of a community supervision officer training program on client outcomes: A propensity score modeling analysis by officer training dosage. *Criminal Justice and Behavior*, *48*(3), 315–331 https://globcci.org/wp-content/uploads/2021/07/The-Impact-of-a-Community-Supervision-Officer-Training-Program-on-Client-Outcomes-2020.pdf

Landrawan, I. W., & Adnyani, N. K. S. (2023). Giving assimilation to prisoners in class II B correctional institutions singaraja viewed from the perspective of criminology and human rights. *Jurnal Komunikasi Hukum (JKH)*, *9*(1), 34–44. https://doi.org/10.23887/jkh.v9i1.55347

Majeed, T., Breuer, E., Edwards, L., Remond, M., Taylor, J., Zeki, R., Hampton, S., Grant, L., Sherwood J., Baldry E., & Sullivan, E. (2023). Developing best practice principles for the provision of programs and services to people transitioning from custody to the community: study protocol for a modified Delphi consensus exercise. *BMJ open*, *13*(6), e067366. https://doi.org/10.1136/bmjopen-2022-067366

Mark, K., & Pfeiffer, J. R. (2011). *Monitoring and evaluation in the United States government: An overview* (IEG Methods and Evaluation Capacity Development Working Paper Series, No. 26, pp1–42). World Bank. https://documents.worldbank.org/curated/en/472991468142480736

Martin, D. K., & Benatar, S. R. (2008). Resource allocation: International perspectives on resource allocation. *International Encyclopedia of Public Health*, 538–543. https://doi.org/10.1016/B978-012373960-5.00124-6

Matejkowski, J. (2021). Challenges to employing shared decision making with adults under community supervision who have a mental illness. *Frontiers in Psychiatry*, *12*, 773411. https://doi.org/10.3389/FPSYT.2021.773411

Mathlin, G., Freeston, M. H., & Jones, H. W. (2022). Factors associated with successful reintegration for male offenders: A systematic narrative review with implicit causal model. *Journal of Experimental Criminology*, *20*, 541–580. https://doi.org/10.1007/s11292-022-09547-5

Mills, M. E., & Newbold, S. K. (2009). Creating a governmental policy framework for adoption of an electronic health record. *Studies in health technology and informatics*, *146*, 678–682. https://ebooks.iospress.nl/pdf/doi/10.3233/978-1-60750-024-7-678

Mitrakas, A. (2009). Policy frameworks for secure electronic business. In M. Khosrow-Pour (Ed.), *Encyclopedia of Information Science and technology* (2ed., pp. 3093–3097). IGI Global.https://doi.org/10.4018/978-1-59140-553-5.ch403

Mollaei, M., Ghayoomzadeh, M., & Mirkhalili, S. M. (2020). Rehabilitation and re-socialization of criminals in Iranian criminal law. *Journal of Religion & Health*, *59*, 1013–1023. https://doi.org/10.1007/S10943-018-0578-2

Moyo, N. J. (2008). The relationship between government policy and management practices at further education and training colleges (Doctoral dissertation, University of Pretoria). https://repository.up.ac.za/server/api/core/bitstreams/3138dc42-0113-46b9-93e0-806e15c8f65a/content

Nic Giolla Mhichíl, M.. (2014). *Policy implementation in higher education: An ideographic case study*. [Doctoral dissertation, Durham University]. Durham e-Theses. https://etheses.dur.ac.uk/9448/1/Durham2013_Print_Final.pdf

Pande, Y. (2018). Peranan pembimbing kemasyarakatan dalam membuat laporan penelitian kemasyarakatan pada proses peradilan pidana bagi anak yang berhadapan dengan hukum [The role of community guidance in making community research reports on the criminal justice process for children in conflict with the law]. *Lex Librum: Journal of Legal Studies*, *5*(1). http://doi.org/10.5281/zenodo.2061341 [in Indonesian]

Pearce, L. A., Vaisey, A., Keen, C., Calais-Ferreira, L., Foulds, J. A., Young, J. T., Southalan, L., Borschmann, R., Gray, R., Stürup-Toft, S., & Kinner, S. A. (2021). A rapid review of early guidance to prevent and control COVID-19 in custodial settings. *Health & Justice*, *9*, 27. https://doi.org/10.1186/S40352-021-00150-W

Peled-Laskov, R., Shoham, E., & Cojocaru, L. (2019). Work-related intervention programs: Desistance from criminality and occupational integration among released prisoners on parole. *International Journal of Offender Therapy and Comparative Criminology*, *63*(13), 2264–2290. https://doi.org/10.1177/0306624X19845762

Rahmasari, F. S. (2020). Pengawasan narapidana pembebasan bersyarat oleh pembimbing kemasyarakatan - tantangan dan alternatif penyelesaiannya [Supervision of Parole Prisoners by Community Supervisors - Challenges and Alternative Solutions]. *Justitia: Journal of Law and Humanities*, *7*(2), 368–379. https://core.ac.uk/download/pdf/322504347.pdf [in Indonesian]

Riggs, R. (2022). Men's social integration after incarceration: The role of organizationally embedded prison-forged networks. *Social Problems*, *69*(2), 544–561. https://doi.org/10.1093/SOCPRO/SPAA026

Rowe, S. Y., Ross-Degnan, D., Peters, D. H., Holloway, K., & Rowe, A. K. (2022). The effectiveness of supervision strategies to improve health care provider practices in low- and middle-income countries: secondary analysis of a systematic review. *Human Resources for Health*, *20*(1), 1–12. https://doi.org/10.1186/s12960-021-00683-z

Seddaiu, G., Ruiu, M. L., & Kipling, R. P. (2015). *Report on Stakeholder Engagement Methodologies*. https://doi.org/10.13140/RG.2.2.14319.23201

Sugiyono, M. (2012). Quantitative, *qualitative, and combination research methods*. Alfabeta.

Syahrizal, R. (2020). Strategi peningkatanpengawasan dan bimbinganbagi klien pemasyarakatan program asimilasi dan integrasi COVID-19 [Strategy for improving supervision and guidance for correctional clients of the COVID-19 assimilation and integration program]. *Mizan: Jurnal Ilmu Hukum*, *9*(2). https://ejournal.uniska-kediri.ac.id/index.php/Mizan/article/view/1115 [in Indonesian]

Tadros, E., Aguirre, N., Jensen, S., & Poehlmann-Tynan, J. (2021). COVID-19 inspired relational telemental health services for incarcerated individuals and their families. *Contemporary Family Therapy: An International Journal*, *43*(3), 214–225. https://doi.org/10.1007/s10591-021-09578-6

Tucker, S., & Luetz, J. M. (2023). Art therapy in Australian prisons: A research agenda. *International Journal of Offender Therapy and Comparative Criminology*, *69*(1), 119–144. https://doi.org/10.1177/0306624X231165350

Wall, J. T., Kaiser, B. N., Friis-Healy, E. A., Ayuku, D., & Puffer, E. S. (2020). What about lay counselors' experiences of task-shifting mental health interventions? example from a family-based intervention in Kenya. *International journal of mental health systems*, *14*, 9. https://doi.org/10.1186/S13033-020-00343-0

Werner, K., St. Arnold, G. & Crea, T.M. (2021). Using a community-based system dynamics approach for understanding inclusion and wellbeing: a case study of special needs education in an eastern African refugee camp. *Conflict and Health*, *15*, 58. https://doi.org/doi: 10.1186/S13031-021-00390-5

Wijanarko, D. S. (2022). Implementation of provision of assimilation in the time of COVID-19 for prisoners. *Eduvest-Journal of Universal Studies*, *2*(2), 190–195. https://doi.org/10.36418/edv.v2i2.358

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Enhancing organizational citizenship behavior: The influence of job crafting and employee well-being

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Abstract

In light of a post-pandemic future, there is a crucial need to devise suitable strategies to maintain positive emotions in the workplace because employees who feel positive emotions at work can improve their performance and pay it forward. This study hypothesized that the positive effect of job crafting can relate to psychological and behavioral aspects. Drawing on the broaden-and-build theory, this study examined the mediating effect of employee well-being on the relationship between job crafting and organizational citizenship behavior (OCB) among 317 Thai employees in an insurance company. A partial mediating role of employee well-being was detected. Job crafters can experience well-being and engage in OCB as a result of positive emotions. A highly uncertain environment requires employees to adapt and take an active role in expanding their behavior, emphasizing the importance of the concept of OCB. This study indicated that an organization can increase the level of OCB among employees by stimulating them to craft their jobs to experience positive emotions and well-being. This study thus highlighted the significance of fostering positive emotions at work, particularly in non-western settings and challenging times.

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Introduction

Investigating factors contributing to employee and organizational performance is of interest and a list of factors has been reported, such as personality, human resource practices, and other organizational factors (Miraglia et al., 2017; Wahab et al., 2021). One of the most widely examined employee behavior constructs in the management field is organizational citizenship behavior (OCB) (Paul et al., 2019). OCB is defined as employee behaviors that go beyond their formal job requirements so that an employee can decide to perform to varying degrees (Organ, 1988). It is challenging for organizations to anticipate all behaviors required from employees and work roles are less likely to be clearly defined (Demerouti et al., 2015). Employees who are taking an active role to expand their regular behaviors are welcomed and necessary for business sustainability

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(Chen et al., 2024). Although numerous studies examined the antecedents and consequences of OCB, additional research is required, particularly studies conducted in different cultural settings (Magnini et al., 2013).

Scholars also recently highlighted the significance of positive psychology as a possible way to support employees to stay energized and actively perform during uncertain business environments (Belleville et al., 2020; Schweitzer et al., 2023; Zhai et al., 2023). Employees who feel positive emotions at work are likely to extend the benefits of feeling good to their performance (Hu & Kaplan, 2015; Sahu & Srivastava, 2017). Therefore, cultivating positive emotions at work can effectively improve employee performance. In other words, this study aims to examine OCB from the perspective of positive emotions.

Work is an essential aspect of individuals' lives (Ward & King, 2017), often serving as a source of positive emotions. In contrast, employees lacking sufficient resources and support may face emotional exhaustion, leading to declining work performance (Lam et al., 2010) and impacting their personal lives. Research has confirmed that perceived meaningful work drives employee attitudes and performance (Allan et al., 2019; Fürstenberg et al., 2020). Managers can enhance employees' productivity by designing high-quality job characteristics (Wang et al., 2021a). This is a top-down approach that an organization takes charge for creating meaningful work for employees (Zhang & Parker, 2018).

However, it is impossible for organizations to design meaningfulness of job for every employee (Zhang & Parker, 2018). In contrast, employees can engage in the self-initiated behaviors, i.e., a bottom-up approach, thus leading to a proactive way in which employees can proactively improve their work experience (Tims et al., 2012; Vogel et al., 2016). This behavior is called job crafting. Although job crafting relates to important outcomes covering both the organizational and individual employee levels (Bruning & Campion, 2018; Rofcanin et al., 2019), research on job crafting is limited, especially in a non-Western context (Chen et al., 2014; Laurence et al., 2020).

Emre and Spiegeleare (2019) reported that employees' well-being can either support or hinder organizational performance. Additionally, the importance of employee well-being is increasingly recognized (Meyer et al., 2021; Sutarto et al., 2021). Thus, it is critical for organizations to understand how to effectively manage employees' well-being in the context of new ways of work.

Therefore, this study aims to investigate the mediating effect of employee well-being on the relationship between job crafting and OCB while responding to the needs of mechanism that can explain how positive states due to job crafting can translate into favorable and sustainable outcomes in an organization. This study contributes to the current literature and practices by providing empirical results to encourage OCB during the high uncertainty of work situation.

Literature Review

Broaden-and-Build Theory

Fredrickson (2006) proposed the broaden-and-build theory, which is used as a main theory to explain the proposed relationships examined in this study. Positive emotions, such as joy and interest, can produce complementary effects during the current situation and long-term effects because those who are experiencing positive emotions amplify their personal resources. These positive emotions broaden the way that individuals think and act. As a result, they transform themselves and become healthier, creative, and knowledgeable people.

Fürstenberg et al. (2020) reported that, drawing on the broaden-and-build theory, meaningfulness of work enhances employees' voice behaviors, which in turn support supervisor-rated performance. Employees who find their work meaningful are likely to exhibit positive psychological and physical health and report higher life satisfaction (Ward & King, 2017). Individuals with positive emotions can broaden and encourage an outward orientation, leading to favorable behaviors to others (Carlson et al., 2011; Staw et al., 1994), which can in turn promote the organizational climate by improving social functioning at the workplace. Several approaches can be implemented to foster meaningful work, such as appropriate leadership and organizational culture (Ward & King, 2017). Employees can also take an active role in controlling their work experience by engaging in job crafting behaviors.

Drawing on this theory, this study hypothesized that job crafting was related to employee well-being and OCB because job crafting behaviors provide strengths as personal resources and encourage perceiving meaning at work. This helps them to effectively cope with work stress, i.e., improving their well-being, and engage in OCB.

Job Crafting

Job crafting is defined as "the physical and cognitive changes individuals make in the task or relational boundaries of their work" (Wrzesniewski & Dutton, 2001, p. 179).

Employees are encouraged to engage in proactive behaviors when designing their own jobs rather than waiting for an organization to make jobs more interesting (Bruning & Campion, 2018; Miraglia et al., 2017). This can occur even in a low-control work environment (McClelland et al., 2016) which can be used as a potential solution to staff shortage (Irving et al., 2022). Job crafting is different from other proactive behaviors and OCB because the focus of job crafting is on improving their job and not on promoting the good of others or the whole organization (Fong et al., 2021; Wrzesniewski & Dutton, 2001).

Employees can change the number or scope of tasks, the amount of interaction with others encountered in the job, and cognitive task boundaries to create a better fit (Wrzesniewski & Dutton, 2001). This situation leads to positive outcomes in terms of an increased level of engagement (Meng et al., 2021; Wang et al., 2018) and better performance (Bruning & Campion, 2018; Wong et al., 2021).

Job crafting is related to the job demands-resources model that individuals proactively seek resources to support their work and reduce demands, such as pressure and heavy workload (Bipp & Demerouti, 2015). Another approach is the role-based perspective that job crafters make changes to the task boundaries to make their role intrinsically fit (Bruning & Campion, 2018). Job crafting can be classified as two types: approach and avoidance crafting (Zhang & Parker, 2018). Approach job crafting is related to proactive behaviors leading to positive outcomes, whereas avoidance crafting is often dysfunctional. Positive job crafting behaviors include increasing social and structural job resources and increasing challenges, whereas negative job crafting behaviors include reducing hindering demands (Petrou et al., 2012; Tims et al., 2012).

Although research has revealed positive outcomes of job crafting, conflicts with colleagues and colleagues' burnout were found from decreasing hindering demands (Tims et al., 2015). Negative job crafting behaviors can be costly for colleagues by increasing others' workload. Some studies have suggested that job crafting behaviors should be characterized by effortful and directed actions to seek positive aspects of work, rather than by withdrawal-oriented behaviors to reduce work demands (Costantini et al., 2021; Zhang & Parker, 2018). Reducing demands, such as eliminating challenges, can result in a less stimulating environment, which in turn reduces employee motivation and performance (Demerouti et al., 2015; Petrou et al., 2012).

Another important point of the job crafting concept is the cultural factor that calls for further investigation (Wang et al., 2018; Zhang & Parker, 2018). Employees in a collectivist culture tend to emphasize the group's interests and care for other group members so they might engage less in job crafting behaviors to avoid creating unfavorable impacts toward others (Laurence et al., 2020). Positive job crafting behaviors in a collectivist society tend to happen frequently compared to negative job crafting. Thailand is a highly collectivist society (Hofstede, 2001). Following the suggestions about the positive aspects of job crafting behaviors and possible effect of a collectivist culture, this study only examined positive job crafting behaviors.

Organizational Citizenship Behavior (OCB)

OCB is defined as discretionary employee behaviors that go beyond their formal job requirements and are valuable to organizations (Organ, 1988). Organizational factors, such as human resource practices and job crafting, can encourage employees to perform OCB (Demerouti et al., 2015; Detnakarin & Rurkkhum, 2019). OCB is increasingly important because it can create a positive work environment (van Dick et al., 2006), reduce stress among employees (Wang et al., 2021), and encourage changes in an organization (Chen et al., 2024). Specifically, employees engaging in OCB can support organizational effectiveness by going beyond performance as stated in possibly outdated job descriptions (Avey et al., 2010). Although previous studies have demonstrated the possible dark side of OCB (Bolino et al., 2013; Yam et al., 2017), the positive side of OCB is the focus of this study.

The literature reported the relationship between OCB and employees' positive emotions (Wang et al., 2021b) by explaining that employees who go beyond the call of duty can feel pride and pleasure, leading to positive emotions that are essential for their well-being. However, employees might have impression management motives for engaging OCB (Pareke et al., 2024), limiting their positive emotions. Additionally, positive emotions can broaden employee attitudes and behaviors according to the broaden-and-build theory. This study hypothesized that as a result of job crafting behaviors, employees who are experiencing meaningful work and well-being tend to perceive positive emotions, which in turn encourage them to engage in OCB.

Specifically, job crafters are likely to perceive fit and experience balance between job resources and demands, thus facilitating better performance, including extra-role behaviors (Costantini et al., 2021; Demerouti et al., 2015), leading to the first hypothesis.

H1: Job crafting positively affects OCB.

Employee Well-being

The concept of well-being in the work domain responds to the notion of work being an important domain of life (Li & Lin, 2021). How organizations and work can contribute to employee well-being, which is an important component of an individual's well-being, has become an interest (Schwarz et al., 2023). Although further studies about employee well-being in the international context are needed, (Magnier-Watanabe et al., 2020), the relationship between employee well-being and employee performance has been confirmed (Bellet et al., 2019; Magnier-Watanabe et al., 2020; Ward & King, 2017).

A recent study revealed that employees are likely to leave if an organization cannot appropriately respond to their well-being (Morgan, 2021). Although several factors contributing to employee well-being have been reported (Li & Lin, 2021; Wingerden et al., 2017), job crafting was selected to examine whether the broaden-and-build theory is applicable to explain the relationship. The recent literature revealed mixed findings about the impact of job crafting on employee well-being (Boehnlein & Baum, 2022; Harju et al., 2021; Manzanares et al., 2024), thus calling for further studies. However, according to the broaden-and-build theory, a positive relationship between job crafting and employee well-being was hypothesized. Job crafters are likely to perceive fit and experience balance between job resources and demands, thus facilitating the perception of well-being and engagement (Chen et al., 2014; Meng et al., 2021; Petrou et al., 2012; Rofcanin et al., 2019). Therefore, the following hypothesis was developed.

H2: Job crafting positively affects employee well-being.

According to the broaden-and-build theory, employees experiencing their well-being can perceive positive emotions, and positive emotions relate with OCB (Carlson et al., 2011; Fürstenberg et al., 2020; Spector & Fox, 2002), leading to the third hypothesis.

H3: Employee well-being positively affects OCB.

The mediating effect of employee well-being was hypothesized and responds to the call for future studies examining the mediating mechanism underlying the relationship between job crafting and consequences (Wang et al., 2018) and between workplace strengths and OCB (Belleville et al., 2020). Job crafters perceive positive emotions from a better fit, thus leading to the perception of well-being and motivating them to pay it forward by performing OCB. Their well-being perceptions offer favorable resources for employees, which in turn result in OCB as stated in the fourth hypothesis.

H4: Employee well-being mediates the relationship between job crafting and OCB.

Methodology

Participants and Procedure

Data were collected from employees in one Thai insurance organization as a part of a research project examining employee perceptions because of the high workload and unfamiliar work environment, causing stress during the COVID-19 pandemic. The study obtained IRB approval and collected data from September to October 2021. All 1,185 full-time employees were notified via their organizational emails about the project. The cover letter invited employees to complete the online survey and ensured their confidentiality. Employees could voluntarily participate in the self-reported survey. There were 317 complete and usable surveys returned, representing a response rate of 26.75 percent

The self-report instrument was appropriate due to the nature of the study that aims to measure attitudes and behaviors of individuals, which is difficult for external raters to assess. The sample was reported on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree), except the OCB scale with a 7-point scale. Confirmatory factor analysis (CFA) was conducted followed by a structural equation model (SEM).

Instrumentation

Job crafting was measured using 11 items based on Tims's et al. (2012) work. The original scale had 21 items consisting of four dimensions, namely, increasing structural job resources, increasing social job resources, increasing challenging job demands, and decreasing hindering job demands. Only the first three dimensions were used in this study because the fourth dimension was independent of the other three dimensions, implying that the underlying processes motivating employees to decrease hindering job demands might be different from the others. Four items with factor loading below 0.5 were deleted (Hair et al., 2010).

OCB was measured using 18 items as a short version of an instrument from Rurkkhum and Bartlett's (2018) work. The OCB scale was developed for a collectivist society and divided into six dimensions, namely,

helping other, self-development, organizational loyalty, developing others, civic virtue, and obedience.

Employee well-being was measured using six items from Gragnano et al.'s (2017) work. The 17-item original scale was divided into three main dimensions, namely, work-health incompatibility, health climate, and external support. Only the first dimension, an individual perception of the effect of work on health, was used. The original six items are both positively and negatively worded. In this study, however, all negatively worded items were reworded to positive items, reducing the chance of confusion among respondents (Podsakoff et al., 2003).

Results

Of the 317 respondents, 255 were female (80.44%), and 225 respondents reported their position at the operation level (70.98%). The average age was 28.98 years old, while the average tenure at this organization was 4.21 years. Descriptive statistics of variables were reported as follows: job crafting (mean = 4.515, *SD* = 0.487), OCB (mean = 6.396, *SD* = 0.609), and employee well-being (mean = 4.281, *SD* = 0.745). Skewness and kurtosis of variables ranged from -1.186 to -0.774, and -0.023 to 1.565, respectively, confirming normality with the range of -2 to 2. All variables showed positive correlation values that ranged from 0.594 to 0.686, confirming that multicollinearity is not found (Hair et al., 2010). Common method bias (CMB) tested by Harman's single factor was reported at the 48.47 percent total variance value, below the recommended value at 50 percent, confirming that CMB was not a problem (Podsakoff et al., 2003).

Table 1 shows the results of CFA. All factor loadings were significant, and construct reliability (CR) ranged from 0.891 to 0.936, which is higher than the accepted value of 0.70. The average variance extracted (AVE) ranged from 0.709 to 0.733, which is higher than the suggested value of 0.50. The CR and AVE results supported the convergent validity of the measurement items. Cronbach's alpha values ranged from 0.920 to 0.960, which is higher than the suggested value of 0.70.

Table 2 presents the results of discriminant validity showing that the square root of the AVE for each variable is larger than the correlations between the variable itself and the other variables in the model.

Table 2 Discriminant Validity

Variables	Job crafting	Employee well-being	OCB
Job crafting	0.733		
Employee well-being	0.477	0.709	
OCB	0.605	0.489	0.711

Table 1 Results of CFA

Variables	Factor loading	Z-value	*p*-value	CR	AVE	Cronbach's Alpha
1. Job crafting*				0.891	0.733	0.920
1.1 Structural job resources (CR = 0.859, AVE = 0.603, Factor loadings ranged from 0.758 to 0.807)	0.803***	25.796	.000			
1.2 Social job resources (CR = 0.853, AVE = 0.660, Factor loadings ranged from 0.758 to 0.870)	0.856***	32.068	.000			
1.3 Challenging job demands (CR = 0.900, AVE = 0.694, Factor loadings ranged from 0.775 to 0.861)	0.907***	41.580	.000			
2. OCB*						
2.1 Helping others (CR = 0.865, AVE = 0.681, Factor loadings ranged from 0.741 to 0.870)	0.851***	39.035	.000	0.936	0.711	0.960
2.2 Self-development (CR = 0.913, AVE = 0.777, Factor loadings ranged from 0.869 to 0.890)	0.878***	48.451	.000			
2.3 Organizational loyalty (CR = 0.891, AVE = 0.732, Factor loadings ranged from 0.822 to 0.913)	0.907***	56.143	.000			
2.4 Developing others (CR = 0.888, AVE = 0.727, Factor loadings ranged from 0.823 to 0.894)	0.693***	16.379	.000			
2.5 Civic virtue (CR = 0.928, AVE = 0.881, Factor loadings ranged from 0.863 to 0.942)	0.838***	39.335	.000			
2.6 Obedience (CR = 0.835, AVE = 0.629, Factor loadings ranged from 0.732 to 0.846)	0.875***	39.301	.000			
3. Employee well-being (Factor loadings ranged from 0.736 to 0.926)				0.936	0.709	0.938

Note: *Second order confirmatory factor analysis; *** $p < .001$

The fit indices fell within an acceptable range (χ^2/df = 2.562, CFI = 0.913, TLI = 0.905, SRMR = 0.059, and RMSEA = 0.070). Table 3 and Figure 1 represent the results of the study, job crafting directly and indirectly affects OCB. OCB received total effect (0.778) of job crafting: direct effect = 0.565, and indirect effect = 0.213. Employee well-being mediates the relationship between job crafting and OCB. The results supported all hypotheses.

Discussion

Positive emotions play a vital, yet often overlooked role in supporting employees and organizations (Caniëls et al., 2022; Colbert et al., 2016). Although research on job crafting has increased in recent decades, further studies are needed, especially in a non-western context. This study responds to this call and reveals the partial mediating role of employee well-being in the relationship between job crafting and OCB. Job crafters, who engage in increasing structural and social job resources, and increasing challenging job demands, tend to perform OCB and perceive well-being. Employee well-being, in turn, influences OCB.

Consistent with previous studies, job crafters experience stimulating and challenging job characteristics by perceiving increased resources and intrinsic fit, enhancing the meaningfulness of work and positive emotions. These positive emotions broaden the way that employees think and behave, encouraging them to go beyond their formal job roles. OCB relates to in-role performance (Fürstenberg et al., 2020) and contributes to organizational effectiveness through the creation of a positive work environment (Bolino et al., 2013). Employee well-being is also essential for employee performance and organizational success (Magnier-Watanabe et al., 2020; Nguyen & Ngo, 2021). Thus, this study confirms that positive job crafting not only benefits the individual job crafters, but can also impact others and the organization.

In the modern era of work, job design poses a significant challenge. Employees strive to find meaningful work while maintaining their well-being. Simultaneously, organizations need to establish effective methods for motivating remote/hybrid employees. This study addresses these concerns. Job crafting has regained an interest in the concept of job design with the emphasis on an active role from employees. This can enhance the meaningfulness of work experience, which in turn supports other positive outcomes. However, additional work is needed to examine the mechanism of the relationship, especially in new ways of work and a non-western context.

Although some personal factors can affect job crafting behaviors (Bipp & Demoerouti, 2015; Miraglia et al., 2017), an organization can stimulate job crafting. This includes providing job crafting intervention, enhancing employees' ability, building positive social interactions at work to facilitate continuous feedback, and coaching managers to understand the benefits of job crafting and facilitate these behaviors (Akkermans & Tims, 2017; Meng et al., 2021; Miraglia et al., 2017; Rofcanin et al., 2019; Russo et al., 2021).

Managerial support for employee well-being and peer support are also important to help employees manage, recover, and thrive during and after a pandemic (Becker et al., 2022; Kuntz, 2021). An organization can underlie the significance of role modeling behaviors among leaders that promote employee well-being and positive emotions.

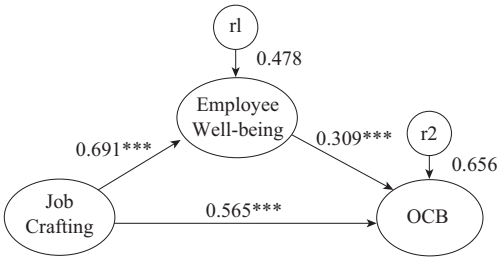


Figure 1 Results of the Structural Equation Model
Note: *** $p < .001$

Table 3 Results of Partial Mediation Effect

Research hypothesis	Std. coefficient	Z-value	*p*-value
Direct effect			
Job crafting → OCB	0.565***	9.626	.000
Job crafting → Employee well-being	0.691***	18.841	.000
Employee well-being → OCB	0.309***	5.347	.000
Indirect effect			
Job crafting → Employee well-being → OCB	0.213***	5.386	.000

Note: *** $p < .001$

This includes cultivating strong relationships, enhancing communication, exhibiting in transformational leadership behaviors, and fostering a supportive work environment (Bono et al., 2007; Sahu & Srivastava, 2017; Sutarto et al., 2021). Additionally, effective training interventions for employees and supervisors can be implemented to increase employee well-being (Mohr et al., 2021; Schwarz et al., 2023).

In summary, this study revealed a possible effective approach to promoting OCB from the perspective of positive emotions. Encouraging employees to take an active role in crafting their jobs can help them perceive well-being and perform beyond their regular roles, which is beneficial to today's organizations (Belleville et al., 2020; Guest, 2025; van Dyne et al., 2000; Zhai et al., 2023). Apart from the practical implications discussed above, this study contributed to the knowledge of cultural effects on the relationship between job crafting, employee well-being, and performance, particularly OCB (Boehnlein & Baum, 2022; Magnini et al., 2013). The study provided empirical evidence to support the notion that collectivism seems to be beneficial for job crafting because it can lead to positive outcomes. However, additional studies are required to yield more accurate insights into this relationship.

Limitations and Future Research Directions

Due to the nature of the study, single-source data were implemented and this was one limitation. A cross-sectional design was also implemented, making it difficult to ensure causality.

Employees and organizations face many challenges, requiring adaptability. A one-size-fits-all human resource practice seems to be no longer fit for a diverse workforce. An organization needs innovative ways to manage employees and employee individual differences matter. Additionally, a remote/hybrid work environment is a new way of work, thus forcing an organization to effectively manage and engage with remote/hybrid employees. Thus, more research is required on the impact of the new way of work (Demerouti et al., 2014). Organizations, for instance, should maintain feelings of belongingness among remote/hybrid employees and communicate regularly with remote/hybrid employees (Becker et al., 2022).

Additional research is needed to expand the understanding of work-nonwork balance among remote/hybrid workforce (Allen et al., 2021). The rapid pivot to virtual/hybrid work models also calls for innovative strategies to foster positive emotions in the workplace. For example, small talk has been proven to generate beneficial social emotions at work (Methot et al., 2021). Furthermore, work relationships are indispensable in promoting employee well-being (Colbert et al., 2016). However, cultivating these relationships and facilitating small talk among virtual/hybrid workers presents a complex challenge. Further research is necessary to devise practical solutions for these issues.

Conclusion

Referring to the broaden-and-build theory, this study revealed the partial mediating role of employee well-being on the relationship between job crafting and OCB among employees who worked under challenges. It responds to the call for further studies to examine the mechanism explaining the relationships in a non-western context. Employees are encouraged to take an active role in crafting their jobs, and these behaviors can benefit both individual job crafters and the organization. Although this study collected data under unusual circumstances, the positive results of job crafting are still reported. These findings underscore the beneficial impact of positive emotions in the workplace and highlight the importance of managing such emotions for organizational success.

Conflict of Interest

The author declares that there is no conflict of interest.

References

Akkermans, J., & Tims, M. (2017). Crafting your career: How career competencies relate to career success via job crafting. *Applied Psychology: An International Review, 66*(1), 168–195. https://doi.org/10.1111/apps.12082

Allan, B. A., Batz-Barbarich, C., Sterling, H. M., & Tay, L. (2019). Outcomes of meaningful work: A meta-analysis. *Journal of Management Studies, 56*(3), 500–528. https://doi.org/10.1111/joms.12406

Allen, T. D., Merlo, K., Lawrence, R. C., Slutsky, J., & Gray, C. E. (2021). Boundary management and work-nonwork balance while working from home. *Applied Psychology: An International Review, 70*(1), 60–84. https://doi.org/10.1111/apps.12300

Avey, J. B., Luthans, F., & Youssef, C. M. (2010). The additive value of positive psychological capital in predicting work attitudes and behaviors. *Journal of Management, 36*(2), 430–452. https://doi.org/10.1177/0149206308329961

Becker, W.J., Belkin, L. Y., Tuskey, S. E., & Conroy, S.A. (2022). Surviving remotely: How job control and loneliness during a forced shift to remote work impacted employee work behaviors and well-being. *Human Resource Management, 61*(4), 449–464. https://doi.org/10.1002/hrm.22102

Bellet, C. S., Neve, J. D., & Ward, G. (2019, October). *Does employee happiness have an impact on productivity?* (Working Paper No. 2019–13). http://dx.doi.org/10.2139/ssrn.3470734

Belleville, K., Dubreuil, P., & Courey, F. (2020). The use of workplace strengths and proactive and organizational citizenship behaviours: An examination of the mediating role of well-being. *Canadian Journal of Administrative Sciences, 37*, 135–148. https://doi.org/10.1002/cjas.1527

Bipp, T., & Demerouti, E. (2015). Which employees craft their jobs and how? Basic dimensions of personality and employees' job crafting behaviour. *Journal of Occupational and Organizational Psychology, 88*, 631–655. https://doi.org/10.1111/joop.12089

Boehnlein, P., & Baum, M. (2022). Does job crafting always lead to employee well-being and performance? Meta-analytical evidence on the moderating role of societal culture. *The International Journal of Human Resource Management, 33*(4), 647–685. https://doi.org/10.1080/09585192.2020.1737177

Bolino, M. C., Klotz, A. C., Turnley, W. H., & Harvey, J. (2013). Exploring the dark side of organizational citizenship behavior. *Journal of Organizational Behavior, 34*: 542–559. https://doi.org/10.1002/job.1847

Bono, J. E., Foldes H. J., Vinson, G., & Muros, J. P. (2007). Workplace emotions: The role of supervision and leadership. *Journal of Applied Psychology, 92*(5), 1357–1367. https://doi.org/10.1037/0021-9010.92.5.1357

Bruning, P. F., & Campion, M. A. (2018). A role-resource approach-avoidance model of job crafting: A multimethod integration and extension of job crafting theory. *Academy of Management Journal, 61*(2), 499–522. https://doi.org/10.5465/amj.2015.0604

Caniëls, M. C. J., Hatak, I., Kuijpers, K. J. C., & Weerd-Nederhof, P. P. C. (2022). Trait resilience instigates innovative behaviour at work? A cross-lagged study. *Creativity and Innovation Management, 31*, 274–293. https://doi.org/10.1111/caim.12486

Carlson, D. S., Ferguson, M. J., Kacmar, K. M., Grzywacz, J. G., & Whitten, G. D. (2011). Pay it forward: The positive crossover effects of supervisor work-family enrichment. *Journal of Management, 37*(3), 770–789. https://doi.org/10.1177/0149206310363613

Chen, C., Duan, J., & Peng, Y. (2024). How does sense of power influence change-oriented organizational citizenship behavior? Evidence from China. *Public Performance and Management Review, 47*(3), 732–760. https://doi.org/10.1080/15309576.2023.2298414

Chen, C., Yen, C., & Tsai, F. C. (2014). Job crafting and job engagement: The mediating role of person-job fit. *International Journal of Hospitality Management, 31,* 21–28. https://doi.org/10.1016/j.ijhm.2013.10.006

Colbert, A. E., Bono, J. E., & Purvanova, R. K. (2016). Flourishing via workplace relationships: Moving beyond instrumental support. *Academy of Management Journal, 59*(4), 1199–1223. https://doi.org/10.5465/amj.2014.0506

Costantini, A., Demerouti, E., Ceschi, A., & Sartori, R. (2021). Evidence on the hierarchical, multidimensional nature of behavioral job crafting. *Applied Psychology: An International Review, 70*(1), 311–341. https://doi.org/10.1111/apps.12232

Demerouti, E., Bakker, A. B., & Gevers, J. M. P. (2015). Job crafting and extra-role behavior: The role of work engagement and flourishing. *Journal of Vocational Behavior, 91*, 87–96. https://doi.org/10.1016/j.jvb.2015.09.001

Demerouti, E., Derks, D., Ten Brummelhuis, L. L., & Bakker, A. B. (2014). New ways of working Impact on working conditions, work-family balance, and well-being. In C. Korunka, & P. Hoonakker (Eds), *The impact of ICT on quality of working life* (pp.123–141). Springer Science.

Detnakarin, S., & Rurkkhum, S. (2019). Moderating effect of perceived organizational support on human resource development practices and organizational citizenship behavior. *Journal of Asia-Pacific Business, 20*(3), 215–234. https://doi.org/10.1080/10599231.2019.1647078

Emre, O., & Spiegeleare, S. D. (2019). The role of work-life balance and autonomy in the relationship between commuting, employee commitment and well-being. *International Journal of Human Resource Management, 32*(11), 2443–2467. https://doi.org/10.1080/09585192.2019.1583270

Fong, C. Y. M., Tims, M., Khapova, S. N., & Beijer, S. (2021). Supervisor reactions to avoidance job crafting: The role of political skill and approach job crafting. *Applied Psychology: An International Review, 70*(3), 1209–1241. https://doi.org/10.1111/apps.12273

Fredrickson, B. L. (2006). The broaden-and-build theory of positive emotion. In M. Csikszentmihalyi, & I.S. Csikszentmihalyi (Eds.), *A life worth living: Contributions to positive psychology* (pp. 85–103). Oxford University Press.

Fürstenberg, N., Alfes, K., & Shantz, A. (2020). Meaningfulness of work and supervisory-rated job performance: A moderated-mediation model. *Human Resource Management, 60*(6), 903–919. https://doi.org/10.1002/hrm.22041

Gragnano, A., Miglioretti, M., Frings-Dresen, M. H. W., & de Boer, A. G. E. M. (2017). Adjustment between work demands and health needs: Development of the work-health balance questionnaire. *Rehabilitation Psychology, 62*(3), 374–386. https://doi.org/10.1037/rep0000121

Guest, D. E. (2025). Strengthening links between HRM theories, HR practices and outcomes: A proposal to advance research on HRM and outcomes. *Human Resource Management Journal, 35*(1), 319–335. https://doi.org/10.1111/1748-8583.12569

Hair, J. F., Black, W. C., Babin, B. J, & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7th ed.). Pearson Prentice Hall.

Harju, L. K., Kaltiainen, J., & Hakanen, J. J. (2021). The double-edged sword of job crafting: The effects of job crafting on changes in job demands and employee well-being. *Human Resource Management, 60*, 953–968. https://doi.org/10.1002/hrm.22054

Hofstede, G. (2001). *Culture's consequences: Comparing, values, behaviours, institutions, and organizations across nations* (2nd ed.). Sage.

Hu, X., & Kaplan, S. (2015). Is 'feeling good' good enough? Differentiating discrete positive emotions at work. *Journal of Organizational Behavior, 36*, 39–58. https://doi.org/10.1002/job.1941

Irving, P., Kramer, B., Kung, J., & Frauenheim, E. (2022, December 7). 7 principles to attract and retain older frontline workers. *Harvard Business Review*. https://hbr.org/2022/12/7-principles-to-attract-and-retain-older-frontline-workers.

Kuntz, J. C. (2021). Resilience in times of global pandemic: Steering recovery and thriving trajectories. *Applied Psychology: An International Review, 70*(1), 188–215. https://doi.org/10.1111/apps.12296

Lam, C. K., Huang, X., & Jassen, O. (2010). Contextualizing emotional exhaustion and positive emotional display: The signaling effects of supervisors' emotional exhaustion and service climate. *Journal of Applied Psychology, 95*(2), 368–376. https://doi.org/10.1037/a0017869

Laurence, G. A., Fried, Y., Yan, W., & Li, J. (2020). Enjoyment of work and driven to work as motivations of job crafting: Evidence from Japan and China. *Japanese Psychological Research, 62*(1), 1–13. https://doi.org/10.1111/jpr.12239

Li, X., & Lin, C. (2021). The influence of high-commitment work system on work well-being: The medicating role of psychological empowerment and the moderating role of leader trust. *Personnel Review, 50*(4), 1128–1147. https://doi.org/10.1108/PR-01-2020-0034

Magnier-Watanabe, R., Uchida, T., Orsini, P., & Benton, C. F. (2020). Organizational virtuousness, subjective well-being, and job performance. *Asia-Pacific Journal of Business Administration, 12*(2), 115–138. https://doi.org/10.1108/APJBA-10-2019-0210

Magnini, V. P., Hyun, S., Kim, B., & Uysal, M. (2013). The influences of collectivism in hospitality work settings. *International Journal of Contemporary Hospitality Management, 25*(6), 844–864. https://doi.org/10.1108/IJCHM-07-2012-0127

Manzanares, S., Martínez-Corts, I., Hernández, A., Demerouti, E., & Medina, F. J. (2024). Crafting behaviours and employees' and their partners' well-being: A weekly study. *European Journal of Work and Organizational Psychology, 33*(3), 340–355. https://doi.org/10.1080/1359432X.2024.2314927

McClelland, G. P., Leach, D. J., Clegg, C. W., & McGowan, I. (2016). Collaborative crafting in call centre teams. *Journal of Occupational and Organizational Psychology, 87*, 464–486. https://doi.org/10.1111/joop.12058

Meng, Y., Wang, Y., & Tian, X. (2021). Job crafting paths for job engagement: An empirical study among Chinese social workers. *Human Service Organizations: Management, Leadership and Governance, 45*(2), 142–167. https://doi.org/10.1080/23303131.2021.1873213

Methot, J. R., Rosado-Solomon, E. H., Downes, P. E., & Gabriel, A. S. (2021). Office chitchat as a social ritual: The uplifting yet distracting effects of daily small talk at work. *Academy of Management Journal, 64*(5), 1445–1471. https://doi.org/10.5465/amj.2018.1474

Meyer, B., Zill, A., Dilba, D., Gerlach, R., & Schumann, S. (2021). Employee psychological well-being during the COVID-19 pandemic in Germany: A longitudinal study of demands, resources, and exhaustion. *International Journal of Psychology, 56*(4), 532–550. https://doi.org/10.1002/ijop.12743

iraglia, M., Ceniotti, R., Alessandri, G., & Borgogni, L. (2017). Translating self-efficacy in job performance over time: The role of job crafting. *Human Performance, 30*(5), 254–271. https://doi.org/10.1080/08959285.2017.1373115

Mohr, C. D., Hammer, L. B., Brady, J. M., Perry, M. L., & Bodner, T. (2021). Can supervisor support improve daily employee well-being? Evidence of supervisor training effectiveness in a study of veteran employee emotions. *Journal of Occupational and Organizational Psychology, 94*, 400–426.

Morgan, I. (2021, August 3). Employees want wellbeing from their job, and they'll leave to find it. Workplace. https://www.gallup.com/workplace/352952/employees-wellbeing-job-leave-find.aspx.

Nguyen, M.H., & Ngo, V.M. (2021). Employees' psychological capital, burnout, and quality of work-life in Vietnamese enterprises: Moderating effects of individual and organizational characteristics. *Asian Academy of Management Journal, 26*(1), 89–112. https://doi.org/10.21315/aamj2021.26.1.4

Organ, D.W. (1988). *Organizational citizenship behaviour: The good solider syndrome*. Lexington Books.

Pareke, F.J., Suryosukmono, G.H., Hayadi, I., & Nasution, N. (2024). Impression management tactics in the workplace: Enhancing or compromising the employee performance? *International Journal of Business Science and Applied Management, 19*(1), 59–76. https://doi.org/10.69864/ijbsam.19-1.183

Paul, H., Bamel, U., Ashta, A., & Stokes, P. (2019). Examining an integrative model of resilience, subjective well-being and commitment as predictors of organizational citizenship behaviors. *International Journal of Organizational Analysis, 27*(5), 274–1297. https://doi.org/10.1108/IJOA-08-2018-1514

Petrou, P., Demerouti, E., Peeters, M.C.W., Schaufeli, W.B., & Hetland, J. (2012). Crafting a job on a daily basis: Contextual correlates and the link to work engagement. *Journal of Organizational Behavior, 33*, 1120–1141. https://doi.org/10.1002/job.1783

Podsakoff, P.M., MacKenzie, S.B., Lee, J., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Rofcanin, Y., Bakker, A.B., Berber, A., Gölgeci, I., & Heras, M.L. (2019). Relational job crafting: Exploring the role of employee motives with a weekly diary study. *Human Relations, 72*(4), 859–886. https://doi.org/10.1177/00187267187791

Rurkkhum, S., & Bartlett, K.R. (2018). Organizational citizenship behaviour for collectivist cultures: Instrument development and human resource development implications. *Human Resource Development International, 21*(2), 107–124. https://doi.org/10.1080/13678868.2017.1400820

Russo, S.D., Antino, M., Zaniboni, S., Caetano, A., & Truxillo, D. (2021). The effect of age on daily positive emotions and work behaviors. *Work, Aging and Retirement, 7*(1), 9–19. https://doi.org/10.1093/workar/waz026

Sahu, A., & Srivastava, K.B.L. (2017). Antecedents and consequences of positive emotions in the workplace. *International Journal of Work Organisation and Emotion, 8*(2), 99–117. https://doi.org/10.1504/IJWOE.2017.086428

Schwarz, M., Feldmann, F., & Scgmitz, B. (2023). Art-of-living at work: Interventions to reduce stress and increase well-being. *International Journal of Workplace Health Management, 16*(1), 89–107. https://doi.org/10.1108/IJWHM-05-2021-0121

Schweitzer, V.M., Rivkin, W., Gerpott, F.H., Diestel, S., Kühnel, J., Prem, R., & Wang, M. (2023). Some positivity per day can protect you a long way: A within-person field experiment to test an affect-resource model of employee effectiveness at work. *Work & Stress, 37*(4), 446–465. https://doi.org/10.1080/02678373.2022.2142987

Spector, P.E., & Fox, S. (2002). An emotion-centered model of voluntary work behavior: Some parallels between counterproductive work behavior and organizational citizenship behavior. *Human Resource Management Review, 12*, 1–24. https://doi.org/10.1016/S1053-4822(02)00049-9

Staw, B.M., Sutton, R.I., & Pelled, L.H. (1994). Employee positive emotion and favorable outcomes at the workplace. *Organization Science, 5*(1), 51–71.

Sutarto, A.P., Wardaningsih, S., & Putri, W.H. (2021). Work from home: Indonesian employees' mental well-being and productivity during the COVID-19 pandemic. *International Journal of Workplace Health Management, 14*(4), 386–408. https://doi.org/10.1108/IJWHM-08-2020-0152

Tims, M., Bakker, A.B., & Derks, D. (2012). Development and validation of the job crafting scale. *Journal of Vocational Behavior, 80*(1), 173–186. https://doi.org/10.1016/j.jvb.2011.05.009

Tims, M., Bakker, A.B., & Derks. D. (2015). Examining job crafting from an interpersonal perspective: Is employee job crafting related to the well-being of colleagues? *Applied Psychology: An International Review, 64*(4), 727–753. https://doi.org/10.1111/apps.12043

van Dick, R., Grojean, M. W., Christ, O., & Wieseke, J. (2006). Identity and the extra mile: Relationships between organizational identification and organizational citizenship behaviour. *British Journal of Management, 17*(4), 283–301. https://doi.org/10.1111/j.1467-8551.2006.00520.x

van Dyne, L., Vandewalle, D., Kostova, T., Latham, M. E., & Cummings, L.L. (2000). Collectivism, propensity to trust and self-esteem as predictors of organizational citizenship in a non-work setting. *Journal of Organizational Behavior, 21*, 3–23. https://doi.org/10.1002/(SICI)1099-1379(200002)21:1<3::AID-JOB47>3.0.CO;2-6

Vogel, R.M., Rodell, J.B., & Lynch, J.W. (2016). Engaged and productive misfits: How job crafting and leisure activity mitigate the negative effects of value incongruence. *Academy of Management Journal, 59*(5), 1561–1584. https://doi.org/10.5465/amj.2014.0850

Wahab, M.A., Tatoglu, E., Glaister, A.J., & Demirbag, M. (2021). Countering uncertainty: High-commitment work systems, performance, burnout and wellbeing in Malaysia. *International Journal of Human Resource Management, 32*(1), 24–48. https://doi.org/10.1080/09585192.2020.1833069

Wang, H., Demerouti, E., Blanc, P.L., & Lu, C. (2018). Crafting a job in 'tough times': When being proactive is positively related to work attachment. *Journal of Occupational and Organizational Psychology, 91*, 569–590. https://doi.org/10.1111/joop.12218

Wang, B., Liu, Y., Qian, J., & Parker, S.K. (2021a). Achieving effective remote working during the COVID-19 pandemic: A work design perspective. *Applied Psychology: An International Review, 70*(1), 16–59. https://doi.org/10.1111/apps.12290

Wang, D., Ma, E., Kim, Y.S., Liu, A., & Berbekova, A. (2021b). From good soldiers to happy employees: Exploring the emotional and well-being outcomes of organizational citizenship behavior. *Journal of Hospitality and Tourism Management, 49*, 570–579. https://doi.org/10.1016/j.jhtm.2021.11.005

Ward, S.J., & King, L.A. (2017). Work and the good life: How work contributes to meaning in life. *Research in Organizational Behavior, 37*, 59–82. https://doi.org/10.1016/j.riob.2017.10.001

Wingerden, J.V., Bakker, A.B., & Derks, D. (2017). Fostering employee well-being via a job crafting intervention. *Journal of Vocational Behavior, 100*, 164–174. https://doi.org/10.1016/j.jvb.2017.03.008

Wong, S.I., Kost, D., & Fieseler, C. (2021). From crafting what you do to building resilience for career commitment in the gig economy. *Human Resource Management Journal, 31*(4), 918–935. https://doi.org/10.1111/1748-8583.12342

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review, 26*(2), 179–201.

Yam, K. C., Klotz, A . C., He, W., & Reynolds, S.J. (2017). From good soldiers to psychologically entitled: Examining when and why citizenship behavior leads to deviance. *Academy of Management Journal, 60*(1), 373–396. https://doi.org/10.5465/amj.2014.0234

Zhai, X., Zhu, C. J., & Zhang, M.M. (2023). Mapping promoting factors and mechanisms of resilience for performance improvement: The role of strategic human resource management systems and psychological empowerment. *Applied Psychology, 72*, 915–936. https://doi.org/10.1111/apps.12411

Zhang, F., & Parker, S. K. (2018). Reorienting job crafting research: A hierarchical structure of job crafting concepts and integrative review. *Journal of Organizational Behavior, 40*, 126–146. https://doi.org/10.1002/job.2332

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Integrating management control system and enterprise risk management: Exploring the impact on firm performance in Indonesia fintech companies

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Abstract

The study examines the integration of Management Control Systems (MCS) and Enterprise Risk Management (ERM) and its effect on firm performance in Indonesian FinTech companies. The study focuses on the importance of a comprehensive risk management approach that integrates MCS's diagnostic and interactive control systems with the five components of ERM: organizational environment, risk awareness, strategic integration, risk assessment, and reporting. Data were collected through a survey of Indonesian FinTech firms using a quantitative research methodology. The study shows that combining MCS and ERM improves risk management and positively impacts organizational performance. This study makes a significant contribution to both theoretical understanding and practical application by presenting a comprehensive framework that combines management control systems (MCS) and enterprise risk management (ERM). The insights provided are particularly valuable for FinTech companies aiming to enhance their risk management practices and overall performance.

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Introduction

A new form of MCS has emerged within the domain of MCS, focusing on integrating MCS with other components in the organization, i.e., enterprise risk management (ERM). ERM is a well-known strategic risk management approach that provides a holistic view of risk management (Callahan & Soileau, 2017). Integrating MCS and ERM is a novel approach, as they have traditionally been treated as separate entities with different goals and procedures as many existing literatures often looks at risk management from a one-sided perspective, focusing on either MCS or ERM (Adiputra et al., 2020). This single-approach method has limitations because risks are interconnected and can affect different parts of an organization.

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Decisions made in MCS can influence risk levels, and at the same time, risk events can affect how well MCS works. For instance, the ERM with its components such as, risk assessment, strategic integration, reporting, and risk awareness (Braumann, 2018; Braumann et al., 2020) could signal early warning about risk exposure. Thus, it helps the managers identify risk exposure and take preventive action. Although, the managers can identify risk exposure and take preventive action by using the ERM, the managers still lack the capability to manage the firm risks if they do not share the risk information and do not communicate with their employees. Without communication and sharing risk information to their employees, the managers are not able to control and monitor the risk due to lack of risk assessment evaluation of sharing risk information with their employee thus, leading to strategic planning and decision-making. Sharing information, communication (interactive) control and monitoring (diagnostic) of the business activities (Bisbe et al., 2019), including the firm risk that occurs in the business activities, is the domain of the MCS. The ERM provides guidance and formulates and sets the risk strategy and operationalizes it, (Adiputra et al., 2020; Braumann, 2018; Braumann et al., 2020) but such lacks explaining how bureaucracy control is implemented in managing the risk and needs more explanation of how performance is measured in managing the risks. In addition to this, the ERM needs to be improved to manage the risk. Thus, the ERM need not be stand-alone, instead, the ERM within the ERM component needs to integrate with the MCS (Adiputra et al., 2020). Such is in line with system theory that organizations are composed of interconnected and interdependent subsystems each contributing to the achievement of overarching organizational goals (Hewege, 2012). Thus, when applied to the integration of MCS and ERM, this perspective emphasizes the importance of feedback loops, adaptability, and synergy between the two systems to optimize risk management and performance. MCS serves as a mechanism for planning, coordination, and operational oversight, while ERM provides a structured approach to identifying, assessing, and mitigating risks (Adiputra et al., 2020; Bisbe et al., 2019; Braumann, 2018; Silva & Fernandes, 2019; Sophia et al., 2017). Thus, integration MCS and ERM ensures a comprehensive approach to risk management and organization control.

FinTech company has recently become of considerable focus due to it transforming the financial service landscape (Adiputra et al., 2020; Putri et al., 2019), leveraging cutting-edge technology to provide customer-centric solutions such as online payment systems, peer-to-peer lending platforms, and blockchain applications. While these innovations offer immense opportunities, they also introduce unique challenges, including heightened cybersecurity threats, regulatory compliance complexities, and operational uncertainties (Abdillah, 2019; Alijoyo et al., 2021; Setiawan & Maulisa, 2020). These risks demand a robust and adaptive approach to governance and risk management, underscoring the necessity for integrating MCS and ERM. FinTech companies, particularly in Indonesia, operate in a highly regulated environment under the supervision of OJK (Otoritas Jasa Keuangan) and BI (Bank Indonesia) (Nizar & Afdi, 2020; Nuryakin et al., 2019; Putri et al., 2019; Sugeng et al., 2020), while simultaneously navigating a dynamic market landscape. This dual complexity makes them an ideal context for studying the synergies between MCS and ERM. Although integrating MCS and ERM is relevant for all private companies, the FinTech sector's reliance on technology, stringent regulatory requirements, and fast-paced innovation cycles amplify the importance of such integration. On the other hand, the integration of MCS and ERM allows FinTech companies to build a resilient risk management infrastructure. This infrastructure helps organizations stay ahead of potential risks and adapt to changes in the regulatory and technological environment, ultimately ensuring the sustainability and success of their business operations. By adopting a comprehensive and proactive risk management approach, FinTech companies can achieve a balanced approach to growth and compliance, thereby enhancing their ability to deliver innovative financial services while maintaining high governance and risk management standards.

In addition, the study would like to investigate the integration of MCS levers of control with the ERM that leads to FinTech performance. Furthermore, to achieve the research objective, two research questions arise: to what extent does the integration of MCS with ERM manage and control the risk, and to what extent does the integration of MCS and ERM affect FinTech performance? The study contributes to both theory and practice by providing comprehensive understanding on the integration of the MCS levers of control with ERM component practice. Furthermore, it gives extensive view of how the integration of MCS with ERM leads to FinTech performance. At the same time, the study developed an instrument to measure the integration between MCS levers of control and ERM that affect FinTech performance.

Literature Review and Hypothesis Development

Management Control System and Enterprise Risk Management

The management control system comprises a variety of tools, techniques, and practices that aid in the planning, coordination, communication, and evaluation of activities and outcomes (Agyemang & Broadbent, 2015; Alfiandri, 2017; Bedford et al., 2016; Bisbe et al., 2019; Davila et al., 2015). Additionally, Simon (1995) classifies the MCS into four categories: diagnostic control, interactive control, belief control, and boundaries control (Alfiandri, 2017; Sophia et al., 2017). These categories are to address the inherent organizational tension between creative innovation and predictable goal achievement. Belief systems strengthen fundamental values, directing business strategy and promoting the pursuit of opportunities that align with these principles. Boundary systems reduce risks by establishing constraints on undesirable behaviours. Diagnostic control systems emphasize the monitoring, motivation, and rewarding of goal attainment, whereas interactive control systems promote learning and adaptability, facilitating the emergence of new strategies (Adiputra et al., 2020; Alfiandri, 2017; Bisbe et al., 2019; Sophia et al., 2017). It has been proposed that all four levers of control should be employed simultaneously to achieve comprehensive control. However, in the context of risk management through integration with ERM, diagnostic and interactive controls are more appropriate due to their capacity to dynamically manage, monitor, and respond to risks in alignment with organizational strategies, thereby optimizing risk management and performance. Conversely, belief and boundary controls emphasize ethical considerations and are less directly applicable in managing specific risks, lacking the dynamic responsiveness required for the complexities of ERM. Furthermore, belief and boundary controls lack the precision and adaptability provided by diagnostic and interactive controls in the active management of risks.

The MCS primarily focuses on controlling risk within functional areas in the organization, which involves establishing control systems, processes, and procedures to monitor and manage risks within those areas. However, when management control becomes tighter and based on a specific predictive model, decision-makers have limited autonomy to tackle matters, particularly in turbulent and uncertain times (Adiputra et al., 2020). In addition, those kinds of risks are difficult to manage. An approach is needed to manage the firm's risks. ERM is a risk management approach that provides a holistic view of risk management and manages all firm risks confronting the organization published by COSO (Prewett & Terry, 2018). The ERM approach, which has been updated a few times, was first published by COSO in 2004. It came after the seminal internal control publication "Internal Control-Integrates Framework" in 1992 (Prewett & Terry, 2018). "Enterprise Risk Management-Integrated Framework" is the name of COSO's first full set of guidelines on ERM. In 2017, COSO released a new ERM framework that was more detailed and complicated. It was called "Enterprise Risk Management—Integrating with Strategy and Performance" (Committee of Sponsoring Organizations of the Treadway Commission [COSO], 2017; Prewett & Terry, 2018). The 2017 COSO summary says that the 2004 ERM framework had eight components to manage the risks. These eight components were later embedded to the 2017 ERM framework. However, the depth of the discussions in the two models is certainly not equal. Without a doubt, the 2017 ERM framework covers all aspects of risk management due to it reflecting in technology and a better understanding of the role of risk management in all kinds of organizations (COSO, 2017; Prewett & Terry, 2018). However, the concept in the 2017 framework, which is the updated model, is less clear because it lacks operational guidance and is difficult to understand (Prewett & Terry, 2018). As a result, it is more complex than the 2004 framework and difficult to understand. It therefore affects the organization's study of the 2017 framework's implementation. To get useful information from the 2017 COSO Framework, it might be better to start with the 2004 COSO Framework and read the materials more than once (Braumann, 2018; Prewett & Terry, 2018). Instead of using the ERM-COSO 2017 framework, this study employs the ERM component practice proposed by Braumann (2018), which has been tested and has identified empirical patterns of ERM practice. It is a reliable choice for this study. There are five ERM components proposed by Braumann, (2018): Organizational environment, risk awareness, strategic integration, risk assessment, and reporting. The organizational environment is the formal expectations and processes set by the firm's top management to establish the corporate framework within which ERM will be implemented. Risk awareness is the outcome of all employees, including top management, collectively considering and evaluating how their behaviour and actions are linked to the company's causes and consequences of potential risks. Strategic integration is the component process that ensures the incorporation of risk information into strategic planning

and decision-making. Effective ERM programs should assist employees in handling risk more effectively by mitigating adverse risks and identifying opportunities throughout the organization for pursuing positive risks. Risk assessment is a formal process of identifying and evaluating risks. The component utilizes mathematical models and techniques to recognize, measure, and control risk exposure. Reporting is a formal standard for processing, documenting, and communicating risk information within the organization (Figure 1).

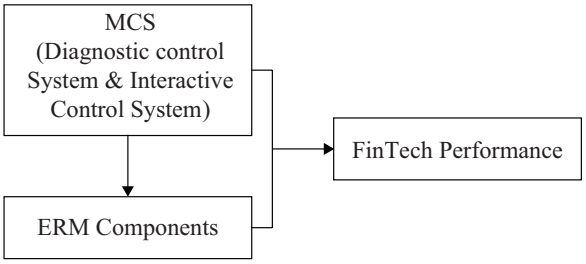


Figure 1 The theoretical framework

Integrating diagnostic and interactive control systems with the organizational environment can significantly enhance risk management by providing frameworks and mechanisms to identify, assess, and mitigate risks while ensuring that organizational activities align with strategic goals. When implementing ERM, management commonly uses COSO's ERM framework to create an internal risk supervision environment (Braumann, 2018). The management board sets risk management standards and processes, while top management develops performance measures to oversee the board's risk management and control initiatives. Departures from these standards and procedures allow the management board to take corrective action, ensuring that the organizational environment they create meets their expectations. Consistent performance statistics and judgment are used to evaluate the risk management process and suggest areas for improvement. It reflects the role of diagnostic control systems in the organizational environment, which monitors results and corrects deviations from pre-set performance standards, thereby achieving top management's formal expectations and processes to construct a corporate framework (Braumann, 2018). Regular communication between top and lower management reduces environmental uncertainty (Bisbe et al., 2019; Braumann, 2018). Encouraging employees to share their risk ideas, concerns, and observations taps into collective intelligence, helping to identify hazards early. Management participation in subordinate decision-making processes also aids risk management. In line with systems theory, this interactive control fosters a dynamic and collaborative environment where information flows freely across different levels of the organization, enhancing its capacity to respond to risks and changes in the external environment. Thus, the following hypothesis:

H1a: The diagnostic control system is positively integrated with the ERM organizational environment

H1b: The interactive control system is positively integrated with the ERM organizational environment

Risk awareness is cultural and not documented in any regulation or policy but is embedded in employees' risk thinking (Braumann et al., 2020). In addition, risk awareness arises when all employees discuss and reflect on how their actions affect potential firm risks (Braumann, 2018; Braumann et al., 2020). Top-down and bottom-up methods can raise risk awareness. Top-down control and monitoring of employee behavior include risk management commitment and behavior expectations. Employees should actively identify and report risks. Implement risk-related checklists and guidelines and report through formal channels. Additionally, have management controls and monitors firm risks. However, the bottom-up approach encourages communication and risk escalation. The two approaches resemble diagnostic and interactive control. Top management sets standards and monitors performance in diagnostic control, while interactive control emphasizes communication, learning, and adaptation by encouraging employees to share risk information (Sophia et al., 2017). Together, they form complementary mechanisms that align with the dual goals of system theory: maintaining organizational stability while fostering adaptability in response to environmental complexity.

Top management can set the tone, walk the walk, and communicate their risk attitude to employees through interactive budgets and performance measures, increasing risk awareness (Braumann et al., 2020). Interactive control should improve the top-down tone, increasing risk awareness and firm performance. Diagnostic control strengthens the effect of a top-down tone on risk awareness by monitoring performance dimensions and communicating which ones are desired, giving employees a clear sense of which risk issues to consider. Thus, the interplay of these control mechanisms, within the context of risk awareness, exemplifies how system theory principles are applied in organizational settings to balance structure and flexibility, ensuring both performance enhancement and resilience. Thus, the following hypothesis:

H2a: The diagnostic control system is positively integrated with the ERM risk awareness

H2b: The interactive control system is positively integrated with the ERM risk awareness

As an ERM component, strategic integration involves incorporating risk management into the strategic planning process (Braumann, 2018). This ensures that risk considerations are integrated into the organization's strategic objectives and decision-making processes. Integrating strategic risk management with diagnostic and interactive control systems creates a cohesive approach to managing risks effectively. i.e., the diagnostic controls system helps track risk-related KPIs and early warning indicators, ensuring the organization remains aligned with its strategic risk management objectives (Akroyd et al., 2019; Braumann, 2018). This system provides feedback on performance and highlights areas where risk management practices need to be adjusted to meet strategic goals. This aligns with systems theory, as feedback loops are critical for system stability and ensuring components work in harmony. When deviations occur, diagnostic controls signal the need for adjustments, allowing for systematic realignment of actions with the organization's goals.

Meanwhile, the interactive control system that encourages managers and employees to discuss strategic uncertainties and emerging risks facilitates the continuous reassessment of risks and strategic objectives. This system allows for adaptive learning and proactive adjustments to strategies, ensuring that risk management practices evolve with changing conditions and new information. Such is supported by system theory that emphasizes feedback loops, interdependence, and adaptability within an organization. Furthermore, dual integration supports the organization's ability to manage risks in a way that is both systematic and adaptive, ultimately enhancing the effectiveness of its ERM processes. Thus, the following hypothesis is:

H3a: The diagnostic control system is positively integrated with the ERM strategic integration

H3b: The interactive control system is positively integrated with the ERM strategic integration

Risk assessment is a structured procedure where individuals identify and evaluate potential risks (Braumann, 2018). The diagnostic control system operates such that top management utilizes quantitative risk measurement to assess the risk. This approach allows the firm to manage and monitor risk effectively. Management can identify and evaluate the risks that affect business activities through the diagnostic control system. If there is a discrepancy between the risk assessment and the actual level of risk, management can implement proactive measures to address the risk. Risk assessment necessitates ongoing interaction and communication between top management and all hierarchical levels. Top management actively promotes the regular participation of subordinates in decision-making activities, creating an environment of interactive control. This interactive control fosters a collective comprehension of risk, promoting the exchange of information and facilitating the implementation of risk mitigation strategies among various departments within the organization. Furthermore, interactive control systems improve the quality and precision of risk assessments by fostering collaboration and facilitating the exchange of information. System theory sees diagnostic and interactive control systems serve as feedback mechanisms that ensure the system's stability and adaptability. By promoting regular communication and participation across different levels, these control systems enhance the organization's ability to respond to risks and uncertainties effectively. Thus, the following hypothesis is:

H4a: The diagnostic control system is positively integrated with the ERM risk assessment

H4b: The interactive control system is positively integrated with the ERM risk assessment

Reporting serves as an information tool utilized by management to assess and monitor risks and provide feedback to facilitate corrective actions in the event of deviations. Implementing quantitative risk assessment techniques and the regularity with which risks are reported is critical in enabling management to manage and assess risks effectively. It aids the impact management initiative as it is the method by which management controls risk (Glowka et al., 2020; Nielsen & Pontoppidan, 2019). For example, the management should perform routine risk assessments utilizing standardized methods. They should use the outcomes of these evaluations to revise risk reports and monitor the evolution of risk profiles over time. That is the integration of the diagnostic control system with ERM reporting, and that aligns with systems theory, where the regular flow of accurate information across subsystems supports decision-making and operational efficiency. However, sometimes, ERM systems produce awkward, incomplete, and complex information objects. Therefore, managers at all levels of the organizational hierarchy must interact and communicate (Tekathen & Dechow, 2013, 2020). The interaction and communication aim to reduce the ambiguity associated with reporting risk information, which is occasionally overly complex and incomplete. Concurrently, it generates new ideas and initiatives to control and manage the risk. (Crespo et al., 2019; Silva & Fernandes, 2019). This way, an interactive

control system integrates with ERM reporting. As the system theory points out, combining MCS with reporting creates a complete reporting system that helps with both accurately assessing risks and the company's ability to change its risk management methods as circumstances change. Thus, the following hypothesis is:

H5a: The diagnostic control system is positively integrated with the ERM reporting

H5b: The interactive control system is positively integrated with the ERM reporting

MCS and ERM Affect FinTech Performance

The integration of MCS with ERM represents the interaction of two critical subsystems. MCS, with its diagnostic and interactive controls, functions as a feedback mechanism, continuously monitoring performance metrics such as ROA, ROE, and operational efficiency (Putri et al., 2019). This feedback ensures alignment between risk management practices and strategic goals, which is vital for maintaining system stability. Diagnostic controls provide structured oversight by tracking key performance indicators (KPIs) and enabling timely corrective actions, thereby stabilizing the organizational system (Shin & Park, 2017). ERM, as another subsystem, introduces adaptability by identifying, assessing, and mitigating potential risks in a rapidly changing FinTech environment. The interaction between ERM and MCS fosters a feedback loop where risk insights inform management decisions, and those decisions, in turn, shape risk strategies. This dynamic aligns with the systems theory principle of ongoing adaptation to environmental changes (Hewege, 2012). The seamless integration of these systems creates synergy, enhancing the organization's ability to address risks while improving overall performance metrics such as cost efficiency, employee work efficiency, and service quality. By positioning FinTech organizations as interconnected systems, systems theory emphasizes the need for coherence between subsystems to achieve holistic performance improvements (Herath, 2007). This theoretical framing highlights how the MCS-ERM integration contributes to both system stability and adaptability, ensuring FinTech companies can respond effectively to risks while driving innovation and efficiency (Adiputra et al., 2020; Lueg & Knapik, 2016; Rad, 2016; Shin & Park, 2017; Wiesche et al., 2015). Thus, the following hypothesis is:

H6: MCS levers of control are integrated with ERM components that affect FinTech Performance

Methodology

This study employs a quantitative research approach, measuring the variables based on existing literature. MCS is an independent variable that has two categories, i.e., diagnostic and interactive control system and measured items adapted from Bisbe et al. (2019); Henri (2006); Sophia et al. (2017); Widener (2007) and slight modification that relates to ERM. Thus, four indicators are used to measure diagnostic control, and five are used to measure interactive control. The respondents were required to evaluate the extent to which management implemented the diagnostic control and interactive control system using a five-point Likert scale ranging from 1 = small extent to 5 = large extent. On the other hand, ERM is also an independent variable consisting of five components and has an indicator. The respondents were asked about ERM's implementation in their organization using a five-point Likert scale ranging from 1 = does not apply to 5 = fully applied. Organizational environment indicators are risk management tasks and response documentation. Risk awareness indicators are risk management responsibility, top risk awareness, employee risk awareness, influence on the process, and risk appetite statement. Strategic integration indicators target systems, corporate planning KPIs, and early indicators. Risk assessment indicators are plausibility check, risk register, quantitative evaluation, interdependencies, aggregation, and amount of damage. Reporting indicators are standardized, tolerance limit, risk documentation, top management reporting, and standardized reporting. FinTech performance is a dependent variable with six indicators to measure the firm's performance, i.e., financial service quality, employee work efficiency, ROI, ROA, cost efficiency, and operating profit. The study sample involves various types of FinTech in Indonesia. There are six types of FinTech companies: Peer-to-peer (P2P), Crowdfunding, risk management investment, payment, clearing & settlement, and market aggregator. The list of FinTech companies provided by Otoritas Jasa Keuangan (OJK) Indonesia was used as the sampling frame for this study. The sampling method employed was population sampling, as the number of FinTech companies registered with Otoritas Jasa Keuangan (OJK) was relatively small. Each FinTech company was provided with a series of questionnaires directed towards the top management and operational managers. These individuals were chosen as suitable respondents because they are directly involved in implementing control measures and managing the firm's risks in business operations. Table 1 shows the respondent profile of FinTech Indonesia.

Table 1 Respondent criteria

Type of FinTech	Number of samples	Percent
Peer to Peer (P2P)	57	43.2
Crowdfunding	11	8.3
Investment Risk Management	6	4.5
Payment, Clearing & Settlement	44	33.3
Market Aggregator	14	10.6
FinTech–Establishment		
Less than 2 years	11	8.3
2 to 5 years	81	61.4
6 to 10 years	25	18.9
More than 10 years	15	11.4
Position		
Director	12	9.1
Vice Director	2	1.5
Manager	95	72.0
Supervisor	23	17.4
Working Tenure		
Less than 2 years	46	34.8
2 to 5 years	70	53.0
6 to 10 years	12	9.1
More than 10 years	4	3.0
Education Background		
PhD	4	3.0
Master	43	32.6
Undergraduate	83	62.9
Diploma	2	1.5

The data were collected using a survey questionnaire and distributed to 159 FinTech companies, and 132 responded to it. Data were gathered from June until August 2023 through self-administered survey questionnaires sent via mail and distributed via social media platforms such as WhatsApp. The study employed PLS-SEM for data analysis as this approach is used to develop new theoretical models and frameworks, giving the novelty of this topic the opportunity to be explored. The hierarchal model of testing, i.e., the lower and higher-order construct used in the study, is due to the complex interrelationship between observed and latent variables. It is named a two-stage approach (Sarstedt et al., 2019). The study employs a repeated indicators approach with a reflective-reflective model because lower-order constructs are reflectively measured constructs that can be distinguished but are correlated. The first stage assessed the measurement model to see if the model could be used for later analyses. The second stage is the analysis of the structural model. That approach is applied in the lower order and higher order. In addition, the threshold should be achieved for measurement and structural model tests. The statistical software packages SPSS and PLS-SEM were employed to conduct data analysis in this study.

Results Analysis

Measurement Model Analysis

Multiple tests were performed in the low-order measurement model. Firstly, convergent analysis was conducted to find the factor loading of the variable. Thus, several phases of factor analysis were performed. Table 2 shows the final result of convergent validity that diagnostic control has four items, interactive control has five. Meanwhile, the ERM, the organizational environment remains two items, risk awareness remains two items, strategic integration remains three items, risk assessment remains three items, and reporting remains three items, thus both MCS and ERM have factor loading greater than 0,6, and no cross-loading exists among the items. Furthermore, the subsequent analysis steps involve assessing reliability and testing the model after determining convergent validity and all of the variables have achieved a reliability of validity larger than 0.5 for AVE and greater than 0.7 for CR (Hair et al., 2018). In addition, path coefficient of the model is above 0.5, which means the model is moderate indicating a significant relationship between MCS and ERM in the context of FinTech companies.

After evaluating the measurements, the next step is to perform a structural test. The study utilized bootstrapping in PLS-SEM to investigate the relationship between the MCS dimensions and ERM component. Table 3 shows that all the study hypotheses are supported/accepted, only three hypotheses are not supported/rejected i.e., H1a, H4b and H5a diagnostic control system and the organizational environment show negative relationship,

The integration between the combination of MCS and ERM that led to FinTech performance is conducted in the higher order analysis. In addition, a latent variable is scored at a lower order to test the higher-order construct (Hair et al., 2018; Sarstedt et al., 2019) and a systematic method of measurement model was conducted, namely, evaluation of R^2 and significance testing of the path coefficient (Hair et al., 2018; Sarstedt et al., 2019; Tsai et al., 2021). Table 4 shows measurement test of R^2 value for FinTech performance 0.397 (40%) and this level is considered moderate (Chin, 1998; Ghozali & Latan, 2015).

Similar with lower order test, after evaluating the measurements, the next step is to perform a structural test. Table 5 shows the path coefficient MCS and ERM to FinTech performance with a p-value of .000. It finds that the relationship between the combination of MCS and ERM is statistically positive for FinTech performance. In addition, H6a is supported.

Table 2 Factor loading, reliability and model determination

Variable	Item	Outer loading	CR	AVE	R^2
Diagnostic	Diag 1	.719	0.829	.548	
	Diag 2	.724			
	Diag 3	.730			
	Diag 4	.786			
Interactive	Interact 1	.656	0.847	.527	
	Interact 2	.667			
	Interact 3	.819			
	Interact 4	.749			
	Interact 5	.723			
Organizational Environment	ERM 12	.767	.836	.720	
	ERM 13	.924			.375
Risk Awareness	ERM 20	.899	.828	.629	
	ERM 22	.522			.307
	ERM 23	.897			
Strategic integration	ERM 2	.774	.819	.601	
	ERM 3	.787			.451
	ERM 4	.765			
Risk Assessment	ERM 5	.822	.831	.623	
	ERM 7	.837			.470
	ERM 8	.701			
Reporting	ERM 14	.844	.900	.694	
	ERM 15	.865			.490
	ERM 16	.888			
	ERM 17	.725			

Table 3 Summary hypothesis–Lower Order

Variable relationship	*p*	Result	Decision
H1a: Diagnostic control system → Org. Environment	.875	-	Not supported
H1b: Interactive control system → Org. Environment	.000	+	Supported
H2a: Diagnostic control system → Risk awareness	.000	+	Supported
H2b: Interactive control system → Risk awareness	.012	+	Supported
H3a: Diagnostic control system → Strategic integration	.000	+	Supported
H3b: Interactive control system → Strategic integration	.037	+	Supported
H4a: Diagnostic control system → Risk assessment	.000	+	Supported
H4b: Interactive control system → Risk assessment	.127	-	Not supported
H5a: Diagnostic control system → Reporting	.110	-	Not supported
H5b: Interactive control system → Reporting	.000	+	Supported

Table 4 Determination of the model–Higher Order

Variable	R^2
FinTech Performance	.397

Table 5 Hypothesis result–Higher Order

Variable relationship	*p*	Result	Decision
H6: MCS & ERM → FinTech performance	.000	+	Supported

Discussion

The investigation of the integration between MCS modes of control and the ERM component and their integrated impact on FinTech performance reveals that eight hypotheses are supported while three are not. H1 is not supported because the management of FinTech in Indonesia does not often choose international risk management standards to guide their practices in creating an internal risk oversight environment, i.e., COSO's ERM framework; instead, standards and procedures of risk management are established according to their own (Alijoyo et al., 2021). The unsuccessful implementation of risk management is most likely due to the leader's attitude, which does not care about the risk management policies that apply in the company (Alijoyo et al., 2021; Widyastuti & Affan, 2022). Thus, the ability of top management to identify deviation from predetermined standards and procedures relating to risk management is lacking, impacting corrective measures that they should take. In addition, the organizational environment to diagnostic control is minimized. However, management frequently engages in dialogue and shares information between the top and lower management to reduce environmental uncertainty. The management needs their employee insight, concerns, and observations related to risks in addition to the management able to detect potential risks as early as possible. Incorporating management participation in decision-making processes that involve subordinates will improve risk awareness (Braumann et al., 2020). Implementing top-down and bottom-up approach to control and monitor employee behavior by actively encouraging them to identify and report potential risks through formal reporting channels and communication and sharing information are conducted to handle the escalation of risk issues. Management needs to share risk information for strategic planning, allowing them to gain valuable insights and understand the potential risks impacting their strategies. At the same time, KPIs as risk tracks give them early warning indicators and ensure the firm remains aligned with its strategic risk management objectives (Adiputra et al., 2020; Widyastuti & Affan, 2022). In addition, having reliable risk information is necessary and obtaining it requires thorough risk assessments (Yanto & Hajawiyah, 2022). Thus, the management of FinTech uses diagnostic control over interactive control because it can find discrepancies between the risk assessment and the actual level of risk and conduct proactive measures to address the risks. Although management needs risk information, it does not rely solely on reporting because it finds reporting provides incomplete and complex risk information for the management to analyze. In addition, interactive control is applied to reduce the ambiguity associated with reporting risk information and generate new ideas and initiatives to control and manage the risk. Although the integration between MCS levers of control and ERM components is varied, it does not directly impact FinTech performance; instead, it affects FinTech performance. This is because each of the MCS dimensions plays a role to each of the ERM components. For example, the lack of integration diagnostic control to one of the ERM components does not directly impact FinTech performance; it directly affects FinTech performance. The role of diagnostics is necessary to assess the impact of the combination of MCS and ERM on FinTech performance. The absence of a diagnostic control system would result in a deficiency in the ability of the ERM components to control and manage the firm's risks effectively but not to measure FinTech performance. The management of FinTech in Indonesia believes implementing a diagnostic control system is necessary. The diagnostic approach to controls involves monitoring outcomes and rectifying any deviations from predetermined performance standards (Sophia et al., 2017), including controlling and managing the assessed risks as determined by the management. If the management identifies any deviation from the risk assessment, they should promptly implement corrective measures. This aligns with the control system theory that one component system in the organization should be integrated with others even though those components have fewer roles (Hewege, 2012). By integrating diagnostic control systems and interactive control systems with the ERM components, FinTech company can develop a comprehensive risk management framework that addresses risks at various levels, from operational to strategic thus, enhancing the organization's risk management capabilities and driving its overall FinTech performance (Adiputra et al., 2020; Lueg & Knapik, 2016; Rad, 2016; Shin & Park, 2017; Wiesche et al., 2015; Yanto & Hajawiyah, 2022).

Conclusion and Recommendation

The result of the study achieved the research objective of MCS being integrated with the ERM component, even though both integrations are lacking to a certain degree. Such is attributed to contextual factors and the specific tasks and processes involved in integrating MCS and

the ERM components. Nevertheless, the lack of integration between MCS and ERM does not negatively impact FinTech performance. On the contrary, all of the MCS dimensions, combined with the components of ERM, positively affect FinTech performance. Theoretically, this study contributes to the understanding of how diagnostic and interactive controls within MCS can synergistically interact with ERM components, highlighting the value of feedback loops, adaptability, and system interdependence as emphasized in systems theory. This framework expands the literature on risk management integration, particularly in the context of dynamic and regulated industries like FinTech. Practically, the study offers a robust framework for FinTech managers, demonstrating how integrating diagnostic and interactive controls with ERM can enhance risk management and organizational performance. The findings emphasize the importance of tailored integration strategies to align risk management practices with contextual business environments. While the study achieved its objectives, its conclusions cannot be generalized outside Indonesia due to varying business environments that may influence the extent of integration between MCS and ERM in FinTech companies. Comparative studies in other countries are recommended to explore how such integrations differ across contexts and affect performance. Additionally, the study focused only on diagnostic and interactive controls within MCS, suggesting that future research could investigate additional MCS dimensions for integration with ERM, potentially introducing new insights and expanding the MCS literature.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

Abdillah, L. A. (2019). An overview of Indonesian fintech application. In *Proceedings of the international conference on communication, Information technology and youth study* (pp. 8–16). https://ssrn.com/abstract=3512737

Adiputra, I. M. P., Werastuti, D. N. S., Sinarwati, N. K., & Oktariyana, M. D. (2020). Levers of control and enterprise risk management: A conceptual study of the business strategy and financial performance of state-owned enterprises. In *Advances in Economics, Business and Management Research* (Vol. 158, pp. 80–8). https://doi.org/10.2991/aebmr.k.201212.011

Agyemang, G., & Broadbent, J. (2015). Management control systems and research management in universities: An empirical and conceptual exploration. *Accounting, Auditing & Accountability Journal, 28*(7), 1018–46.

Akroyd, C., Kober, R., & Li, D. (2019). The emergence of management controls in an entrepreneurial company. *Accounting & Finance, 59*(3), 1811–39. https://doi.org/10.1111/acfi.12477

Alfiandri. (2017). Strategic resources, use of performance measurement system, and hospital performance in West Indonesia. *Journal of Administrative and Business Studies, 3*(1), 26–37. https://doi.org/10.20474/jabs-3.1.4

Alijoyo, F. A., Bonita, I., & Sirait, K. B. (2021). Evaluation of risk management maturity of a fintech firm in Indonesia. *Eduvest – Journal of Universal Studies, 1*(12), 1478–87. https://doi.org/10.59188/eduvest.v1i12.307

Bedford, D. S., Malmi, T., & Sandelin, M. (2016). Management control effectiveness and strategy: An empirical analysis of packages and systems. *Accounting, Organizations and Society, 51*, 12–28. https://doi.org/10.1016/j.aos.2016.04.002

Bisbe, J., Kruis, A. M., & Madini, P. (2019). Coercive, enabling, diagnostic, and interactive control: Untangling the threads of their connections. *Journal of Accounting Literature, 43*, 124–144. https://doi.org/10.1016/j.acclit.2019.10.001

Braumann, E. C. (2018). Analyzing the role of risk awareness in enterprise risk management. *Journal of Management Accounting Research, 30*(2), 241–68. https://doi.org/10.2308/jmar-52084

Braumann, E. C., Grabner, I., & Posch, A. (2020). Tone from the top in risk management: A complementarity perspective on how control systems influence risk awareness. *Accounting, Organizations and Society*, 101128. https://doi.org/10.1016/j.aos.2020.101128

Callahan, C., & Soileau, J. (2017). Does enterprise risk management enhance operating performance? *Advances in Accounting, 37*, 122–39. https://doi.org/10.1016/j.adiac.2017.01.001

Committee of Sponsoring Organizations of the Treadway Commission [COSO]. (2017). *Enterprise risk management: Integrating with strategy and performance—Executive summary*. https://www.coso.org

Crespo, N. F., Rodrigues, R., Samagaio, A., & Silva, G. M. (2019). The adoption of management control systems by start-ups: Internal factors and context as determinants. *Journal of Business Research, 101*, 875–84. https://doi.org/10.1016/j.jbusres.2018.11.020

Davila, A., Foster, G., & Jia, N. (2015). The valuation of management control systems in start-up companies: International field-based evidence. *European Accounting Review, 24*(2), 207–239. https://doi.org/10.1080/09638180.2014.965720

Glowka, G., Kallmünzer, A., & Zehrer, A. (2020). Enterprise risk management in small and medium family enterprises: The role of family involvement and CEO tenure. *International Entrepreneurship and Management Journal*. https://doi.org/10.1007/s11365-020-00682-x

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2018). *Multivariate data analysis* (8th ed.). Cengage.

Herath, S. K. (2007). A framework for management control research. *Journal of Management Development, 26*(9), 895–915. https://doi.org/10.1108/02621710710819366

Hewege, C. R. (2012). A critique of the mainstream management control theory and the way forward. *SAGE Open, 2*(4), 1–11. https://doi.org/10.1177/2158244012470114

Lueg, R., & Knapik, M. (2016). Risk management with management control systems: A pragmatic constructivist perspective. *Corporate Ownership & Control, 13*(3), 72–81. https://doi.org/10.22495/cocv13i3p6

Nielsen, S., & Pontoppidan, I. C. (2019). Exploring the inclusion of risk in management accounting and control. *Management Research Review, 43*(1), 82–112. https://doi.org/10.1108/MRR-10-2017-0342

Nizar, & Afdi, M. (2020). *Financial technology (fintech): Its concept and implementation in Indonesia* (MPRA Paper No. 98486). Munich Personal RePEc Archive.

Nuryakin, C., Aisha, L., & Massie, N. W. G. (2019). *Financial technology in Indonesia: A fragmented instrument for financial inclusion?* (LPEM-FEB UI Working Paper No. 036).

Prewett, K., & Terry, A. (2018). COSO's updated enterprise risk management framework: A quest for depth and clarity. *Journal of Corporate Accounting & Finance, 29*(3), 16–23. https://doi.org/10.1002/jcaf.22346

Putri, W. H., Nurwiyanta, N., Sungkono, S., & Wahyuningsih, T. (2019). The emerging fintech and financial slack on corporate financial performance. *Investment Management and Financial Innovations, 16*(2), 348–54. https://doi.org/10.21511/imfi.16(2).2019.29

Rad, A. (2016). Risk management–control system interplay: Case studies of two banks. *Journal of Accounting & Organizational Change, 12*(4), 522–46. https://doi.org/10.1108/JAOC-08-2014-0042

Sarstedt, M., Hair, J. F., Cheah, J. H., Becker, J. M., & Ringle, C. M. (2019). How to specify,estimate, and validate higher-order constructs in PLS-SEM. *Australasian MarketingJournal, 27*(3), 197–211. https://doi.org/10.1016/j.ausmj.2019.05.003

Setiawan, K., & Maulisa, N. (2020). The evolution of fintech: A regulatory approach perspective. In *Advances in Economics, Business and Management Research* (Vol. 130, pp. 218–25). https://doi.org/10.2991/aebmr.k.200321.029

Shin, I., & Park, S. (2017). Integration of enterprise risk management and management control system: Based on a case study. *Investment Management and Financial Innovations, 14*(1), 19–26. https://doi.org/10.21511/imfi.14(1).2017.02

Silva, M. Z., & Fernandes, F. C. (2019). The influence of contingency factors, strategy, and structure on enterprise risk management in a hospital. *Gestão & Produção, 26*(1). https://doi.org/10.1590/0104-530X2315-19

Sophia, S., Baird, K., & Herb, S. (2017). Management control systems: The role of interactive and diagnostic approaches across the organizational life cycle. *Journal of Accounting & Organizational Change, 13*(1), 2–24. https://doi.org/10.1108/JAOC-03-2015-0032

Sugeng, S., Tobing, C. I., & Fajarwati, R. (2020). Indonesian fintech: Business ecosystem and regulation. *Diponegoro Law Review, 5*(2), 277–95. https://doi.org/10.14710/dilrev.5.2.2020.277-295

Tekathen, M., & Dechow, N. (2013). Enterprise risk management and continuous realignment in the pursuit of accountability: A German case. *Management Accounting Research, 24*(2), 100–21. https://doi.org/10.1016/j.mar.2013.04.005

Tekathen, M., & Dechow, N. (2020). Semantic narrowing in risk talk: The prevalence of communicative path dependency. *Management Accounting Research, 48*, 100692. https://doi.org/10.1016/j.mar.2020.100692

Tsai, C.-C., Cheng, Y.-M., Tsai, Y.-S., & Lou, S.-J. (2021). Impacts of AIoT implementation course on the learning outcomes of senior high school students. *Education Sciences, 11*(2), 82. https://doi.org/10.3390/educsci11020082

Widyastuti, A., & Affan, M. W. (2022). Risk management dalam perspektif Baitul Maal Hidayatullah (BMH). *JATI: Jurnal Akuntansi Terapan Indonesia, 5*(1). https://doi.org/10.18196/jati.v5i1.13326

Wiesche, M., Schermann, M., & Krcmar, H. (2015). Understanding the enabling design of IT risk management processes. In *Proceedings of the International Conference on Information Systems (ICIS)* (pp. 1–17).

Yanto, H., & Hajawiyah, A. (2022). The impact of risk management committee on integrated reporting disclosure in Indonesia. *Kasetsart Journal of Social Sciences, 43*, 999–1008.

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Effects of intellectual capital and ownership structure on financial outcomes and distribution dynamics in Indonesian State-Owned Enterprises (SOEs)

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Abstract

This study investigates the impact of intellectual capital disclosure and the distribution of its components. Components of intellectual capital in this study include human capital, structured capital, correlated capital, and employed capital skills. This study examines the impact of intellectual capital and structural ownership on financial performance, measuring financial performance using asset returns. The study investigated the distributive effects of intellectual capital by analyzing panel data from Indonesia's state-owned enterprises (SOEs) over the five years from 2018 to 2022. A modified intellectual capital value-added coefficient model is applied to examine the distributive effects of intellectual capital (IC) skills on financial performance. Empirical findings indicate that IC competence, human capital efficiency, structured capital efficiency, employed capital efficiency, and relational capital skills are positively and significantly related to financial performance in the distribution. However, the distribution of physical and structural capital is the most important component of profit-generating intellectual capital skills. The distribution of public and foreign ownership positively affects financial performance. This research will help managers, policymakers, and investors decide how the distribution of IC investments enhances performance and makes informed investment decisions in public and foreign-owned companies.

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Introduction

Background of the Study

Recent years have seen a growing emphasis on the economic performance of organizations through the lens of intellectual capital (IC), particularly in knowledge-driven economies (Xu & Liu, 2020). In Indonesia, state-owned enterprises (SOEs) are central to the economy but often struggle with performance and efficiency due to bureaucratic hurdles and a lack of innovation. Intangible assets, IC, composed of human, structural and relational capitals, if well harnessed, can improve an organization's performance and competitiveness. Yet the attention of the available literature, from the last years at least, is on the private practitioners so there is a lack of research on the practical application of IC in the context of SOEs. This study intends to examine the link between IC and the profitability of Indonesian SOEs in order to add to the corporate governance debate. Contextual factors of the country, such as collectivism, the specific regulatory system, and the level of dominance by the government determine what IC is and how it is used and require the adoption of appropriate strategies to address the relevant tendencies and the problems of the SOEs within a developing economy (Tjahjadi et al., 2024).

Research Gap

The association between intellectual capital and powerful performance has been explored as subjective evidence. However, such research on Indonesian SOE is absent. Much of the existing literature has focused too much on private sector companies and ignores some of the problems and nuances brought with state-owned enterprises. This has led to inadequate treatment of events related to the impact of ownership structures on specific government and foreign ownership, intellectual capital and the functioning of SOEs. This study was conducted by Indonesian SOE (Ackah et al., 2024).

Importance of the Study

There are several reasons for which deciphering the interplay of the intellectual capital and the financial performance among the SOEs in Indonesia is imperative. First, it offers perspectives on how these enterprises may utilize their intangible management in order to increase their efficiency and profitability, a very important aspect for the prosperity of these firms and their role to the economy of the country. Secondly, the conclusions of this study can assist in developing strategies that will assist policymakers and managers in the enhancement of the management of the intellectual capital which will result in the improvement of the governance and performance in the SOEs. Finally, this research fills a gap in the literature by offering evidence based on the significance of the intellectual capital in an area where it has been mostly ignored and thus adding to the comprehension of the corporate governance in the context of developing countries.

Motivational Factors

This study has been prompted by a desire to highlight the importance of the intellectual capital and human resources management function in the organizational context. The significance of effective management of intellectual capital among SOEs is even more pronounced as the Indonesian economy matures. More than that, the government's determination to enhance the performance of SOEs through reform and modernization processes makes this study relevant. The aim of the research is to shed light on how intellectual capital interacts with ownership structure and financial performance in the hope that it will positively influence the SOEs in Indonesia.

Research Rationale

This study is assisted by the need of understanding the role of intellectual capital in Indonesian state owned enterprises (SOE). Previous studies demonstrated the correlation of the intellectual capital and the financial performance of various sectors, however, the detailed mechanism within SOEs is not quite the case (Rybalka, 2020). As Indonesia progresses in the globalization era, then human, structural and relational capitals, which are deemed to be defied as intellectual capitals, have to be fully utilized in ensuring competition and productivity of the economy. Also, SOE, as one of the important sectors, has to maximize the use of its intellectual capitals to lower cost and optimize revenue generation. Besides, the complex structure of the global environment makes it a must for the Indonesian SOEs to integrate international benchmarks in the use of intellectual capitals for further competitiveness. This study also stresses the intensifying of the need to present the value of Australian ci in its reporting as a result of increased investor and regulatory demands (Tiron-Tudor & Ciolomic, 2022). Knowing these factors may facilitate the policy suggestion aimed at

reinforcing the SOEs and enhancing economic activities in the country of Indonesia.

Objectives of the Study

The main aims of this research are as follows: (1) To explore the causal link between intellectual capital and the financial performance of state-owned enterprises in Indonesia; (2) To assess the influence of ownership structure (government and foreign ownership) on the efficiency of intangibles in earnings generation; and (3) To make policy and practice-related suggestions to policymakers and managers on the effective use of intangibles in the performance of SOEs.

Research Questions

For these objectives, consider the following research questions as follows: (1) What is the correlation linking intellectual capital with financial performance within the Indonesian SOEs? (2) In what manner does the ownership structure affect the application of intellectual capital in improving financial performance in the SOEs? (3) What policies can be put in place to enhance the management of intellectual capital in Indonesian SOEs?

Content Flexibility

The goal of this introduction is to give a summary of the study in its various parts while tiring repetition in writing. With the assistance of the background, the research is framed by outlining the relevance of intellectual capital in the perspective of Indonesian SOEs. The substantiation of the research gap clearly underlines the opportunities for this research study, while the significance and motivating factors justify the purposes of this study for both scholarly and practical perspectives.

Literature Review and Hypothesis Development

Intellectual Capital Efficiency on Company Performance

Investing in intellectual capital for sustainable competitive advantage

The literature illustrates how the investment for knowledge and intellectual capital has significant returns in competitive advantage as well as firm performance. Human, Structural and relational capital refers to intellectual components which cuts across all value driving levels of the firm (Paoloni et al., 2020).

The significance of intellectual capital

Intellectual capital has a direct impact on organizational performance and value. Structural capital improves employee and organizational performance, while relational capital fosters strong stakeholder relationships. Empirical evidence suggests a positive link between intellectual property assets and financial performance, making intellectual property a value enhancer across industries (Aljuboori et al., 2021).

Resource-Based view theory and intellectual capital

The resource-based view theory posits that organizations require valuable, rare, and non-imitable resources to achieve sustainable competitive advantage. This framework suggests that intellectual capital can enhance the performance of Indonesian state-owned enterprises (Suharman et al., 2023). Furthermore, four mechanisms of intelligent wealth, were rummage-sale in this education. Therefore, the primary theory is the future as follows:

H1: Modified value-added intellectual capital has a positive effect on financial performance.

1. Exploring the Relationship Between Intelligent Wealth and Financial Performance by Ting et al. (2021) in Indonesian State-Owned Enterprises: This study investigates the relationship between Intelligent Wealth and financial performance in Indonesian State-Owned Enterprises, building on previous research. Prior studies have shown that each component of Intelligent Wealth has a distinct impact on financial performance.

2. Previous Research Findings: A South African study found that higher human resource efficiency led to better revenues across all businesses. In Indian manufacturing firms, Harsh and Prasad (2020) discovered a significant association between employment relationship dimensions and perceived organizational performance. Other studies have highlighted the substantial influence of Efficient Management of Intellectual Capital (EMIC) on firm performance.

3. Structural Capital Efficiency and Firm Performance: Research has shown that Structural Capital Efficiency (EMS) significantly contributes to sales growth, profitability, and market value in Chinese companies. In Australia, it was found that Efficient Use of Capital (EPM) is positively related to firm profitability.

4. Relational Capital Efficiency and Financial Performance: Studies have also demonstrated that Relational Capital Efficiency (RCE) has a positive impact on revenue, profitability, and productivity in the Chinese textile industry. However, the relationship between Intelligent Wealth and financial performance in Malaysian monetary businesses remains unexplored.

The VAIC Model, in this study, is applied because it is able to assist in measuring the value added by intellectual capital human, structural, and relational aspects in management. This model assists in value-adding processes, especially for firms that are in the knowledge-based sectors, as it helps them to locate the key areas that need to be targeted for enhancement. Based on the appropriate SAOC unit's empirical testing, it is known that an enhanced VAIC level score raises the positive relationship which is profitability (Marzo, 2021). For most users, this is crucial since there are several other models for measuring this relationship that are more complex, for example, free cash flow models, system Liabilities models, or Accounting models. In addition to that, the clarity and simplicity of the VAIC Model make it really advantageous to the users who wish to assess the impact of intellectual capital on a firm in relation to its performance. Regarding corporate governance, the model of Hossain et al. (2020) assumes some of the relevant facts in determining the level of a firm in the management of its intangible assets in a very fast-changing global environment. So, the VAIC model is good for measuring the link between IC and the financial performance of a company.

Therefore, this education goal is to explore more deeply the result of MVAIC on firm presentation. Based on the overhead influences, this education proposes the next theories:

H1a: Human capital efficiency positively affects financial performance;

H1b: Structural capital efficiency has a positive effect on financial performance;

H1c: Capital utilization efficiency has a positive effect on financial performance;

H1d: Relational capital efficiency has a positive effect on financial performance.

Ownership structure on financial performance of SOEs in Indonesia

The impact of ownership structure on firm performance has often been discussed with reference to the agency model which deals with the separation of ownership and control as a potential source of conflicts. Hermansjah et al. (2021) points outthat in Indonesia, SOEs have the centralized ownership advantage which adds to the effectiveness of management control. With lower separation, agency costs are reduced and thus profitability is increased. According to Hermansjah et al. (2021), government ownership presence is a valuable vantage point as it positively contributes to Return on Assets (ROA) and Return on Equity (ROE). But at the same time, the firm performance can also be affected by political considerations which in the first place led to such ownership by the government.

H2: Government ownership affects firm performance.

Foreign shareholders and institutional investors have similar roles in terms of their impact on ownership and structural ownership of the firm (Fu et al., 2022). In addition, foreign investors can play an effective supervisory role over the company. The presence of foreign institutional investors is associated with better levels of company operational performance. Foreign owners have a significant and positive influence on company presentation. Many have proven that the attendance of distant stockholders recovers commercial presentation. Therefore, the next theory is the future of this education:

H3: Foreign ownership has an effect on firm performance.

The link between ownership structure, firm performance and its reporting practices

Decision-making, strategies, and policies of a business always are subject to its ownership structure. In addition to this, it determines social and environmental reporting as well. This study in the Nigerian context, examined the relationship between the sociocultural environment as well as the reporting practices with moderating effects of intellectual capital disclosures.

Concentrated vs. Dispersed Ownership

With concentrated ownership, the major owners can exercise more control which enhances management concentration and increases the value of a firm. On the other hand, with diluted ownership, agency problems may arise where management activities do not coincide with the aims of the owners thereby reducing the value of a firm.

Intellectual Capital and Firm Performance

Three components that make up intellectual capital; human, structural, and relational, remain important in achieving value, especially in knowledge-focused businesses. Such companies, which effectively manage their intellectual capital, will have a competitive edge. Nevertheless, the effect of ownership structure on value is not uniform across industries. Such industries, as those that are focused on technology and are service-based, benefit from ownership structures that encourage innovation and collaboration while traditional industries are centered on asset and productivity intensiveness (Schmalz, 2021).

Interrelations and Competitiveness

It is significant to comprehend the links between ownership structure, intellectual capital, and firm performance in economy block competitiveness. In the context of Iran, studies have also examined the relationship between intellectual capital and social capital and internal control weaknesses which is applicable to firms operating in different economies (Ardito et al., 2021).

1. Recognizing and Defining the Relationship Between Intellectual Capital, Corporate Governance Mechanisms, and Financial Performance: Intellectual capital (IC) is an intellectual resource which encourages the achievement of corporate strategic goals, innovation and competitiveness. This resource comprises a blend of human, structural and relational capital, which contribute to value creation and attainment of competitive edge through sustainability.

2. Understanding the Relationship Between Intellectual Capital and Contractual Costs: In Oman's financial sector, relating IC is advantageous in controlling the contract cost, especially when RPT is in practice. Various contract-related expenses arise as a result of agency issues that manifest due to existing conflicting interests.

3. The Influence of Intellectual Capital on Audit Fees Stickiness: High IC firms are usually exposed to low risk, and because of this, audit fees are expected to be quite stable. High IC allows the companies to have a good image thus limiting the incentives of auditors to change their prices in hard times.

4. State of Financial Performance and Ownership Structure: Implication to Firm Value by Leverage: There is a direct relation between the ownership structure and the financial performance of a firm as well as its market value. The companies that have dispersed shareholding behaves in a different way regarding the leverage compared to those which have concentrated ownership.

5. The Contribution of Intellectual Capital Towards Corporate Performance: Corporate performance is propelled by IC which acts as an engine of innovations, efficiency and competitive edge over the rivals. Those firms who appreciate the importance of IC invest in training, knowledge and networking, thus better performance in business.

6. The Relation Between Intellectual capital and Readability of Financial Statements: The comprehension of financial statements is in line with management characteristics, namely, their experience, education, and communication. Those managers who know what IC is are more efficient in creating it and they also usually know how to manage it so that financial reports remain readable.

7. The Relation Between Social and Intellectual Capital with Fraud and Money Laundering: In the context of Iraq, the social and intellectual capital combination is indispensable in the combat against fraud and money laundering. Firms that have well established social capital and developed intellectual capital are able to adhere to the required compliance and risk management practices.

8. The Role of Human Capital in Foreign Market Performance: Human capital is crucial in the foreign market performance of SMEs. Owner ethnicity can also impact how business capital is utilized in international markets. Diversity in human capital can enhance SME performance in foreign markets.

9. The Impact of Board's Human Capital on Firm Performance: Directors' human capital significantly shapes the relationship between board characteristics and firm performance. Policies focusing on enhancing board human capital can improve firms' strategic control and financial performance.

10. Influence of Financial Architecture and Intangible Assets on Financial Performance: In the Indonesian capital market, a company's financial structure and intangible assets interact to enhance performance and overall value. Companies with better control over intangible assets, especially IC, tend to perform better.

11. The Effect of Intellectual Capital and Board Characteristics on Value Creation and Growth: A study of board characteristics, including management of boards' IC, influences corporate value and growth. The results depict a significantly inelastic relationship, implying that allocating resources to both board configuration and IC management is crucial for sustained growth and competitiveness.

Research Framework

This education evaluates the association amid intellectual capital (IC) competence, the situation mechanisms, then possession structure on the presentation of state-owned companies in Indonesia cutting-edge the setting of Intelligent Wealth Disclosure and Physical Ownership. In this case, Momani et al. (2021) intelligent wealth is rummaged by way of self-governing variable Indicators of humanoid prosperity competence, physical wealth competence, autochtonous wealth competence, and employed wealth competence. Possession construction with indicators of state ownership and foreign ownership. In addition, the firm's activity is rummage-sale by way of a subordinate mutable, which protects resource-based approaches and activity philosophy. So, the field of research used is illustrated in Figure 1 below.

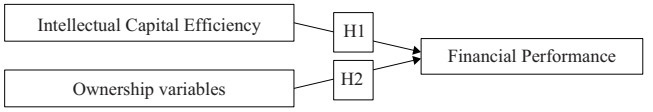


Figure 1 Research framework

Methodology

Samples and Data

This review highlights state-owned businesses in Indonesia, focusing on intelligent wealth disclosure and structural ownership's influence on financial performance. It excludes companies that fixed non-consume whole information during the review period or that have missing annual reports for two years. The sample consists of 40 companies with a total of 200 observations from 2018 to 2022, using data from annual reports and company websites. The main indicator of company performance in this study is profitability, focusing on the Return on Asset (ROA) ratio, which measures the efficiency of the company in converting investment into profit.

Variable Operationalization

Intellectual Capital Variables: Various models have been proposed to measure Intellectual Capital (MI) due to the absence of agreement among experts. In academic and practical studies, researchers have used the Value Added Intellectual Coefficient (VAIC) model. VAIC starts its measurement by calculating.Value Added (VA):

VA = OUT - IN

Description: OUT: includes all profits and revenues derived from the production of goods and services, while; IN: is all costs (including depreciation and amortization) except for employee costs, interest, dividends, and taxes (source replaced with relevant research from Indonesia or SOEs).

The above formula is known as the entire worth additional method. Furthermore, the primary constituent of Intellectual Capital is that HCE represents the capability of human capital (MM) in creating worth in the firm. Pays, salaries, aids, and exercise costs are considered proxies for MM costs.

HCE = VA/HC

The second component is SCE. SCE describes how structural capital (SC) contributes to the development of value.

SC = VA - HC

SCE = SC/ VA

The third component is EVD. A company's used capital arises from the retirement of intangible assets (EC). The EEA is an AV indicator created by a unit of physical capital.

CEE = VA/CE

An additional component is RCE (Relationship Capital Efficiency) for the original VAIC model. However, relationship capital (RC) is based on marketing expenses such as sales and advertising.

RCE = RC / VA

This study uses the VAIC formulation calculated based on the sum of the three mechanisms rendering the next formulation:

VAIC = HCE + SCE + CEE

Ownership variables

Ownership variables in this study are measured based on the fraction of administration stocks used to compute administration possession. The fraction of stocks possessed by distant stockholders is rummage-sale to compute distant possession.

Control variables

This review usages two switch variable stars, namely, business scope measured as the log of the business's total possessions and another control variable is the age of the business, namely, the number of years since the company was founded. A complete list of variables is also presented in Table 1.

Table 1 Variable operationalization

Variable	Operationalization
Dependent Variable	
Return on asset (ROA)	Net income / total asset
Independent Variabel	
Human capital efficiency (HCE)	VA / HC
Structural capital efficiency (SCE)	SC / VA
Capital employee efficiency (CEE)	VA / CE
Relational capital efficiency (RCE)	RC / VA
Modified VAIC (MVAIC)	HCE + SCE + CEE + RCE
Government ownership (GVOWN)	The proportion of shares owned by the government
Foreign ownership (FROWN)	The proportion of shares owned by the foreigners
Control Variabel	
Firm size (SIZE)	Ln of Total Assets
Firm Age (AGE)	Number of years the firm was established

Source: Prepared by the author (2024)

Empirical Model

This section discusses data analysis techniques, particularly highlighting the endogeneity in the association amid intelligent wealth and secure presentation. In response to this issue, a two-step Generalized Method of Moments (GMM) technique is used, which is effective in managing both endogenous and exogenous variables. The system GMM method is superior in overcoming heteroscedasticity and serial correlation and is more efficient for data with short time periods. It also reduces bias, especially in data with a short observation time and a large number of observations. Then, the following equation is given:

$$ROAit = \alpha 0 + \beta 1ROAit\text{-}1 + \beta 2MVAICit + \beta 3GVOWNit + \beta 4FROWNit + \beta 5Xit + YEAR + INDUST + \varepsilon it \quad (1)$$

$$ROAit = \alpha 0 + \beta 1ROAit\text{-}1 + \beta 2HCEit + \beta 3SCEit + \beta 4CEEit + \beta 5RCEit + \beta 6GVOWNit + \beta 7FROWNit + \beta 8Xit + YEAR + INDUST + \varepsilon it \quad (2)$$

Description: ROAit is the return on assets for the company; ROAit-1 is the performance of the company delayed by one year; MVAICit is the modified value added to intellectual capital; HCEit is humanoid wealth competence, SCEit is physical wealth competence, CEEit is capital employed efficiency, and RCEit is relational capital efficiency; GVOWNit is government ownership, FROWNit is foreign ownership, Xit is a switch variable; and YEAR and INDUST are dummy variables for year and manufacturing, and εit is a stochastic mistake period.

Descriptive statistics

Based on Table 2, state-owned enterprises (SOEs) in Indonesia have an average ROA of 2.36 percent. The average value of MVAIC reached 1.1064, indicating that each monetary unit used by SOEs generated 1.1064 between 2018 and 2022. The highest value was recorded for HCE with 1.5752, while RCE, SCE, and CEE had nasty standards of 0.0616, 0.3568, and 0.1184, respectively. The total average for intangible components (HCE, SCE, and RCE) is 0.6645, much more advanced than CEE, which is only 0.1184. This indicates that Indonesian SOEs generate more value from intangible assets than tangible assets. In terms of ownership structure, the average foreign (FROWN) and government (GVOWN) ownership is 7.1664 and 3.6816 respectively, with government ownership ranging from 0 percent to 25.2032 percent and foreign ownership from 0 percent to 40.464 percent. Meanwhile, company size (SIZE) and company age (AGE) have averages of 10.5856 and 29.2752.

The correlation test results presented in Table 3 reveal that none of the coefficients exceed 0.9. This indicates a significant correlation in the data, thus eliminating the threat of multicollinearity to the variable estimates. The highest correlation was recorded at 0.184 amid intelligent capital disclosure and structural ownership with the financial presentation of SOEs in Indonesia. Furthermore, Table 3 shows a positive correlation between intellectual capital disclosure, structural ownership, secure scope, and age with Return on Assets (ROA). In the same table, the Variance Inflation Factor (VIF) values for an apiece mutable range from 0.904 to 5.064, all of which are below the limit of 10, confirming that the data are free from multicollinearity issues.

Table 2 Statistic descriptive

Variable	*N*	*M*	Min	Max	*SD*	Skewness	Kurtosis
ROA (%)	200	2.36	-8.696	12.704	5.1272	-0.1248	2.3800
MVAIC	200	1.1064	-1.6016	6.1864	1.1864	-0.2272	3.4016
HCE	200	1.5752	-0.7248	4.4112	1.6568	0.2864	2.8592
SCE	200	0.3568	-0.6744	1.2768	0.4136	-0.2808	3.3480
CEE	200	0.1184	-0.0224	0.3808	0.0936	0.5384	2.2856
RCE	200	0.0616	-0.1104	2.2208	0.7160	0.0184	4.7848
GVOWN	200	3.6816	0	25.2032	7.0304	1.6104	4.6840
FROWN	200	7.1664	0	40.4640	10.9440	1.5624	4.7160
SIZE	200	10.5856	4.8584	15.2128	1.2368	0.5744	3.2792
AGE	200	29.2752	0.8	109.6	15.7144	1.4064	6.2576

Source: Prepared by the author (2024)

Table 3 Correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10	VIF
ROA (%)	1										3.616
MVAIC	0.0392	1									5.064
HCE	0.0432	0.068	1								2.528
SCE	0.0392	0.0328	0.0368	1							1.592
CEE	0.0424	0.0328	0.0352	-0.016	1						2.216
RCE	0.0496	0.0424	0.056	0.008	0.048	1					1.488
GVOWN	0.0064	0.0176	0.184	0.0136	0.088	-0.048	1				0.904
FROWN	0.0456	0.0208	0.08	0.0136	0.184	-0.016	-0.048	1			0.944
SIZE	0.0152	0.0232	0.0336	0.0048	0.048	-0.008	0.056	0.104	1		1.352
AGE	0.0544	0.036	0.008	-0.0056	0.008	0.072	-0.008	0.04	0.096	1	0.872

Source: Prepared by the author (2024)

Result and Discussion

Table 4 shows the results of the GMM examination on the effect of intelligent wealth disclosure and possession construction on the financial presentation of SOEs in Indonesia. It can be seen that intelligent wealth consumes an optimistic result on the ROA of SOEs in Indonesia. The consequences of this education are in line with the discovery of a positive association between intelligent wealth disclosure and ROA, proving Hypothesis 1 that intellectual capital affects financial performance. Kamath (2021) added that companies with advanced heights of intelligent wealth disclosure are inclined to be more profitable, proving that intelligent wealth is a significant contributor to corporate success in Indonesia.

This is in agreement with the resource-based view philosophy stating that businesses with modest advantages have valuable resources that cannot be imitated by other companies that improve corporate performance. Yun (2022) Intellectual capital is indeed considered a significant investment in driving sustainable growth.

An assessment of ownership structure and the level of intellectual capital (IC) disclosure among the Indonesian state owned enterprises (SOE) confirms that these two factors have a significant effect on Return on Asset (ROA). The research determines three types of IC on which ROA is stated to positively relate to human capital, physical capital and social capital. For employees' knowledge and competencies associated with processes and products' innovation which are also applied in practice, human capital is needed.

Table 4 Results of GMM regression

Variables	Model 1	Model 2
ROAt−1	.2768*** (0.0368)	.1848*** (0.0336)
MVAIC	1.1760*** (0.2264)	—
GVOWN	.3712*** (0.1400)	.1752* (0.1024)
FROWN	.3391*** (0.0976)	.1312** (0.0656)
HCE	—	1.1728* (0.2368)
SCE	—	5.6064*** (1.1448)
CEE	—	19.0192** (9.5030)
RCE	—	3.9672*** (0.0672)
SIZE	-1.0576** (0.7064)	-.0528 (0.8192)
AGE	.0704 (0.1200)	.0144** (0.1074)
Constant	2.5536 (10.2328)	-12.9600 (10.7032)
Industry Dummy	Included	Included
Year Dummy	Included	Included
Observations	1,309	1,309
Number of Groups	327	327
Number of Instruments	47	47
AR(1) *p*-value	.000	.000
AR(2) *p*-value	.688	.328
Hansen J (*p*-value)	.640	.544
Prob > *F*	.000	.000

Notes: $p < .01$ ***, $p < .05$ **, and $p < .10$ *.

Physical capital is also of paramount importance, especially in a developing economy like Indonesia, as it relates scientifically to the value of the firm. Relational capital helps the organization during times of difficulties as it increases the organization's profitability through strong stakeholder relations and acts as an economic resource. Such findings concur with the findings of studies done in South Africa and Bangladeshi garment factory on government ownership and profitability as well as explaining the extent of government ownership. The study demonstrates that right models of ownership such as government and foreign ownership increase ROA.

However, this relationship between ownership structure and performance is also influenced by other factors, namely, the size of the company as well as the stage at which the company operates. Company size and year since incorporated as control variables further show that ROA is influenced differently depending on the model employed. The sequential character of research design is particularly confirmed by Hensen J tests and AR (2) tests thereby providing confidence on instruments employed.

Finally, the authors contend that there is a direct link between the level of efficiency of intellectual capital and the earning performance of the Indonesian SOEs, thus supporting investments in human, physical and relational capital for better financial results and value creation in a knowledge economy. Government ownership seems to encourage performance assessment, adding to the intricacy of the role of state-witnessed ownership on business engagement.

In order to enhance the understanding of the primary findings presented here, the following activities can be undertaken as future research directions: (1) Longitudinal Studies: Conduct longitudinal studies so as to establish the trajectories and the eventual outcomes of intellectual capital and ownership structure on performance over the years; (2) Comparative Analysis: Test these relationships with other studies done in other contexts and other industries to establish whether other industries have similar relationships; (3) Qualitative Research: Use qualitative methods for example interviews and focus group discussions to explore more on the management of knowledge and its perception from organizations; (4) Robustness Checks: Perform robustness checks employing different statistical techniques or models in order to see whether the outcome is sensitive to particular assumptions or methods; (5) Subgroup Analysis: Investigate whether the relationships are moderated by particular characteristics such as size of the firms, types of industry or the ownership structure; (6) Cross-Validation: Also, cross-validation procedures can be used in explaining the predictive power of the models employed; (7) Sensitivity Analysis: Sensitivity analysis can also be conducted in assessing the extent to which the findings are stable under a different set of assumptions or parameters; (8) Integration of Additional Variables: Add other variables which are likely to be related to the variables of interest, for instance, market factors, legal factors or even political factors; (9) Peer Review and Feedback: Communicate the results to colleagues or professionals in the field to solicit critiques and attempt to identify any form of bias or weakness in the study undertaken; and (10) Replication Studies: Request other researchers to carry out replication studies to confirm the findings in alternate contexts or with different datasets.

By undergoing such additional analyses, the researchers will augment assurance to the reported outcomes and broaden the scope of investigation especially in relation to the link between intellectual capital, ownership structure, and financial performance.

Conclusion

Over the past twenty years, global academics and researchers have focused on the association amid intelligent wealth disclosure, ownership structure, and financial presentation in Indonesian SOEs, by applying intellectual capital indicators that include additional components such as Relational Capital and using government and distant possession as an amount of ownership structure. The method used is dynamic retroactivity of the GMM system panel, distinct from the OLS, FE, or RE methods, with empirical results, demonstrating the significance of efficient intelligent wealth organization to improve the profitability of Indonesian state-owned enterprises and that foreign governments and properties have a positive impact on profitability. These findings provide a reference for investors who want to predict the efficiency of Indonesian SOEs' Intellectual Capital and for policymakers and business managers in designing more effective intellectual capital management methods. However, this research has limits, such as the use of the MVAIC model still under discussion, the view of a sample of non-financial firms, limited to two indicators of ownership and shareholder structure, and the failure to explore the moderating or intermediary function of other variables in the association amid intelligent wealth and safe activity. This paper discusses how the level of ownership and intellectual

capital affects the performance of Indonesian SOEs from 2018–2022. There are several findings which are worth mentioning in this regard. First and foremost, it is clear that financial performance improves due to cognitive learning and all interactive activities including human, structural and relational capital as well. This brings in the need to focus on investments in these areas to improve the operational efficiency and ultimately the profitability.

Also, the degree of the ownership structure, especially the government ownership, has an impact on the performance of the SOEs. Political institutions are noted to strengthen the effectiveness of such enterprises and therefore, more favorable outcomes are possible where there is a good governance structure. This research uses the modified value-added intellectual coefficient model which is based on the distributional aspects of the financial performance metric seeing the results of the interaction of the Intellectual capital with these metrics.

The implications for policymakers and practitioners are considerable. We urge both political and business leaders to invest in human capital through training and development so as to improve the creativity and skills of the workforce. Moreover, it is also advisable to improve the structural capital by creating adequate organizational processes and using technology to make better decisions and improve operational efficiency. The study finds that building relational capital is equally important as it includes creating networks and alliances with the stakeholders in order to harness valuable inputs. In addition, utilizing the state's ownership as an opportunity can improve accountability and transparency in enhancing stakeholders' confidence.

The author of managing in a crisis situation calls for evidence based management decision adding that measuring– performance evaluations against benchmarks of the best in the industry should be done regularly. It further points out the need to address the participating in designing policies that would help increase the level of development of the intellectual and organizational capabilities of SOEs self, which is a requirement for upgrading SOE performance.

Lastly, though it examines important contributions to the knowledge, this study is limited by, particular reference to financial firms only and specific measures of intellectual capital. Such studies would provide insights to understanding these dynamics in other sectors, broaden the applicability of the study and examine the cross cut variables moderating the relationship. Overall, this study adds to the understanding of the relationship between intellectual capital, ownership structure and financial performance of the Italian SOEs. Addressing the challenges of increasing the efficiency of the SOEs in the restructuring economic conditions is a key consideration of this work.

Conflict of Interest

The author declares that there is no conflict of interest.

References

Ackah, P., Mensah, E., Ayamga, T. A., Muda, P., & Al-Faryan, M. A. S. (2024). Ownership structure dynamics and firm governance quality: Panel regression evidence from Sub-Saharan Africa. *Cogent Business & Management, 11*(1), 1–28. https://doi.org/10.1080/23311975.2024.2420768

Aljuboori, Z. M., Singh, H., Haddad, H., Al-Ramahi, N. M., & Ali, M. A. (2022). Intellectual capital and firm performance correlation: The mediating role of innovation capability in Malaysian manufacturing SMEs. *Sustainability, 14*(1), Article 154. https://doi.org/10.3390/su14010154

Ardito, L., D'Angelo, V., Petruzzelli, A. M., & Peruffo, E. (2021). The role of human capital in the foreign market performance of U.S. SMEs: Does owner ethnicity matter? *Journal of Intellectual Capital, 22*(7), 24–42. https://doi.org/10.1108/JIC-09-2020-0312

Fu, T., Leng, J., Lin, M., & Goodell, J. W. (2022). External investor protection and internal corporate governance: Substitutes or complements for motivating foreign portfolio investment? *Journal of International Financial Markets, Institutions and Money, 81*, 101686. https://doi.org/10.1016/j.intfin.2022.101686

Harsh, H., & Prasad, A. (2020). Employment relations and perceived organizational performance: The moderating role of technological intensity. *Employee Relations, 43*(1), 109–130. https://doi.org/10.1108/ER-02-2019-0119

Hermansjah, R., Sugiarto, S., Ugut, G. S. S., & Hulu, E. (2021). The effect of government ownership on Indonesia's state-owned enterprises' firm performance. *Accounting, 7*(6), 1347–1352. https://doi.org/10.5267/j.ac.2021.4.003

Hossain, S. M. K., Akib, J. H., & Anannya, A. (2020). Does good governance practice lead to sound financial performance? Evidence from RMG companies enlisted in the Dhaka Stock Exchange. *International Journal of Management and Sustainability, 9*(2), 76–90. https://doi.org/10.18488/journal.11.2020.92.76.90

Kamath, G. B. (2021). Corporate governance and intellectual capital disclosure. *International Journal of Learning and Intellectual Capital, 18*(4). https://doi.org/10.1504/IJLIC.2021.10036114

Marzo, G. (2021). A theoretical analysis of the value-added intellectual coefficient (VAIC). *Journal of Management & Governance, 26*(2), 551–577. https://doi.org/10.1007/s10997-021-09565-x

Momani, K. M. K. A., Jamaludin, N., Abdullah, W. Z. W. Z., & Nour, A. I. (2021). The influence of relational capital on the relationship between intellectual capital and earnings per share in the digital economy in the Jordanian industrial sector. In *Studies in Computational Intelligence* (pp. 59–76). Springer. https://doi.org/10.1007/978-3- 030-73057-4_5

Paoloni, M., Coluccia, D., Fontana, S., & Solimene, S. (2020). Knowledge management, intellectual capital and entrepreneurship: A structured literature review. *Journal of Knowledge Management, 24*(8), 1797–1818. https://doi.org/10.1108/JKM-01-2020-0052

Rybalka, A. I. (2020). Relationship of property structure and performance of high-tech companies. *Studies on Russian Economic Development, 31*(3), 264–270. https://doi.org/10.1134/S1075700720030144

Schmalz, M. C. (2021). Recent studies on common ownership, firm behavior, and market outcomes. *The Antitrust Bulletin, 66*(1), 12–38. https://doi.org/10.1177/0003603X20985804

Suharman, H., Hapsari, D. W., Hidayah, N., & Saraswati, R. S. (2023). Value chain in the relationship of intellectual capital and firm performance. *Cogent Business & Management, 10*(1), 1–18. https://doi.org/10.1080/23311975.2023.2199482

Ting, I. W. K., Lu, W., Kweh, Q. L., & Ren, C. (2021). Value-added intellectual capital and productive efficiencies: Evidence from Taiwan listed electronics companies. *International Journal of Emerging Markets, 18*(9), 2816–2838. https://doi.org/10.1108/IJOEM-11-2020-1374

Tiron-Tudor, A., & Ciolomic, I. A. (2022). State-owned enterprise. In *Springer eBooks* (pp. 12349–12355). Springer. https://doi.org/10.1007/978-3-030-66252-3_1686

Tjahjadi, B., Soewarno, N., Sutarsa, A. P., & Jermias, J. (2024). Effect of intellectual capital on organizational performance in Indonesian SOEs and subsidiaries: Roles of open innovation and organizational inertia. *Journal of Intellectual Capital, 25*(2/3), 423–447. https://doi.org/10.1108/JIC-06-2023-0140

Xu, J., Haris, M., & Liu, F. (2022). Intellectual capital efficiency and firms' financial performance based on business life cycle. *Journal of Intellectual Capital, 24*(3), 653–682. https://doi.org/10.1108/JIC-12-2020-0383

Yun, P. (2022). The origin and evolution of intellectual capital. In *Routledge eBooks* (pp. 19–30). Routledge. https://doi.org/10.4324/9781003094999-3

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Corporate governance bundles and earnings management: The role of audit committees and ownership concentration

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Abstract

Drawing on the notion of governance bundles, this study aims to verify whether governance mechanisms are interrelated and reveal the interaction mechanisms between firm-level governance. By using a unique dataset from Thailand with 1,364 firm-year observations from years 2017–2020 and moderating regression as a research tool, the findings indicate that a larger audit committee is necessary for firms with concentrated ownership to offset the power of controlling shareholder over earnings management. Theoretically, the findings ensure that corporate governance within the firm functions collectively as a bundle. In addition, the findings challenge the existing regulations in a way that audit committee size should not be standardized for all types of firms. Instead, the size of such a committee should vary depending on the degree of ownership concentration.

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Introduction

Over the past two decades, Asian capital markets have grown dramatically proving to be a major engine of the global economic recovery (Demirkan et al., 2019). This circumstance should persuade potential investors to seek business opportunities in this region. However, the severe financial crisis in the recent past has reminded investors to be aware of financial reporting opacity, although governance mechanisms have been introduced and put in place to promote financial transparency. The effectiveness of governance mechanisms is still a controversial issue in Asian emerging markets despite implementing similar mechanisms to developed markets (Oehmichen, 2018). Accordingly, this issue raises the critical question regarding whether the same set of corporate governance can yield similar outcomes in dynamic organizations and contexts. Theoretically, researchers have contended that the effectiveness of governance mechanisms at the firm level is conditioned on organizational and institutional characteristics, known as governance bundles (Desender et al., 2013; Panayi et al., 2021). Implicitly, the notion of governance bundles views the function of governance mechanisms as the intertwined system where firm-level governance such as audit committee, controlling shareholders, external auditors, or board of directors

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does not function solely and may not yield monotonic outcomes in different contexts. Instead, their monitoring roles over firm outcomes are likely to be complemented or substituted by other organizational characteristics and institutional settings (Desender et al., 2013). Therefore, the contingency view has been suggested as a new research avenue in existing literature for studying the effect of corporate governance on its outcomes (Panayi et al., 2021).

In addition to the theoretical argument, empirical evidence documented in the literature regarding the effects of key governance at the firm level in terms of; the audit committee and ownership structure, on financial reporting quality is mixed (Oehmichen, 2018). In particular, some evidence supports the monitoring role of ownership concentration (Alhmood et al., 2023; Saleem Salem Alzoubi, 2016) while other evidence shows the negative effect of such mechanism towards firm outcomes (Bao & Lewellyn, 2017; Fan & Wong, 2002). Likewise, a plethora of research shows the inconclusive effect of audit committee on financial reporting quality (Bilal et al., 2018). Desender et al., (2013) mention that mixed findings can be attributed to the overlooking of governance interdependency in which the effectiveness of governance mechanisms to improve the quality and transparency of financial reporting is likely to be contingent upon the organizational characteristics and external environment. This argument is highlighted again by Bilal et al. (2018) who pointed out that key governance in firms operated in emerging markets such as ownership structure and audit committee may not function exclusively. For example, audit committee may be nominated or suggested by controlling shareholders who also take charge in the firm. However, this scenario may differ from firm to firm regarding its context. Therefore, it leads to mixed empirical evidence when the effect of governance such as audit committee or controlling shareholders was studied. According to this view, the same set of governance mechanisms implemented at the firm level may function differently in firms with dissimilar characteristics and environments. Building upon the above-mentioned arguments, this research proposes that the effectiveness of governance mechanisms at the firm level to oversee the quality of financial reporting should be studied from the contingency view where governance mechanisms function as an intertwined system instead of sole functioning. Extant research of this nature is still limited because most prior research studied the monitoring effect of corporate governance from the agency perspective where individual governance mechanisms function exclusively (Desender et al., 2013; García-Castro et al., 2013; Oehmichen, 2018). Hence, there is a research gap for this study to address.

Audit committees are studied in this research as a governance mechanism within the firm. According to The Sarbanes-Oxley Act (SOX) and regulations in many countries around the globe, an audit committee is required in listed companies for; overseeing the preparation of financial reports, proposing potential external auditors, and receiving both internal and external audit results (Vera-Muñoz, 2005). Therefore, this mechanism is primary governance at the firm level that is in place to curb the practice of earnings management which in turn improves the quality of financial reports. This mechanism was first introduced in 1939 as a recommendation for publicly held companies by The New York Stock Exchange (Vera-Muñoz, 2005). Subsequently, such recommendation has also been followed by a number of stock exchanges in Asian countries such as Malaysia, Singapore and Thailand. However, the effectiveness of firm-level governance is still dubious in this region (Oehmichen, 2018). In general, Asian economies have dramatically grown but are underpinned by weak institutional settings where family-owned businesses and ownership concentration are primary characteristics of firms (Dinh & Calabrò, 2018; Oehmichen, 2018). Accordingly, controlling shareholders are also studied because they are likely to play a crucial role in shaping the effectiveness of governance mechanisms at the firm level (Bao & Lewellyn, 2017; Desender et al., 2013; Dinh & Calabrò, 2018) or to interact with other governance mechanisms applied within the firm. This nature of research is important in two ways. First, extant literature has documented mixed findings regarding the effect of key corporate governance, such as audit committees and controlling shareholders on earnings management, despite a plethora of studies. This leads to an unclear explanation concerning the effect of such mechanisms on the quality of financial reports although it is expected to reduce earnings management and enhance the quality of financial information. Yet, it has been an ongoing debate concerning why the same set of governance mechanisms yields dissimilar outcomes in different organizations or contexts. Policymakers in many jurisdictions need to be informed that the required governance mechanism at the firm level, such as the audit committee, would generate more benefits than it costs to implement. Second, the dubious effect of corporate governance on financial reports causes not only difficulties in practice but also induces theoretical concerns in the sense that how corporate governance works as an intertwined

system (Panayi et al., 2021). Agency perspective, the core theoretical framework in governance literature, has been challenged for being applied to explain the effect of governance mechanisms in a sole manner (Kury, 2007; Oehmichen, 2018; Oh et al., 2016). Theoretically, this perspective should be extended to facilitate the better understanding of how corporate governance functions in reality (Oehmichen, 2018).

Literature Review and Hypothesis Development

The Contingency Framework

As mentioned earlier, the contingency framework is proposed in this research. In general, the contingency framework of governance bundles proposes that the effectiveness of individual governance mechanisms is conditioned upon others in a complementary or substituted manner (Desender et al., 2013; Oh et al., 2016). Therefore, the substitution and complementary hypotheses are proposed under the contingency framework where governance mechanisms function together to influence the firm's outcomes (Panayi et al., 2021). Specifically, the complementary hypothesis argues that two or more governance practices would support the functions of each other. In this sense, the effect of one governance would be strengthened when another governance exists. In contrast to the complementary hypothesis, researchers have posited that the effect of one governance might be attenuated when another governance exists (Panayi et al., 2021). This is known as the substitution effects among governance mechanisms. Although governance mechanisms are generally invented for minimizing agency problems, their roles and functions can be dissimilar (Oh et al., 2016). Accordingly, the coexisting of governance mechanisms may not always yield optimistic outcomes. In some circumstances, implementing various aspects of governance together is not necessary because no marginal benefit is gained. Instead, firms will encounter higher costs of implementing multiple aspects of governance if only an individual governance mechanism is sufficient (Rediker & Seth, 1995). This is another perspective toward the contingency framework of the governance bundle.

The Complementarity or Substitution between Audit Committee and Controlling Shareholders toward Earnings Management

Audit committee and ownership structure have been perceived as the main corporate governance that is in place to monitor the firm (Oehmichen, 2018). In general, the audit committee is nominated for reviewing and supervising the preparation of financial reports to ensure their accuracy and quality. Controlling shareholders, who serve as resource providers, are also intimately linked with the firm and play a crucial role in monitoring. These two governance aspects have long been studied in governance literature (Kumala & Siregar, 2021; Kusnadi et al., 2016; Nguyen et al., 2021; Nikulin et al., 2022). However, their effects on firm outcomes have been studied extensively and mixed findings have been documented in the literature (Oehmichen, 2018). The inconclusive findings regarding the effects of audit committee and ownership concentration certainly impede the understanding of how corporate governance work to mitigate agency problems. From the agency perspective, the behavior of the audit committee or controlling shareholders to oversee and supervise managers completely relies on their self-motivation. In practice, however, the composition and role of the audit committee might be influenced by controlling shareholders. On one hand, controlling shareholders may shape the functions of other governance, including the audit committee, as they hold power and incentive regarding their investment (Desender et al., 2013; Oh et al., 2016). On the other hand, the power of controlling shareholders together with their behavior can also be altered by other corporate governance implemented within the firm. For example, the concentration of ownership is common in contexts where regulatory quality and its enforcement cannot properly protect property rights (Dinh & Calabrò 2018). In such contexts, the minority expropriation is the greatest concern, thus other corporate governance protections should be in place to balance the power and ensure the best practice of controlling shareholders. This emphasizes the notion of governance bundles proposed in the literature.

Recent empirical evidence supports the notion of governance bundles where individual corporate governance reinforces or substitutes the functions and power of another. One of those pieces of evidence is the study introduced by Panayi et al. (2021) where several governance bundles were revealed. In particular, the concentrated institutional shareholders would complement the active monitoring role of independent directors toward acquisitiveness. In addition to the complementary evidence, the substitutive effect of corporate governance has also been evident. Oh et al. (2016) documented that the effect of independent directors to promote the practice of CSR can be replaced by the existence of controlling shareholders. To put it

differently, either independent boards or blockholders are sufficient for supporting CSR practices. Accordingly, competing hypotheses, in terms of complementarity and substitution, have been proposed in this study for testing the effect of governance bundles on firm outcomes. In particular, audit committee and concentrated ownership are corporate governance that this study aims to investigate for their interdependence as governance bundles while financial reporting quality proxied by earnings management (EM) (Awuye, 2022) would be treated as the firm outcome that is influenced by such governance. EM is defined as the intentional structure of financial information reported on financial reports throughout the accounting and operating policies for misleading the financial users. Therefore, the practices of EM cover both accruals and real earnings management (Enomoto et al., 2015; Roychowdhury, 2006). Accruals-based earnings management (AEM) involves manipulating accounting policies, such as adjusting accruals, whereas real earnings management (REM) requires changing actual business operations to achieve desired financial outcomes. Consequently, financial reporting quality would be lower when EM is created. However, such practices can be influenced by governance mechanisms (Almarayeh et al., 2022; Bao & Lewellyn, 2017). As mentioned before, audit committee, a governance mechanism at the firm level, is in place for governing and improving financial reporting quality (Kusnadi et al., 2016; Nikulin et al., 2022) but such mechanism can be influenced by controlling shareholders or vice versa as proposed in this study. Despite the existing literature regarding audit committee and concentrated ownership on EM, the evidence showing interactive effect of such mechanisms on EM is still limited (Bao & Lewellyn 2017). In addition, similar governance bundle may function inversely toward various firm outcomes, and thus further research is needed to uncover more empirical support for the contingency framework (Panayi et al. 2021). Thus, to fulfill such gap this study proposes the conditional hypothesis as stated below to test the interaction effect between audit committee and controlling shareholders. This line of hypothesis is underpinned by the contingency framework where governance mechanisms are viewed and explained as the intertwined system, known as "bundle".

Hypothesis 1 (H_1): There is an interaction between audit committee and controlling shareholders and its conditional effect on EM.

Methodology

Data Collection

This research focuses on Thailand, an emerging Asian market that suffered during the 1997 financial crisis. Similar to many emerging markets, the effectiveness of corporate governance and the quality of financial information have been questionable in Thailand (Persons, 2006). Together with the challenge in governance system, Thailand also represents the concern of minority shareholders' expropriation, known as Type II agency conflict where the conflict of interest arises between majority and minority shareholders (Al Farooque et al., 2020). Thus, concentrated ownership is also the key characteristic of Thai companies (Oehmichen, 2018). As stated before, the largest or controlling shareholders have been mentioned in the literature as the ultimate factor that shapes other aspects of corporate governance (Desender et al., 2013), especially in contexts where investor protection at the country level is relatively weak. Taken altogether, Thailand provides a suitable background for testing this study's argument where audit committee and controlling shareholders are proposed to function as the intertwined system. The effect of controlling shareholders over audit committee or vice versa may not be presented in developed markets due to the diffuse ownership. In addition, Thai context signifies core aspects of emerging markets such as ownership concentration and dynamic institutions. Therefore, the findings should be generalized to other emerging markets.

After the severe financial crisis, governance mechanisms were reconsidered and revised in Thailand (Persons, 2006). Audit committees are one of the required mechanisms that companies listed on the Thai stock exchange must implement (Al Farooque et al., 2020; The Stock Exchange of Thailand, 2024). Accordingly, listed companies on the Stock Exchange of Thailand (SET) are studied. There are 1,364 firm-year observations, as stated in Table 1, after excluding observations from the financial sector (Bao & Lewellyn, 2017) and observations that do not have significant data for regression analysis. Likewise, this study also excluded firm-year observations with fewer than three audit committees because such observations did not comply with the minimum number requirement introduced by SET. Additionally, this study mainly relies on secondary data. In particular, financial data to compute the EM model were collected from SETSMART, the online data platform provided by

the SET. The information of the audit committee and controlling shareholders was manually extracted from Form 56-1, annual reports, and companies' websites. The period of unbalanced panel data covered from 2017 to 2020 and comprised of seven industries as reported in Table 1. The data were in fact pulled from 2016 to 2020 according to data availability in SETSMART, but the lagged variable dropped data from the initial year. Such periods of study were selected to utilize the most recent data that can be collected. In addition, a typical business cycle, which demonstrates movements of decision-making practice in business entities, may fluctuate from about 3 to 6 or 7 years (Mitchell, 2024). Thus, the effects of the business cycle, which can have an impact on EM practice, should be covered by this study's duration.

Table 1 Observations summarizing

Industries	Freq.	Percent	Cum.
Agro & Food Industry	181	13.27	13.27
Consumer Products	94	6.89	20.16
Industrials	198	14.52	34.68
Property & Construction	326	23.90	58.58
Resources	139	10.19	68.77
Services	344	25.22	93.99
Technology	82	6.01	100
Total Firm-Year Observations	1,364	100	

Variable Measurement

Earnings management

The practice of EM is a dependent variable in this study. In line with prior literature, EM is proxied by AEM (Dechow et al., 1995). Despite other techniques of EM, AEM is likely to be influenced by audit committee according to their roles and functions in financial reporting. In short, such committee is appointed for overseeing the processes of financial reporting and disclosure. Accordingly, accounting choices or policies, which can be distorted when AEM occurred, must be monitored by such committee. Therefore, AEM should be linked with this committee. Unlike AEM, REM occurs when real operational activities directed by operating policies are altered from normal practice. Such policies or activities are under the control of managers and are monitored by internal auditors. Thus, this study leaves REM for future work. The modified Jones Model was applied in this study to capture AEM (Dechow et al., 1995). This model is believed to be the powerful predictor of accruals earnings manipulation (Martin et al., 2019). It also has been applied in recent study (El-Feel et al., 2024). The AEM model is run in an industry-year manner and illustrated as follows:

$$TA_{it}/A_{it-1} = \alpha_1 (1/A_{it-1}) + \beta_1 (\Delta REV_{it} - \Delta REC_{it})/ A_{it-1} + \beta_2 PPE_{it} / A_{it-1} + \varepsilon_{it} \quad (1)$$

Where: TA=Total accruals (Net income−Cash flow from operating); A_{t-1}=Lagged Total Assets; ΔREV=Change in revenues; ΔREC=Change in Accounts Receivable; PPE= Gross Properties Plants and Equipment

Audit committee

According to prior literature, the independence of this committee is essential to enable them to perform their roles effectively (Oehmichen, 2018). Hence, this research measured the effectiveness of audit committees by focusing on their independence. However, the companies listed on SET are required to have audit committees with a minimum size of three, with at least one member with accounting and financial expertise. Also, all committee members must be qualified for independent directors[1]. Thus, a larger audit committee would enable them to be more independent.

Controlling shareholders

The power of controlling shareholders is also one of the mechanisms at the firm level that this study aims to examine. The interdependence between audit committee and the degree of ownership concentration on the practice of AEM would provide a better understanding of corporate governance designed and functioned at the firm level. The degree of ownership concentration was measured by the percentage of shares held by the largest shareholder. This measure is in line with prior studies (Bao & Lewellyn, 2017; Kim et al., 2017).

Control variables

In addition to the variables of interest, primary control variables are added to the regression model to control for other factors that may influence the practice of AEM. First, firm size, which is measured by the natural logarithm of total revenues (Ln_REV) at the end of the fiscal year, will be controlled. Second,

[1] https://www.set.or.th/en/regulations/simplified_regulations/AC_ID_p1.html

financial leverage, as measured by the debt to assets ratio (DA), will be controlled. Third, this study will control for firm performance, which is proxied by the lagged return on assets ratio (Lag_ROA). Fourth, the number of independent directors on board (IB) is controlled.

Finally, the type of audit firm will be controlled. This variable is measured by using a dummy variable (BIG4) where the value is equal to 1 if the audit firm is a member of the Big 4 and 0 if it is not. The Big 4 is defined as PricewaterhouseCoopers, Ernst & Young, Deloitte Touche Tohmatsu, and KPMG. The abovementioned control variables are consistent with key control variables documented in the EM literature (Kim et al., 2017). All variables are concluded as shown in Table 2.

Research Method

To test the interaction effect of audit committees and controlling shareholders on EM, this research draws a logical assumption by following deductive reasoning and implementing the quantitative technique, namely, moderating regression as a primary tool to analyze the data. Typically, moderating regression is one of crucial analytical approaches applied in previous research for understanding the conditions in which the links between variables change. By including moderating variable or interaction term, researchers can determine how the degree or direction of an explanatory variable's effect on a dependent variable varies across contexts or conditions. This method provides deeper insights into complicated linkages in business organizations (Aguinis & Gottfredson, 2010). Following prior studies (Oh et al., 2016; Panayi et al., 2021), this technique with the marginal effect would allow this study to examine the conditional effect where the effect of audit committee on AEM is conditional as a function of controlling shareholders and vice versa. The moderating regression model is as follows:

$$\begin{aligned} AEM_{it} = {} & \beta_0 + \beta_1 AUD_{it} + \beta_2 CS_{it} + \beta_3 (AUD_{it} * CS_{it}) + \\ & \beta_4 IB_{it} + \beta_5 BIG4_{it} + \beta_6 DA_{it} + \beta_7 Ln\_REV_{it} + \\ & \beta_8 Lag\_ROA_{it} + \text{Industry Dummies}_k + \\ & \text{Year Dummies}_t + \varepsilon_{it} \end{aligned} \quad (2)$$

Where: AEM=Accruals-based earnings management proxied by the absolute value of discretionary accruals from Modified Jones Model; AUD=The size of the audit committee; CS=The percentage of shares held by the largest shareholder; IB=The number of independent directors on board; BIG4=1 if the audit firm is a Big 4 member, 0 if otherwise; DA = Debt to assets ratio; Ln_REV=The natural logarithm of total revenues; Lag_ROA=The lagged value of return on assets

Results and Discussion

Descriptive Statistics

Descriptive statistics of dependent and explanatory variables are presented in Table 3 and Table 4. The mean of AEM, measured by the absolute value of discretionary accruals, is 0.0585 or approximately 5.85 percent of lagged total assets. Also, the mean of CS is about 29.47 percent indicating that the biggest shareholder held significant power over the firm. As mentioned in the literature, the concentration of ownership has been a significant characteristic of firms in emerging markets, including Thailand (Dinh & Calabrò, 2018). In addition to ownership concentration, most of the firms in this dataset (99.63%) nominated three members for their audit committee, whereas only 0.37 percent of total observations proposed more than three members on this committee as reported in Table 4. This is in line with the requirement introduced by SET and might be attributed to the higher costs caused by larger committee sizes. Descriptive statistics of control variables are reported

Table 2 Variable abbreviation and measurement

Variable	Abbreviation	Measurement
Accruals-based earnings management	AEM	The absolute value of discretionary accruals from Modified Jones Model
Audit Committee	AUD	The size of the audit committee
Controlling Shareholders	CS	The percentage of shares held by the largest shareholder
Independent directors	IB	The number of independent directors on board
Type of audit firm	BIG4	1 if the audit firm is a Big 4 member, 0 if otherwise
Financial leverage	DA	Debt to assets ratio
Firm size	Ln_REV	The natural logarithm of total revenues
Firm performance	Lag_ROA	The lagged value of return on assets

in Table 3 and Table 5. Specifically, the number of independent directors on a board is roughly 4 (Mean 4.1613), as shown in Table 3. Moreover, the mean of DA is around 45 percent, as presented in Table 3, indicating that on average firms within this dataset significantly rely on debt financing for asset acquisition. The mean for firm size represented by Ln_REV in Table 3 is 22.1595, with average revenue about 16 million Thai Baht. The mean of Lag_ROA is 0.0318, indicating that on average firms in this study performed profitably. Finally, the frequency of BIG4 reported in Table 5 confirms that most Thai listed firms (65.69%) were audited by BIG4.

Correlation Analysis

Table 6 illustrates the correlation coefficients between two variables. Initially, correlation analysis was performed to check whether multicollinearity exists between explanatory variables. According to Table 6, the highest correlation coefficient is 0.392, which is lower than 0.400 (Bao & Lewellyn, 2017). Thus, the multicollinearity issue does not exist in this case.

Table 3 Descriptive statistics

Variable	*M*	*SD*	p25	p75
AEM	0.0585	0.0531	0.0180	0.0816
CS	0.2947	0.1681	0.1765	0.3725
IB	4.1613	1.1570	3.0000	5.0000
DA	0.4508	0.2105	0.2870	0.6125
Ln_REV	22.1595	1.4824	21.1942	23.0539
Lag_ROA	0.0318	0.0737	0.0028	0.0714

Table 4 Audit committee size

Number of Audit Committee	Freq.	Percent	Cum.
3	1,359	99.63	99.63
4	5	0.37	100.00
Total	1,364		

Table 5 Type of auditor

Type of Auditor	Freq.	Percent	Cum.
Non-BIG4	468	34.31	34.31
BIG4	896	65.69	100.00
Total	1,364		

Table 6 Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) AEM	1.000							
(2) AUD	0.005	1.000						
	(0.862)							
(3) CS	0.029	-0.010	1.000					
	(.264)	(.700)						
(4) IB	-0.089*	0.046	0.001	1.000				
	(.001)	(.092)	(.982)					
(5) BIG4	-0.089*	-0.084*	0.220*	0.066*	1.000			
	(.001)	(.002)	(.000)	(.015)				
(6) DA	0.100*	-0.027	-0.049	0.084*	0.200*	1.000		
	(.000)	(.320)	(.073)	(.002)	(.000)			
(7) Ln_REV	-0.128*	-0.027	0.016	0.274*	0.392*	0.380*	1.000	
	(.000)	(.315)	(.557)	(.000)	(.000)	(.000)		
(8) Lag_ROA	-0.169*	-0.012	0.029	0.021	0.071*	-0.337*	0.211*	1.000
	(.000)	(.663)	(.282)	(.438)	(.009)	(.000)	(.000)	

Note: * $p < .05$.

Hypothesis Testing and Discussion

Regression analysis was performed to test the proposed hypothesis and the findings are reported in Table 7, where Model 1 is a partial model and Model 2 is a conditional model. Statistically, these two models are significantly different. The partial model shows the direct effect of AUD or CS on AEM by holding other explanatory variables in Model 1 constant. Despite not proposing the direct effect, Model 1 Table 7 adds informative findings. By holding other variables constant, there is no significant effect of AUD on AEM, as shown in Model 1 Table 7. As mentioned in the previous section, 99.63 percent of firm-year observations included in this dataset proposed three members on an audit committee. Thus, the values of AUD are almost constant within the panel and it might not be able to explain the change in AEM. Additionally, the effect of CS is positively significant ($p < .10$) on AEM. This is, by holding other things equal, the increase in the percentage of shares held by the largest shareholder leads to the higher AEM, supporting the expropriation. On top of the direct effect of AUD and CS on AEM, Model 2 Table 7 illustrates the conditional effect of such variables on AEM. According to the proposed conditional hypothesis, the coefficient of AUD*CS (coefficient= -18.696 $p<.05$) shown in Model 2 Table 7 confirms the interaction between audit committees and controlling shareholders and its conditional effect on AEM. Thus, H_1 is accepted in this case. To understand the interdependence between these two governance mechanisms and their conditional effect, the marginal effects need to be performed and visualized (Kingsley et al., 2017). Specifically, marginal effects will illustrate the effect of AUD on AEM as a function of CS and vice versa.

Table 7 Regression analysis

Variables	Model 1 AEM	Model 2 AEM
AUD	.015	-.539**
	(0.638)	(-2.298)
CS	.016*	-.052*
	(1.858)	(-1.736)
AUD*CS		-18.696**
		(-2.374)
IB	-.003*	-.003*
	(-1.945)	(-1.956)
BIG4	-.007**	-.007**
	(-2.044)	(-2.023)
DA	.022**	.022**
	(2.508)	(2.542)
Ln_REV	-.003***	-.003***
	(-2.812)	(-2.820)
Lag_ROA	-.088***	-.087***
	(-3.972)	(-3.935)
Constant	.089	.136***
	(1.201)	(5.522)
Industry Dummies	Yes	Yes
Year Dummies	Yes	Yes
Observations	1,364	1,364
Adjusted *R*-squared	0.073	0.076

Note: This table illustrates the partial and conditional effects of audit committees and controlling shareholders on the absolute value of the discretionary accruals.). *t*-statistics in parentheses ***$p<.01$, **$p < .05$, *$p < .10$

Figure 1 demonstrates the effect of AUD on AEM as a function of CS while holding other things constant. Specifically, the marginal effects of AUD were run from the low level of CS to its high value. The effect of AUD on AEM is significantly positive when the CS is low, as shown in Figure 1. However, when the level of CS is higher, the positive effect of AUD on AEM is less pronounced. Eventually, the effect of AUD on AEM becomes negative when CS is high. Inversely, if the marginal effects of CS on AEM were run as a function of AUD, similar findings were found as visualized in Figure 2. Specifically, the effect of CS on AEM is

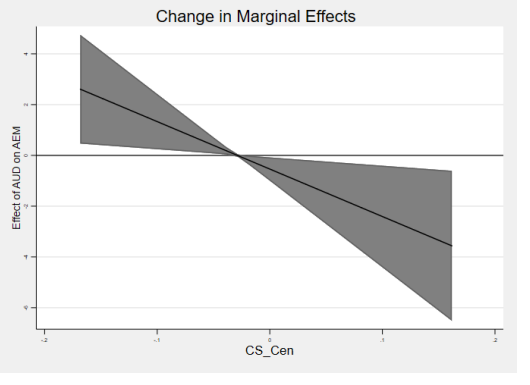


Figure 1 The marginal effects of AUD on AEM as a function of CS

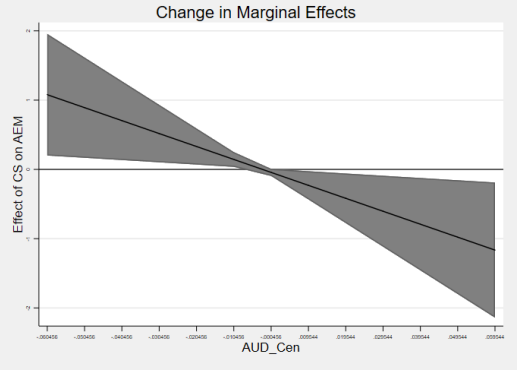


Figure 2 The marginal effects of CS on AEM as a function of AUD

positive when the audit committee is small, but the effect of CS on AEM is less pronounced as the size of the audit committee increases. Finally, the effect of CS on AEM is negative when AUD is high. Overall, such findings support the conditional hypothesis and certify the contingency framework in which governance mechanisms work collectively as bundles. Essentially, the findings reported in this study support the notion of governance bundles proposed in the existing literature (Desender et al., 2013; García-Castro et al., 2013; Kumar & Zattoni, 2013). Specifically, the complementary effect between audit committee and controlling shareholders to curb the practice of earnings management is discovered in this case. The increase in audit committee size, which indicates their independence and effectiveness, is likely to limit the practice of earnings management when ownership concentration is higher. However, a bigger audit committee may not yield an optimistic outcome in firms with dispersed ownership as supported by this study's findings. This is because individual investors in widely held companies have little incentive, and also, power (Isakov & Weisskopf, 2014) to monitor other governance mechanisms at the firm level. Accordingly, the costs of having a bigger audit committee in such companies are likely to exceed benefits. In addition, an alternative interpretation is that controlling shareholder is unlikely to engage in earnings management when an audit committee is bigger. The findings indicate that the practice of earnings management is likely when controlling shareholders gains more power throughout their shareholding as documented in the literature (Bao & Lewellyn, 2017; Nguyen et al., 2021). However, such a positive link deteriorates when the size of audit committee is bigger. It implicitly indicates that the balance of power between audit committee and the controlling shareholders is needed in firms with ownership concentration. Therefore, firms with highly concentrated ownership should be required to have more members on the audit committee in response to offset the power of controlling shareholders. In addition, all control variables included in the regression model significantly link with AEM as illustrated in the main analysis. First, IB has a negative link with AEM ($p < .10$), meaning that AEM is unlikely in firms with more independent directors on board. This is in line with the notion documented in the literature that independent directors are one of the crucial aspects to monitor management and reduce agency costs (Chen et al., 2007). Similarly, the degree of AEM is lower in firms audited by the BIG4, as shown by the significance of BIG4 in Table 7. The coefficient is negative (0.007) and significant at the 0.05 level. Such findings support the argument that big audit firms have more significant resources and thus play an active role in monitoring financial reporting (Viana et al., 2022). In addition, AEM is positively linked with firm leverage captured by DA ($p < .05$). The debt covenant hypothesis is supported here, and the findings are in line with prior research (Lazzem & Jilani, 2018) whereas, the findings reported in Table 7 show that the size of the firm, Ln_REV, has a negative link with AEM ($p<.01$). Such indicates that AEM is less when the firm size is bigger as documented in the literature (Kim et al., 2017). Finally, the lagged performance proxied by Lag_ROA negatively links with AEM. Implicitly, firms with performance pressure are likely to engage in AEM, which is similar to prior evidence (Kim et al., 2017).

Robustness Tests

Table 8 reports the findings of robustness tests performed to ensure the robustness of findings reported in Table 7. Specifically, Model 1 Table 8 illustrates the findings by removing data for the Year 2020 due to the impact of COVID-19. This pandemic has been mentioned as the exogenous shock that influences organizations, as well as the practice of EM (Lassoued & Khanchel, 2021). Therefore, the practice of EM is likely to be abnormal and unique to some extent in such a year and might complicate the analysis. There are 1,020 observations after dropping observations from the Year 2020. Although the sample size is reduced, the interaction between AUD and CS captured by the significant coefficient of AUD*CS ($p < .05$) to influence AEM holds constant, as reported in Model 1 Table 8. Accordingly, the findings from the robustness test by dropping the Year 2020 are comparable with the findings reported in the main analysis. Additionally, Model 2 Table 8 presents the findings by applying Performance-Matched Discretionary Accruals (Kothari et al., 2005) as an alternative proxy of AEM. Such a discretionary model control for ROA or lagged ROA is to reduce the effect of extreme financial performance. The significant coefficient of AUD*CS is constant whereas the alternative model of discretionary accruals is applied. This indicates that the findings of the interdependence of AUD and CS to influence AEM reported in the main analysis are robust over alternative proxies of AEM.

Table 8 Robustness tests

Variables	Model 1 AEM	Model 2 AEM_2
AUD	-.575**	-.587**
	(-2.448)	(-2.370)
CS	-.067**	-.050
	(-1.992)	(-1.573)
AUD*CS	-20.683**	-20.428**
	(-2.525)	(-2.456)
IB	-.003*	-.002
	(-1.823)	(-1.560)
BIG4	-.006	-.003
	(-1.561)	(-0.795)
DA	.030***	.024***
	(2.932)	(2.624)
Ln_REV	-.004***	-.004***
	(-2.706)	(-3.341)
Lag_ROA	-.077***	.052**
	(-3.025)	(2.234)
Constant	.139***	.140***
	(4.853)	(5.390)
Industry Dummies	Yes	Yes
Year Dummies	Yes	Yes
Observations	1,020	1,364
Adjusted *R*-squared	0.086	0.059

Note: This table reports the findings for robustness tests by dropping observations from the Year 2020 (Model 1) and alternative proxy of earnings management (Model 2). t-statistics in parentheses. ***$p < .01$, **$p < .05$, *$p < .10$

Conclusion and Recommendation

This study aims to investigate the interdependence between governance mechanisms at the firm level and how such interdependence affects AEM. Drawing upon the contingency framework of governance bundles, this study proposed that governance mechanisms do not function exclusively. In contrast, such mechanisms can be complemented or substituted for each other due to their correlated roles and related costs, although their goals are aligned (Oh et al., 2016). The revealing of corporate governance interdependence would provide a better understanding of governance functions (Oh et al., 2016; Panayi et al., 2021). Hence, this research contributes valuable insights to corporate governance literature. In summary, the findings of this study support the concept of governance bundles. The interaction effect between audit committees and controlling shareholders to curb the practice of earnings management are discovered in this case. This interaction is crucial in understanding how audit committees and controlling shareholders function together as a bundle. The increase in audit committee size is needed to limit the practice of earnings management in firms with ownership concentration. In particular, the findings reveal that earnings management is more likely to occur when a controlling shareholder gains greater power throughout their shareholding. However, the effect of controlling shareholder towards earnings management is weakened as the number of the audit committee increases. It implies that a balance of power between an audit committee and the controlling shareholders is required in firms with high ownership concentration.

The findings reported in this study are crucial for regulators, especially in emerging markets where ownership concentration is the concern. For instance, listed companies in Thailand are required to have at least three members on an audit committee, and, as reported by the descriptive statistics, most of the firms in this dataset (99.63% of firm-year observations) follow such requirements without providing extra members due to its costs. According to the findings, having the same size of audit committees for firms with different levels of ownership concentration may be problematic. Inversely, the size of an audit committee should vary in response to the level of ownership concentration, as suggested by the findings. This highlights the concept of no one size fits all for governance arrangements (Oehmichen, 2018). Instead, regulators should consider governance regulations based upon the contextual characteristics such as firm characteristics, industry specifics, and national settings. Thus, this research offers practical contributions as well as theoretical contributions.

Limitations and Future Research Suggestion

This study proposed an interaction effect between audit committee and ownership concentration as a governance bundle for earnings management. However, there will be diverse interaction effects among other corporate governance components that future research can investigate, such as external auditors, independent boards of directors, and internal control systems. Different combinations of governance aspects may have diverse impacts on firm outcomes. On the other hand, this study focused on AEM; future research can also look into real earnings management. Because these two practices are distinct in nature, the interaction effect of the same governance bundle on such dissimilar earnings management may differ as well. Finally, moderating regression was applied in this research to test the conditional hypothesis while future research can consider an alternative method such as fuzzy set analysis (García-Castro et al., 2013). The findings from such a qualitative comparative analysis would complement the findings uncovered by this study.

Conflict of Interest

There is no conflict of interest.

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References

Aguinis, H., & Gottfredson, R. K. (2010). Best-practice recommendations for estimating interaction effects using moderated multiple regression. *Journal of Organizational Behavior*, *31*(6), 776–786. https://doi.org/10.1002/job.686

Al Farooque, O., Buachoom, W., & Sun, L. (2020). Board, audit committee, ownership and financial performance–emerging trends from Thailand. *Pacific Accounting Review*, *32*(1), 54–81. https://doi.org/10.1108/PAR-10-2018-0079

Alhmood, M., Shaari, H., Al-Dhamari, R., & Sani, A. U. A. (2023). Does ownership concentration matter for the relationship between CEO characteristics and real earnings management: evidence from Jordan. *EuroMed Journal of Business*. *19*(4), 752–780. https://doi.org/10.1108/EMJB-09-2022-0155

Almarayeh, T., Abdullatif, M., & Aibar-Guzmán, B. (2022). The role of audit committees in mitigating earnings management: evidence from Jordan. *Journal of Accounting in Emerging Economies*, *12*(5), 882–907. https://doi.org/10.1108/JAEE-09-2020-0235

Awuye, I. S. (2022). The impact of audit quality on earnings management: Evidence from France. *Journal of Accounting and Taxation*, *14*, 52–63. https://doi.org/10.5897/JAT2021.0514

Bao, S. R., & Lewellyn, K. B. (2017). Ownership structure and earnings management in emerging markets-An institutionalized agency perspective. *International Business Review*, *26*(5), 828–838. https://doi.org/10.1016/j.ibusrev.2017.02.002

Bilal, Chen, S., & Komal, B. (2018). Audit committee financial expertise and earnings quality: A meta-analysis. *Journal of Business Research*, *84*, 253–270. https://doi.org/10.1016/j.jbusres.2017.11.048

Chen, K. Y., Elder, R. J., & Hsieh, Y.-M. (2007). Corporate Governance and Earnings Management: The Implications of Corporate Governance Best-Practice Principles for Taiwanese Listed Companies. *Journal of Contemporary Accounting & Economics*, *3*(2), 73–105. https://doi.org/10.1016/S1815-5669(10)70024-2

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *Accounting review*, 193–225. http://www.jstor.org/stable/248303

Demirkan, I., Yang, Q., & Jiang, C. X. (2019). Corporate entrepreneurship of emerging market firms: current research and future directions. *New England Journal of Entrepreneurship*, *22*(1), 5–30. https://doi.org/10.1108/NEJE-04-2019-0024

Desender, K. A., Aguilera, R. V., Crespi, R., & GarcÍa-cestona, M. (2013). When does ownership matter? Board characteristics and behavior. *Strategic Management Journal*, *34*(7), 823–842. https://doi.org/10.1002/smj.2046

Dinh, T., & Calabrò, A. (2018). Asian Family Firms through Corporate Governance and Institutions: A Systematic Review of the Literature and Agenda for Future Research: Asian Family Firms. *International Journal of Management Reviews*, *21*. 50–75 https://doi.org/10.1111/ijmr.12176

El-Feel, H. W. T., Mohamed, D. M., Amin, H. M., & Hussainey, K. (2024). Can CSR constrain accruals and real earnings management during the COVID-19 pandemic? An international analysis. *Journal of Financial Reporting and Accounting*, *22*(1), 79–104. https://doi.org/10.1108/JFRA-06-2023-0307

Enomoto, M., Kimura, F., & Yamaguchi, T. (2015). Accrual-based and real earnings management: An international comparison for investor protection. *Journal of Contemporary Accounting & Economics*, *11*(3), 183–198. https://doi.org/10.1016/j.jcae.2015.07.001

Fan, J. P. H., & Wong, T. J. (2002). Corporate ownership structure and the informativeness of accounting earnings in East Asia. *Journal of Accounting and Economics*, *33*(3), 401–425. https://doi.org/10.1016/S0165-4101(02)00047-2

García-Castro, R., Aguilera, R. V., & Ariño, M. A. (2013). Bundles of Firm Corporate Governance Practices: A Fuzzy Set Analysis. *Corporate Governance: An International Review*, *21*(4), 390–407. https://doi.org/10.1111/corg.12024

Isakov, D., & Weisskopf, J.-P. (2014). Are founding families special blockholders? An investigation of controlling shareholder influence on firm performance. *Journal of Banking & Finance*, *41*, 1–16. https://doi.org/10.1016/j.jbankfin.2013.12.012

Kim, J., Kim, Y., & Zhou, J. (2017). Languages and earnings management. *Journal of Accounting and Economics*, *63*(2), 288–306. https://doi.org/10.1016/j.jacceco.2017.04.001

Kingsley, A., Noordewier, T., & Bergh, R. (2017). Overstating and understating interaction results in international business research. *Journal of World Business*, *52*(2). 286–295. https://doi.org/10.1016/j.jwb.2016.12.010

Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, *39*(1), 163–197. https://doi.org/10.1016/j.jacceco.2004.11.002

Kumala, R., & Siregar, S. V. (2021). Corporate social responsibility, family ownership and earnings management: the case of Indonesia. *Social Responsibility Journal*, *17*(1), 69–86. https://doi.org/10.1108/SRJ-09-2016-0156

Kumar, P., & Zattoni, A. (2013). How much do country-level or firm-level variables matter in corporate governance studies? *Corporate Governance: An International Review*, *21*(3), 199–200. https://doi.org/10.1111/corg.12025

Kury, K. W. (2007). Decoupled earnings: An institutional perspective of the consequences of maximizing shareholder value. *Accounting Forum*, *31*(4), 370–383. https://doi.org/10.1016/j.accfor.2007.09.003

Kusnadi, Y., Leong, K. S., Suwardy, T., & Wang, J. (2016). Audit committees and financial reporting quality in Singapore. *Journal of Business Ethics*, *139*(1), 197–214. https://doi.org/10.1007/s10551-015-2679-0

Lassoued, N., & Khanchel, I. (2021). Impact of COVID-19 Pandemic on earnings management: An evidence from financial reporting in european firms. *Global Business Review*, 09721509211053491. https://doi.org/10.1177/09721509211053491

Lazzem, S., & Jilani, F. (2018). The impact of leverage on accrual-based earnings management: The case of listed French firms. *Research in International Business and Finance*, *44*, 350–358. https://doi.org/10.1016/j.ribaf.2017.07.103

Martin, G. P., Wiseman, R. M., & Gomez-Mejia, L. R. (2019). The interactive effect of monitoring and incentive alignment on agency costs. *Journal of Management*, *45*(2), 701–727. https://doi.org/10.1177/0149206316678453

Mitchell, W. C. (2024). Business cycles. In M. Boianovsky (Ed.), *Business cycle theory, Part II: Volume 8* (pp. 225–241). Routledge.

Nguyen, H. A., Lien Le, Q., & Anh Vu, T. K. (2021). Ownership structure and earnings management: Empirical evidence from Vietnam. *Cogent Business & Management*, *8*(1), 1908006. https://doi.org/10.1080/23311975.2021.1908006

Nikulin, E. D., Smirnov, M. V., Sviridov, A. A., & Bandalyuk, O. V. (2022). Audit committee composition and earnings management in a specific institutional environment: the case of Russia. *Corporate Governance: The International Journal of Business in Society*, *22*(7), 1491–1522. https://doi.org/10.1108/CG-01-2021-0011

Oehmichen, J. (2018). East meets west—Corporate governance in Asian emerging markets: A literature review and research agenda. *International Business Review*, *27*(2), 465–480. https://doi.org/10.1016/j.ibusrev.2017.09.013

Oh, W.-Y., Chang, Y. K., & Kim, T.-Y. (2016). Complementary or Substitutive Effects? Corporate Governance Mechanisms and Corporate Social Responsibility. *Journal of Management*, *44*(7), 2716–2739. https://doi.org/10.1177/0149206316653804

Panayi, E., Bozos, K., & Veronesi, G. (2021). Corporate governance "bundles" and firm acquisitiveness. *Corporate Governance: An International Review*, *29*(4), 402–426. https://doi.org/10.1111/corg.12371

Persons, O. (2006). Corporate governance in Thailand: What has been done since the 1997 financial crisis? *International Journal of Disclosure and Governance, 3*(4), 288–305. https://doi:10.1057/palgrave.jdg.2040084

Rediker, K. J., & Seth, A. (1995). Boards of directors and substitution effects of alternative governance mechanisms. *Strategic Management Journal*, *16*(2), 85–99. http://www.jstor.org/stable/2486913

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics*, 42(3), 335–370. https://doi.org/10.1016/j.jacceco.2006.01.002

Saleem Salem Alzoubi, E. (2016). Ownership structure and earnings management: evidence from Jordan. *International Journal of Accounting & Information Management*, *24*(2), 135–161. https://doi.org/10.1108/IJAIM-06-2015-0031

The Stock Exchange of Thailand. (2024). *Independent director and audit committee*. https://www.set.or.th/en/listing/listed-company/simplified-regulations/maintaining-status/audit-committee

Vera-Muñoz, S. C. (2005). Corporate governance reforms: Redefined expectations of audit committee responsibilities and effectiveness. *Journal of Business Ethics*, *62*(2), 115–127. http://www.jstor.org/stable/25123650

Viana, D. B. C., Jr., Lourenço, I., & Black, E. L. (2022). Financial distress, earnings management and Big 4 auditors in emerging markets. *Accounting Research Journal*, *35*(5), 660–675. https://doi.org/10.1108/ARJ-06-2021-0165

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The politics of Cannabis: Policies and their impact on youth: A case study in Phitsanulok province, Thailand

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Abstract

This study utilizes qualitative research methods to examine the political aspects of cannabis legalization in Thailand, with an emphasis on its effects on youth in Phitsanulok Province after the drug policy changes implemented in 2021. The data collection process included a thorough examination of pertinent documents, literature, and interviews conducted with four primary groups: government officials, educators, youth representatives, and community members. Semi-structured interviews and content analysis were employed to collect and analyze findings. The research indicates that the cannabis legalization policy in Thailand was developed through political negotiations under the administration of Prime Minister Prayut Chan-o-cha. The recent policy change, especially the decision to remove cannabis from the controlled substances list, has initiated considerable social discourse. Cannabis presents acknowledged medical advantages; however, the current regulatory framework falls short in effectively overseeing its recreational use. The temporary guidelines issued by the Ministry of Public Health have been inadequate, leading to greater access and usage among young individuals, which negatively impacts their health, education, and family dynamics. Additionally, legal loopholes impede efficient state oversight. The study highlights the critical necessity for thorough legislation, particularly the swift enactment of the Cannabis and Hemp Act. Recommendations encompass enhanced packaging and advertising regulations, initiatives to raise public awareness regarding legal risks, and measures aimed at safeguarding youth. The implementation of these measures is essential for addressing social impacts, harmonizing cannabis regulation with national drug policies, and promoting a balanced approach to cannabis use in Thailand.

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Introduction

The removal of cannabis off Thailand's drugs list has sparked a debate over its suitability and raised worries about the adverse effects of cannabis consumption. Several nations have initiated pilot programs to evaluate the use of cannabis for recreational reasons, although several others continue to impose regulations on it (Thai PBS, 2022). At present, several countries have completely legalized cannabis, while 69 countries, including 36 percent of 193 nations, have partially legalized it. Examples include Canada, Uruguay, Georgia, and South Africa, which possess legislation permitting the use of cannabis for both medicinal and recreational uses (Thai Post, 2022). Currently, the United States and several other nations authorize the use of cannabis for medicinal and recreational uses under conditions or inside designated states. Moreover, projections indicate that by 2025, the global medicinal cannabis industry may attain a valuation of 1.9 to 2.1 trillion baht. Considering this circumstance, researchers express apprehension over the potential societal difficulties that may emerge from permitting the use of "recreational cannabis" (Pankaeo, 2022). The cannabis legalization policy was a primary platform of the Bhumjaithai Party during the March 2019 general election for the House of Representatives in Thailand. The Bhumjaithai Party declared their campaign slogans: "Thai cannabis may be cultivated freely" and "A poverty-reducing plant, a new economic crop, unrestricted cannabis" (Pankaeo, 2022). The primary focus of the strategy proposed by the Bhumjaithai Party was to highlight cannabis as an economic crop and to advance medicinal expertise. This policy was enacted following the Bhumjaithai Party's coalition with the Palang Pracharath Party, led by Prime Minister General Prayuth Chan-o-cha, with Anutin Charnvirakul of the Bhumjaithai Party appointed as Minister of Public Health. Subsequently, it became well recognized by the public as the "free cannabis policy" (Kanjanasiripan, 2022; Lertbamrungchai, 2023). The authors indicate that the present availability of free cannabis is influenced by political factors that facilitate access to political power and negotiation, culminating in the establishment of the free cannabis policy. This has sparked a societal debate concerning the regulation of cannabis trade and usage, following its removal from the state's drug legislation.

Concerning the issue of cannabis and youth in Phitsanulok province, data from the Northern Youth Health Promotion Network and the Young Phitsanulok Forum, in conjunction with the Child and Youth Council, child, youth, family organizations, and civil society entities in the lower northern region, convened a forum entitled "Youth and Cannabis... Trends, Issues, and Solutions" (The Coverage Movement, 2022; Thammajai, 2022). The panel emphasized that the removal of cannabis off the narcotics list, along with the absence of regulatory legislation, has resulted in uninformed youngsters experimenting with cannabis. This encompasses inadvertent ingestion via food, where the quantity of Tetrahydrocannabinol (THC) remains unspecified. Furthermore, children and adolescents lack a comprehensive understanding of the advantages and disadvantages of cannabis, yet they are procuring and using it independently, so endangering themselves and society. The 2022 annual report from the Phisanulok Provincial Health Office indicates that hazards associated with cannabis for adolescents encompass production, particularly due to the illicit cultivation of narcotic plants in the Phrom Phiram, Wang Thong, and Chat Trakan districts. The primary narcotic plants comprise kratom and fresh cannabis. Drug proliferation persists in the community or Heartland regions, notably in Phitsanulok city and Bang Rakam district. The prominent substances include methamphetamine, cannabis, crystal meth, and inhalants. Between 2014 and 2021, over 4,389 individuals had therapy. From 2014 to 2021, the overall number of teenagers aged 12–24 who were addicted to drugs reached 4,769, including 463 individuals particularly hooked on cannabis (Noosorn & Petchpoom, 2016; Phitsanulok Provincial Public Health Office, 2022; Puanpanwong, 2024).

This research study was done to address the problem of cannabis legalization and its effects on children, as outlined in the preceding discussion. This study analyzes the effects of cannabis legalization on teenagers in Phitsanulok Province subsequent to the alterations in drug policies and legislation in 2021.

Objective

1. The aim is to analyze the situation regarding cannabis issues in the political dimension under the legalization of cannabis policy following the changes in drug policies and laws in the year 2021.

2. The aim is to examine how the legalization of cannabis affects young people in Phitsanulok Province, Thailand, after the changes in drug policies and laws in 2021.

Literature Review

For the literature review and related research in this study, the authors conducted a survey to provide an overview of previous research on cannabis legalization policies, both within Thailand and internationally. This examination aims to clarify how this study aligns with or differs from existing research on this topic. The author's findings are summarized as follows.

The literature review in this study explores the political dimensions of cannabis policy, both in Thailand and internationally, to provide insight into past research on cannabis legalization. Key studies reveal both support for and opposition to cannabis policy shifts, reflecting diverse political interests and ideological motivations. Srisukshayoakul (2021) argues that Thailand's cannabis policy aims to attract electoral support by positioning cannabis within public health and economic frameworks, especially promoting medical cannabis and agricultural development. In contrast, Pankaeo (2022) views the Bhumjaithai Party's "free cannabis" slogan as a populist strategy to gain electoral prominence, offering a unique political appeal and positioning the party as critical to forming a coalition government. Although Bhumjaithai's policies originally promoted cannabis as a major economic crop, their implementation shifted to medical use due to government constraints. Jae-o and Techophisanwong (2021) take a broader view in their study on cannabis myths and public knowledge, describing how state-driven narratives have framed cannabis as a dangerous drug since 1925. This ideological stance has influenced public perception and policy, casting cannabis as a controlled substance and reinforcing negative stereotypes through various institutions. Chusakulnitisin (2011) and Kammul and Dansikaew (2019) addresses cannabis policy from a political economy perspective, identifying four main interest groups: medical, recreational, political, and economic cannabis advocates. She suggests that Thailand's regulatory approach, including the Ministry of Public Health's continued designation of cannabis as a narcotic, reflects a complex power dynamic involving public, private, and community interests. The study also considers foreign perspectives. Lenton (2004) highlights the role of political actors in cannabis law reform in Western Australia, while Riboulet-Zemouli et al. (2021) emphasize the World Health Organization's involvement in re-evaluating cannabis as a controlled substance. Adams et al. (2021) examine how the emerging cannabis industry influences policy by lobbying for legal reforms, supporting NGOs, and collaborating with academia in New Zealand.

This review reflects that cannabis policy is closely tied to political agendas across different contexts. Consequently, this study synthesizes these insights to analyze Thailand's free-cannabis policy after the 2021 drug policy reform, with a focus on the policy's political, economic, and social impacts, especially on youth in Phitsanulok. It further examines government measures, educational initiatives, and community involvement in managing youth risks related to cannabis legalization.

Methodology

This research article utilizes qualitative research methodology. The aim of this study is to provide a political science framework that analyzes governmental measures, educational institutions, and civil society involvement in mitigating and reducing risks to youth in Phitsanulok Province associated with the effects of cannabis legalization policy following the 2021 modifications in drug policy and legislation. The research process encompasses: (1) the gathering of pertinent documentary and literature sources, including official documents, books, relevant literature, research reports, textbooks, research articles, and peer-reviewed academic journals; (2) fieldwork data collection, which involves conducting in-depth interviews. The Human Research Ethics Committee of Pibulsongkram Rajabhat University, Thailand, reviewed and granted approval for this study on December 5, 2023, under ethics approval code PSRU-EC No.: 2023/046.

Participants

The authors identified a total of 34 participants, categorized into three groups, utilizing purposive sampling based on criteria pertinent to their roles in connection with this study, with each participant voluntarily consenting to provide information. The participant groups included: (1) seven government officials, (2) nine representatives from educational institutions, (3) nine community youth representatives, and (4) nine members from the community.

Data Collection

The authors utilized an interview form for data collection, employing an in-depth interview approach with a semi-structured format. The interview questions were customized for each participant group, enabling adjustments in the interview guide based on the distinct

roles of the informants. The study also included secondary data derived from a comprehensive review, synthesis, and analysis of multiple sources, such as documents, books, pertinent literature, research reports, textbooks, research articles, peer-reviewed academic journals, and relevant materials from both public and private sectors.

Data Analysis

The analysis of data was performed through content analysis, involving a comprehensive examination of interview data, field notes, and synthesized information from relevant documents and research studies, utilizing methodological triangulation. This method facilitated the categorization, selection, and synthesis of data gathered from interviews, notes, and literature review of pertinent research. The findings were subsequently presented in a descriptive manner, offering a comprehensive narrative of the content and insights obtained from the research (Pounpunwong, 2023).

Results

Analyze The Situation Regarding Cannabis issues in The Political Dimension Under the Legalization of Cannabis Policy Following the Changes in Drug Policies and Laws in The Year 2021

This study's findings indicate that the ongoing cannabis legalization movement in Thailand is situated within a political context characterized by the pursuit and negotiation of political power. The implementation of cannabis legalization under the Prayut Chan-o-cha administration has sparked significant social debate concerning the regulation of cannabis, especially regarding its sale and usage. In light of the recent removal of cannabis from the state's list of controlled substances, this policy direction has been established. The author presents the findings in the following manner:

1) The cannabis legalization policy was officially initiated in 2019, with the Bhumjaithai Party utilizing it as a central component of their election campaign (Pankaeo, 2022). The policy advocated for cannabis as a promising economic crop for Thailand, drawing inspiration from international research on the medical advantages of cannabis and acknowledging Thailand's favorable conditions for its cultivation, which produces potent and beneficial extracts. As a result, the policy promoted government backing for cannabis cultivation for medical purposes, commonly referred to as the "Cannabis Legalization" policy, featuring the slogans 'The Crop to End Poverty for Thai People' and 'Cannabis: The New Economic Crop.' The policy was officially announced by Bhumjaithai Party Secretary-General Saksayam Chidchob on January 17, 2019, drawing inspiration from similar policies implemented in the United States (Bakal, 2023). In Thailand, households will be allowed to cultivate up to six cannabis plants, primarily aimed at supporting medical use through this legislation. In the meantime, various political parties have proposed policies concerning both medical and recreational cannabis use. The Democratic Party endorses the use of medical cannabis, while the Future Forward Party (Currently, the People's Party) advocates for cannabis for medical, tourism, and recreational applications. The Pheu Thai Party has concentrated on advancing hemp as an economic crop, emphasizing its medical applications rather than cannabis use. The Commoner's Party has put forward a more progressive cannabis policy, advocating for unrestricted cannabis cultivation and permitting market forces to dictate pricing (Kraiwijit, 2019).

In 2019, the Bhumjaithai Party became part of the Cabinet, collaborating with the government of Prime Minister Prayut Chan-o-cha to advance the cannabis legalization policy as previously committed. Nonetheless, the implementation of the policy faced considerable criticism, attracting both support and opposition. In 2022, the Move Forward Party expressed criticism towards Bhumjaithai, specifically regarding its involvement in the Ministry of Public Health. The party accused Bhumjaithai of facilitating cannabis use beyond medical applications, suggesting that this could lead to more harm than benefit for the nation. Their argument centered on the management of cannabis legalization by the Minister of Public Health, which they claimed resulted in a 'legal vacuum' following the removal of cannabis from the list of controlled substances, consequently leading to unintended and improper uses of cannabis. The Move Forward Party put forward a new cannabis bill, highlighting the following key points: 1) Restoring cannabis to its status as a controlled substance and rescinding the Ministry of Public Health's directive that classifies cannabis as a controlled herb. Maintaining cannabis as a controlled substance while removing any provisions in the cannabis bill that support monopolistic practices by large corporations. The Move Forward Party maintains that cannabis should remain classified as a controlled substance, adhering to the UN Single Convention on Narcotic Drugs, while permitting regulated medical applications. A systematic approach to the utilization of cannabis will be developed under this framework (Move Forward Party, 2022).

If we consider the above context, we find that the cannabis policy under the Prayut administration demonstrated that the government took proactive steps to promote cannabis as a medicinal plant. They supported its cultivation, distribution, and possession, framing it as an important economic crop. They emphasized the significance of fostering an understanding of cannabis as a 'medicinal herb' that deserves protection and conservation, in conjunction with the promotion of traditional Thai medical practices (Krueangsanuk et al., 2023). Nevertheless, the policy sparked considerable dialogue. Advocates argued that cannabis presented more benefits than drawbacks, particularly in the medical field, and urged for regulatory structures similar to those in place for alcohol and tobacco. Critics emphasized concerns regarding cannabis misuse and noted that Thailand's healthcare system, which consists of three separate systems—modern medicine, traditional Thai medicine, and local folk medicine lacked the necessary cohesion for effective cannabis regulation, potentially leading to adverse outcomes for patients (The Provincial Public Health Officer of Phitsanulok, personal communication, March 11, 2024).

2) Thailand's Narcotics Code Act, 2021, and cannabis regulation (Mahidol University, 2021) permits the importation of cannabis for medical applications or patient care. Individuals permitted to utilize cannabis under this Act encompass: Government entities engaged in medical, pharmaceutical, scientific, or agricultural education and research; personnel delivering medical, pharmaceutical, scientific, or agricultural services for medical, pharmaceutical, or scientific objectives; and agencies accountable for drug prevention, suppression, and rehabilitation, patients in need of cannabis for critical treatment, alongside the stipulations outlined in the Narcotics Code Act of 2021, (Chiangrang & Muangtham, 2021). In her study, Henprasert (2023) identifies challenges in the enforcement of the Narcotics Code Act of 2021, emphasizing that the law alters the perception of cannabis users, recognizing them as patients rather than offenders. This change introduces ambiguity in enforcement practices; treating users as patients suggests an emphasis on rehabilitation rather than punishment. However, the treatment process is not clearly defined, resulting in a 'legal vacuum' where it is uncertain whether genuine rehabilitation efforts are being executed.

Furthermore, Cannabis legalization, highlighting the establishment of the Cannabis Institute. This institute operates to promote medical cannabis policy, working in conjunction with networks outside the Ministry of Public Health (Dontumprai et al., 2021). Three mechanisms have been identified in this approach: structuring regulations to facilitate implementation, conducting research, and disseminating accurate information (Dawrueang & Naluang, 2023). A dual-level development plan has been introduced, addressing both household and national levels, with strategies to integrate upstream, midstream, and downstream stages for cannabis production, distribution, and export (Hanphichai, 2021).

3) An Examination of the Draft Cannabis and Hemp Act: Risks to Youth in a Legal Void: This study analyzes the effects of Thailand's cannabis legalization on youth safety, highlighting the regulatory gaps present in the current Cannabis and Hemp Act. Chanthawongsa (2022) identifies two key issues arising from the removal of cannabis from the Narcotics Code: the enhancement of public freedom and the safeguarding of youth. Freedom relates to economic opportunities for the public and businesses through cannabis; however, safety concerns emerge due to risks such as second-hand smoke, inadvertent consumption of cannabis-infused products, and health issues for vulnerable groups including children and adolescents (Khongcharoensombat, 2019; Wiriyanupappong & Watcharasit, 2023).

The absence of thorough cannabis regulations presently facilitates significant youth access, resulting in a rise in recreational use rather than medical purposes (iLaw, 2022). The Royal College of Pediatricians of Thailand reports a tenfold increase in cannabis use among youth since legalization, with cannabis flower buds being openly sold and easily accessible to individuals under 20 (Atsanangkornchai et al., 2023; Eowratnavadi, 2020). The Ministry of Public Health has issued announcements to address cannabis-related nuisances; however, these temporary measures do not possess the necessary scope to guarantee comprehensive protection for youth.

Four essential factors influence youth accessibility: (1) home cultivation with inadequate restrictions, (2) insufficient packaging controls, (3) minimal advertising regulations, and (4) lack of public possession limits. Local authorities indicate that in the absence of regulatory guidelines, young individuals often encounter cannabis products in settings that do not ensure secure handling or oversight (The Provincial Public Health Officer of Phitsanulok, personal communication, March 11, 2024). Field data indicate that recreational cannabis use is prevalent among youth in both urban and rural settings, with students frequently consuming cannabis in conjunction with other substances such as kratom. Reports from the Deputy Governor of Phitsanulok highlight that current access has expanded beyond medical oversight,

indicating that cannabis has transitioned into a social substance rather than remaining a regulated treatment (Phitsanulok Provincial Office, 2023).

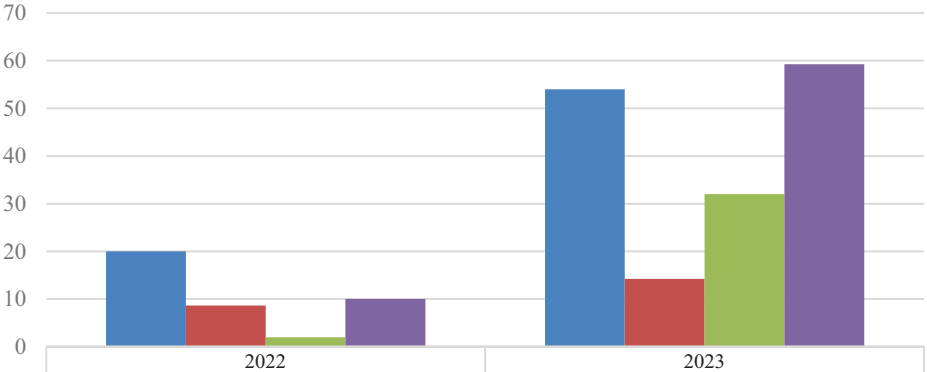
The authors argues that although cannabis legalization aims to capitalize on the economic and health advantages of the plant, insufficient regulation increases risks for young individuals. Refining legislation is crucial for tackling these social impacts, igniting continuous public discourse regarding the potential reinstatement of cannabis under The Narcotics Code Act, 2021, accompanied by enhanced protections for youth (Director of the ONCB Region 6 Office, personal communication, February 22, 2024).

The Impact of The Cannabis Legalization Policy on Youth Following the Change in Drug Policies and Laws in 2021 in Phitsanulok Province, Thailand

The authors have found a legal gap arising from alterations in drug policy and legislation in 2021, specifically concerning juvenile access to cannabis. The investigation of the effects of the free cannabis policy on youth in Phitsanulok province has been necessitated by deficiencies and inadequacies in the legislation that have influenced young individuals as a result of the policy. The authors analyze the effects of the free cannabis policy on adolescents in Phitsanulok province, drawing from data obtained through interviews and official papers from pertinent authorities, in light of the alterations in drug policies and legislation enacted in 2021.

1) Health impacts: The authors examined the yearly data from the Phitsanulok Provincial Public Health Office, which revealed a rising trend in cannabis consumption among adolescents aged 11–20. This information, sourced from Phutthachinnarat Hospital in Phitsanulok Province, is presented in Figure 1.

Figure 1 illustrates that in 2022, 20 individuals received cannabis therapy, representing 8.65 percent of total drug usage. Two additional patients constituted 10 percent. In 2023, the number of individuals receiving cannabis therapy rose to 54, representing 14.23 percent of total drug usage, with 32 new patients, or 59.26 percent. The data indicate that the incidence of new teenage cannabis users quintupled following the implementation of The Narcotics Code Act, 2021, compared to 2022. The motivations encompass curiosity and the perception of legality, facilitating unrestricted use and emulation as a trend, resulting in collective usage and influence. The extensive accessibility of establishments offering smoking paraphernalia and cannabis has promoted the onset of cannabis consumption among adolescents. Moreover, there is an issue with previous cannabis users resuming consumption owing to its illicit status. In 2023, it was discovered that 72.31 percent of former users who had consumed cannabis for over a year resumed its usage. Upon discharge from hospital treatment and into an environment where cannabis is readily available, patients face triggers that hinder cessation, leading to elevated stress levels for their family (Phitsanulok Provincial Public Health Office, 2022).



	2022	2023
Therapy recipient	20	54
Percentage	8.65	14.22
New therapy recipient	2	32
Percentage2	10	59.26

Figure 1 The situation of cannabis uses among youth in Phitsanulok Province, Thailand is a matter of concern, Adapted from the Phitsanulok Provincial Public Health Office

Furthermore, concerning juvenile access to cannabis in Phitsanulok province, a study from the Office of the Narcotics Control Board, area six (Phitsanulok), reveals that the lower northern area serves as a major conduit for drug trafficking from adjacent nations and domestically. Consequently, a risk associated with kids engaging in cannabis use has been present since prior to the implementation of cannabis legalization policies. In this region, underground recreational cannabis consumption has already occurred, particularly in the periphery. Between 2018 and 2022, cannabis ranked as the second most utilized substance after methamphetamine among drug users in Phitsanulok province, as seen by the subsequent statistics on cannabis users as shown in Table 1 (The District Chief Officer of Mueang Phitsanulok District, personal communication, March 15, 2024).

Table 1 The data for cannabis users in Phitsanulok province 2019–2023

Cannabis	2019 (people)	2020 (people)	2021 (people)	2022 (people)	2023 (people)
	118	129	102	68	46

Note: the authors

The data on cannabis users in Table 1 are inconsistent with the report from the Phitsanulok Provincial Public Health Office. This is due to the free cannabis policy established by the modifications in drug-related legislation in 2021, which reclassified cannabis as a non-narcotic. The primary regulating agency has transitioned from the Narcotics Control Office Region six (Phitsanulok) to the Phitsanulok Provincial Public Health Office. The aforementioned backdrop about cannabis usage statistics and the resultant health risks among youngsters, whether deliberate or inadvertent, pertains to the consumption of cannabis and cannabis-infused food items. The symptoms of cannabis therapy, as administered by the Phitsanulok Provincial Public Health Office from 2022 to 2023, indicate that addressing young cannabis addiction is very challenging and may need up to 14 days, in contrast to methamphetamine treatment. Prevalent health effects encompass drastic fluctuations in blood pressure, palpitations, changed mental states, hallucinations, both aural and visual, paranoia, and abrupt cognitive deterioration, which profoundly disrupts the brain, particularly in persons under 25 years of age. These health effects influence both physical and emotional well-being (Phitsanulok Provincial Public Health Office, 2022). Concerning educational institutions' perspectives on the health effects on adolescents, it is observed that in Phitsanulok Province, the utilization of cannabis for recreational reasons is categorized into two instances: 1. Urban regions, where cannabis accessibility is constrained by stringent regulatory oversight and its popularity is inferior to that of e-cigarettes. 2. In rural regions, interviews with school principals throughout several districts of Phitsanulok indicate that access to cannabis is derived from families and communities where it is cultivated and utilized as a normative practice, grounded in the traditional belief in the therapeutic benefits of plants. The interviews reveal that the health effects on kids present as lethargy and even hostile conduct in academic environments (The Principal of a School in Mueang District, Phitsanulok Province, personal communication, February 29, 2024).

2) The influence on education, derived from interviews with representatives of educational institutions, may be encapsulated in two instances: Adolescents hooked to cannabis exhibit a lack of enthusiasm in academic pursuits. In schools situated in the border regions of Phitsanulok province, it was observed that adolescents engage in cannabis usage, a behavior influenced by their familial and environmental contexts. Cannabis is readily available, as it is frequently grown within the community (Community youth representatives, personal communication, 2024). The state's inadequate regulation and the youth's view of cannabis as a plant rather than a drug exacerbate this problem. Youth in the districts of Chat Trakan, Nakhon Thai, Sappraiwan, and Wang Thong exhibited cannabis usage that impaired their ability to attend school, resulting in tiredness and violent conduct, as well as a fear of instructors and potential reporting by classmates to the school authorities (Principal, School in Mueang District, Phitsanulok Province, personal communication, 2024). Furthermore, the study interviews revealed that in instance 1, the influence of cannabis on adolescent education has compelled certain institutions to mandate that children either pause their studies or withdraw from school to get therapy. In scenario two, inside the realm of schools and educational institutions in the Muang district of Phitsanulok province, teenage behavior is characterized by the purchasing and selling of cannabis, as well as its concurrent use with other substances, including e-cigarettes and traditional cigarettes (The District Chief Officer of Mueang Phitsanulok District, personal communication, March 15, 2024). There are also concerns with congregating in rooms to use cannabis alongside other business networks, including the network of underage alcohol vendors engaged in prostitution (Director of the ONCB Region 6 Office, personal communication, February 22, 2024). Consequently, as a result of this lifestyle cycle,

several youths have disengaged from the educational system. These youths emphasize immediate financial gain over schooling, engaging in activities such as e-cigarette sales, online gambling, and prostitution (The Principal of a School in Mueang District, Phitsanulok Province, personal communication, February 29, 2024).

3) Family Impact**:** Interviews with representatives from schools and pertinent authorities in Phitsanulok province reveal a consensus. The proliferation of cannabis due to the liberal cannabis policy in Phitsanulok, especially its recreational usage, has a notable effect on the kids in the region the family unit. Parents and relatives of the kids often consume cannabis, frequently in conjunction with other narcotics, particularly across several districts. Interview findings suggest that the rationale for utilizing cannabis as a drug stem from the perception of cannabis as a natural remedy (Community youth representatives, personal communication, February 29, 2024). Consequently, when parents consume and produce cannabis at home, it prompts adolescents, who are predisposed to experiment with addictive drugs, to seize the chance to try it out of curiosity and imitative behavior. The ramifications of the cannabis legalization policy for teenagers, after the alteration of drug-related legislation in 2021 in Phitsanulok province, are that cannabis has been declassified as a narcotic. This has prompted certain parents to utilize cannabis, directly impacting the kids (Community members, personal communication, February 29, 2024). When adolescents engage in cannabis usage, the issue then reverts to the parents, who are compelled to seek therapy for the youngster, leading to forfeited educational possibilities. This ultimately results in several familial troubles, including financial difficulties, training and discipline challenges, criminal activities, and theft-related concerns, among others (The Principal of a School in Mueang District, Phitsanulok Province, personal communication, February 29, 2024).

Additionally, an examination of the effects of the cannabis legalization policy on youth following the alteration of drug policy and law in 2021 in Phitsanulok province reveals that social and cultural factors play a significant role in shaping the trend of cannabis use among young individuals. In conclusion, data gathered from interviews with pertinent agencies revealed the following issues. 1) Changes in social perception of cannabis: Following the legalization of cannabis, its societal image underwent a transformation, with favorable perceptions being shaped by media narratives and governmental policies that advocate for cannabis as both an economic asset and a medicinal resource. This change has resulted in some young individuals misinterpreting that cannabis is entirely legal and can be utilized for recreational purposes without any limitations. 2) The influence of family and community environment: The family plays a significant role in shaping youth behavior, particularly in contexts where parents or adult family members engage in cannabis use. This could result in young individuals being influenced and more inclined to engage in experimentation. In Phitsanulok province, access to cannabis has become more straightforward due to the presence of shops offering smoking equipment and cannabis products within the community, fostering an environment that may encourage cannabis consumption among young individuals. 3) The values and culture of peer groups: Young individuals are frequently impacted by their peers, especially in relation to engaging in risky behaviors like drug use. Peer pressure significantly influences youth to initiate cannabis use, particularly when such behavior is regarded as "acceptable" among friends or as a means of expressing social identity. Values associated with social acceptance and openness among certain youth groups may drive them to use cannabis as a means of connecting with peers or seeking validation (The Provincial Public Health Officer of Phitsanulok, personal communication, March 11, 2024).

The findings of this research indicate that social and cultural factors influence the trend of cannabis use among the youth in Phitsanulok Province. These factors underscore the necessity for enhanced regulatory measures to avert and address potential long-term effects on the youth.

Discussion

The Policy Regarding Cannabis Legalization Analyzing the 2021 Drug Policy Reform: Perspectives from the Political Aspect

This study examines cannabis legalization policy within the framework of political science, utilizing interest group and political party theories to assess the impact of key actors in policy formation. Interest groups, as articulated by scholars including Almond (1996), Easton (1957), Nimphanich (2004), and Apapirom (1999), are organizations formed around shared objectives and interests; however, they differ from political parties in that they do not aim to govern. Instead, their objective is to shape government policy to reflect their interests. This framework is essential for comprehending the political, economic, and social aspects of cannabis policy,

especially as it underscores the influence of political interests on the legalization of cannabis as a policy agenda.

The Bhumjaithai Party prominently featured cannabis legalization as a key campaign issue in the 2019 general elections. In its coalition role within the Prayut Chan-o-cha administration, Bhumjaithai promoted medical cannabis and cannabis cultivation, integrating these initiatives into the government's priority policies. On September 13, 2019, the party submitted two bills to parliament: an amendment to the Narcotic Drugs Act and a bill to establish a Thai Cannabis Institute, referred to as the "Six Plants Policy," aimed at permitting households to cultivate cannabis (Pankaeo, 2022). This development highlights the impact of political dynamics and interest groups on the formulation of cannabis policy. Following the implementation of The Narcotics Code Act, 2021, numerous government decrees have advocated for the potential advantages of cannabis. In 2022, cannabis was officially removed from the narcotics list and classified as a controlled herb by the Ministry of Public Health. These developments demonstrate a progression in Thai drug law, indicating a transition toward the legalization of cannabis. This study is consistent with Brans (2012) framework in Comparative Public Administration, recognizing political parties as institutionalized interest groups. Bhumjaithai, in conjunction with other parties such as Move Forward, Commoners, and the Democrats, has leveraged cannabis legalization as a campaign strategy. However, Bhumjaithai has emerged as the most vocal and prominent advocate for cannabis-related policies in its capacity at the Ministry of Public Health. This is consistent with the theories proposed by Rattanamongkolmas (1971), Friedrich (2017), and Finer (1941) regarding the significant roles of interest groups and political parties. It indicates that interest groups play a crucial role in shaping policy within democratic societies through advocacy and lobbying efforts. From a policy standpoint, cannabis has transitioned from criminalization to being recognized as a valuable medical resource. Eowratnavadi's (2020) research highlights the reframing of cannabis within political discourse as a medical asset, which has contributed to diminishing its criminal stigma and advancing decriminalization efforts (Photitan, 2007). The change in public discourse has enabled political parties to leverage medical cannabis as a campaign strategy, presenting it in a way that aligns with the public's healthcare priorities.

Upon examining the literature regarding cannabis policy after 2021, it is evident that cannabis continues to be a politically sensitive issue, functioning as both a strategic advantage for political parties and a significant concern for the public. The economic and social dimensions, along with global comparisons of cannabis policy, highlight important implications for health, the economy, and society (Pankaeo, 2022). This research is consistent with the work of Srisukshayoakul (2021), which suggests that political motives drive cannabis policy as a strategy to gain electoral support by addressing public health concerns. This contrasts with the study by Jae-o and Techophisanwong (2021) on cannabis myths, which uncovers the political and ideological motivations that have influenced historical state representations of cannabis as a harmful substance. The stigma surrounding cannabis, perpetuated by legal, medical, educational, and media institutions, has cast it in a negative light for decades.

This research, drawing on literature from political science, underscores that the cannabis policy, in its role as both a campaign issue and a medicinal substance, is closely linked to political agendas. The political framing of cannabis legalization has resulted in a range of public responses, both supportive and critical, highlighting the complex interplay of political influence, public health discussions, and societal values in Thailand.

The Influence of The Cannabis Legalization Policy on Adolescents Subsequent to The Alterations in Drug-Related Regulations and Legislation in 2021 in Phitsanulok Province.

The authors choose to employ the principles of policy implementation. The execution of the policy and public service indicates that public service operations would prioritize the welfare and safety of the populace. The principal entities involved in delivering public services are government agencies and authorities tasked with formulating policies for such services, as elucidated by Reeder (1971), Van Meter and Van Horn (1975), Rondinelli, Nellis, and Cheema (1983), Pressman and Wildavsky (1984), Goodnow (2017), Dimock (2008), and O'Toole et al. (2018). The explanation asserts that policy implementation is varied; nonetheless, the unifying aspect is the acts undertaken to fulfill the objectives of public policy. This entails transforming the objectives stated in the policy, which may encompass legislation or governmental or cabinet directives, into guidelines, plans, programs, or tangible actions to facilitate execution. In summary, policy implementation is varied; yet the unifying aspect is the activities undertaken to fulfill the objectives of public policy. This involves converting the objectives outlined in the policy, which may consist

of statutes or governmental or cabinet directives, into guidelines, plans, programs, or tangible actions to facilitate practical implementation. When evaluated in conjunction with the study's findings about the impacts of the liberal cannabis policy on children after the 2021 changes in drug policies and laws, it reveals a predominance of negative consequences over good ones. This is derived from the contents of The Draft Cannabis and Hemp Act (Office of the Narcotics Control Board, Ministry of Justice, 2022). Despite the Narcotic Drugs Code Act, 2021 reclassifying cannabis and hemp as non-narcotic substances, regulatory measures must remain in place to facilitate the development of cannabis for medicinal purposes while prohibiting its recreational use and consumption. Consequently, The Draft Cannabis and Hemp Act, encompasses legislation, systems, growing guidelines, and several methods of use (Brommanan, 2009; Supachai & Boonkham, 2017).

Research findings reveal that the policy on cannabis legalization and its effects on adolescents, after the alterations in drug policies and regulations in 2021, arise from political variables influencing policy creation. The execution of the cannabis legalization policy, as indicated by research findings, fails to correspond with the notion of policy implementation, since the fundamental principle of this concept is that public policy objectives aim to enhance quality of life, encompassing aspects such as employment, income, health, and welfare. Nonetheless, the cannabis legalization strategy and its execution contain legal ambiguities. The Draft Cannabis and Hemp Act has been determined to insufficiently safeguard children and youth, prompting concerns over its societal ramifications, as the government is unable to regulate cannabis usage as a narcotic. The Draft Cannabis and Hemp Act retains ambiguous provisions, resulting in societal apprehensions, affecting youth, and promoting the recreational use of cannabis over its medicinal application, which contradicts the principles of policy formulation and implementation.

A review of literature and research concerning the effects of cannabis legalization policy on youth, subsequent to the alterations in drug policies and laws in 2021 in Phitsanulok Province, indicates that the repercussions of the cannabis legalization policy on youth are predominantly negative rather than positive. The research findings align with the work of Lohlekha (2022), which elucidates the implications of the cannabis liberalization policy on the health of children and adolescents, as it may influence their brain development. This aligns with Hamontree's (2018) research, which highlights the correlation between cannabis use among youth and the cannabis liberalization policy, revealing a decline in the average age of individuals in Ang Thong province engaging in risky drug use behavior, especially among those aged 12–15 years. The research findings on this matter contrast with the studies conducted by Jitnamthap and Wiwatworapan (2010), who examined the risky behaviors of teenagers in Mueang district of Nakhon Ratchasima province, and the Youth Network Against Cannabis (YNAC), which concentrated only on health-related concerns.

Conclusion and Recommendation

This study reveals that the liberalization of cannabis in Thailand has been profoundly influenced by political motivations, as examined through a political science perspective. The Bhumjaithai Party first introduced this policy as a campaign commitment during the 2019 general election, positioning it as an issue of medical autonomy and economic potential. Following the party's assumption of governmental responsibilities, efforts to promote cannabis legalization increased, with the policy framed as a progressive approach to public health and agricultural development. The political implications are complex, reaching far beyond the scope of public health. The policy has received a mix of support and criticism, highlighting the inherent tension between economic liberalization and public safety. The recommendations emphasize the importance of a balanced approach that considers both the socio-economic benefits and the long-term social impacts on Thai youth. Policymakers are advised to proceed with caution concerning cannabis liberalization until there is enhanced legislative clarity and well-defined regulatory frameworks in place.

The study highlights the importance of the Thai government adopting a comprehensive approach to cannabis policy, prioritizing the protection of youth. The subsequent recommendations are provided for your consideration: 1. Strengthen Youth Protection Measures: Implement stringent packaging and advertising regulations to ensure cannabis products do not appeal to youth, similar to the regulations established for tobacco and alcohol. Furthermore, establish age limitations and limit public possession to deter recreational use. 2. Enhance Public Awareness: Develop educational programs in schools and communities to inform youth and parents about the potential risks associated with cannabis use. Furthermore, develop awareness campaigns that emphasize the legal restrictions and potential penalties related to misuse, especially in rural and

suburban regions where cannabis usage rates are higher. 3. Address Legal Deficiencies through Comprehensive Legislation: Accelerate the passage of the Cannabis and Hemp Act, ensuring it includes thorough regulations on cultivation, packaging, distribution, and public use, with a strong emphasis on safeguarding youth. Furthermore, 4. Integrate Cannabis Regulation with Broader Drug Control Policies: Position cannabis within the framework of national drug policy and prevention strategies to improve alignment with Thailand's public health and safety priorities.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References

Adams, P. J., Rychert, M., & Wilkins, C. (2021). Policy influence and the legalized cannabis industry: learnings from other addictive consumption industries. *Addiction*, *116*(11), 2939–2946. https://doi.org/10.1111/add.15483

Almond, G. A. (1996). Political science: The history of the discipline. *A new handbook of political science*, (75–82),

Apapirom, A. (1999). *Introduction to political science.* Bangkok: Odeon Store.

Atsanangkornchai, S., Thaikla, K., Taleh, M. F., Phailikli, S., Charoenrat, S., & Saeng-ngam, D. (2023). *Study project on the situation of medical cannabis use in Thailand*. Health Systems Research Institute.

Bakal, W. (2023). Legal measures to control the use of Cannabis after legalization in Thailand. *Journal of social science for local Rajabhat Mahasarakham university*, *7*(1), 328–337. https://so02.tci-thaijo.org/index.php/soc-rmu/article/view/258133

Brans, M. (2012). Comparative public administration: from general theory to general frameworks. *The SAGE handbook of public administration. London: SAGE Publications*, 511–532.

Brommanan, N. (2009). *Administrative law principles regarding public services*. Bangkok: Winyuchon.

Chanthawongsa, J. (2022). How to regulate Cannabis legalization for maximum safety for children and youth. https://www.the101.world/cannabis-legalization-and-youth/

Chiangrang, W., & Muangtham, W. (2021). Guidelines for control cannabis use in Thailand. *Journal of Social Academic Chiang Rai Rajabhat University*, *14*(2), 20–35. https://so04.tci-thaijo.org/index.php/social_crru/article/download/253318/173837/938656

Chusakulnitisin, C. (2011). *The political economy of legal issues in cannabis regulation in Thailand*. [Unpublished master dissertation]. Chiang Mai University

Dawrueang, A., & Naluang, S. (2023). Legal measure pertaining to control marijuana for recreation use. *Journal of Modern Learning Development*, *8*(11), 97–111. https://so06.tci-thaijo.org/index.php/jomld/article/view/263226

Dimock, W. C. (2008). *Through other continents*. Princeton University Press.

Dontumprai, P., Panma, P., Norkaew, M., & Bodeerat, C. (2021). Free cannabis as A medical plant. *Journal of Roi Kaensarn Academi*, *6*(1), 184–198. https://he01.tci-thaijo.org/index.php/unc/article/view/261106

Easton, D. (1957). An approach to the analysis of political systems. *World Politics, 9*(3), 383–400. https://doi.org/10.2307/2008920

Eowratnavadi, A. (2020). *The discourse of "cannabis" in Thai society: cannabis as a narcotic or medical cannabis*. [Unpublished master dissertation]. Chulalongkorn University.

Finer, H. (1941). Administrative responsibility in democratic government. *Public administration review*, *1*(4), 335–350. https://doi.org/10.2307/972907

Friedrich, C. J. (2017). Corruption concepts in historical perspective. In *Political Corruption* (pp. 15–24). Routledge.

Goodnow, F. J. (2017). *Politics and administration: A study in government*. Routledge.

Hamontree, E. (2018). The success of community in protection and solution of problem of youth risking to drug addiction in Angthong Province. *Journal of MCU Nakhondhat*, *5*(2), 434–451. https://so03.tci-thaijo.org/index.php/JMND/article/view/140541

Hanphichai, S. (2021). The studies on compare of legal measures on the advantages control of cannabis. *Journal of the Association of Researchers*, *26*(2), 51–68. https://so04.tci-thaijo.org/index.php/jar/article/view/251130

Henprasert, P. (2023). Challenges in the implement of the new narcotic drug laws: in accordance with the narcotic drugact, b.e. 2564. *Journal of MCU Nakhondhat*, *10*(11), 158–168. https://so03.tci-thaijo.org/index.php/JMND/article/view/273693

iLaw. (2022). *Draft Cannabis act: 146 days after cannabis liberalization, the Government and Parliament Still Struggle to Resolve Issues*. https://ilaw.or.th/node/6301

Jae-o, F. & Techophisanwong, A. (2021). *Cannabis myths, communication, knowledge, and beliefs in Thai society: A case study of users and stakeholders in Nakhon Si Thammarat*. Songkhla: Center for Addiction Studies (CADS).

Kammul, S., & Dansikaew, S. (2019). Analysis of prevention approach for marijuana use by community participation. *Journal of Nursing and Therapeutic Care,* 37(3), 134–143. https://he01.tci-thaijo.org/index.php/jnat-ned/article/view/219729

Kanjanasiripan , K. (2022). Policy promotion of cannabis cultivation in Thailand and legalization. *Journal of Buddhist Anthropology*, *7*(2), 530–545. https://so04.tci-thaijo.org/index.php/JSBA/article/view/252055

Khongcharoensombat T. (2019). Cannabis - from past to present. *Thai JPEN Journal*. *2*(27), 1–7. https://he02.tci-thaijo.org/index.php/ThaiJPEN/article/view/242058

Kraiwijit, A. (2019). Comparing the "marijuana" policy in the 2019 election battle. https://thestandard.co/thailandelection2562-marijuana-policy/.

Krueangsanuk, N., Wongmoolithikorn, N., Sribun, P., & Limmangkur, J. (2023). Political parties in pushing for cannabis plant policy under the concept of bioeconomy circular economy and green economy of the government of general prayut chan-o-cha. *Journal of Political Science Mahamakut Buddhist University*, *3*(4), 158–175.

Lenton, S. (2004). Pot, politics and the press—reflections on cannabis law reform in Western Australia. *Drug and alcohol review*, *23*(2), 223–233.

Lertbamrungchai, W. (2023). "Youth" victims of the free cannabis vacuum. https://theactive.net/read/cannabis-effect-youth/

Lohlekha, S. (2022). *Free cannabis: Opportunity or risk?*. https://www.doctor.or.th/article/detail/414880

Mahidol University. (2021). Narcotics Code Act B.E. 2564 and the Narcotics Code. https://www.si.mahidol.ac.th/th/division/regulationandlaw/rule_detail.asp?id=44

Move Forward Party. (2022). Statement of the Move Forward Party's Position on the Cannabis Control Bill. https://www.moveforwardparty.org/statement/16076/.

Nimphanich, J. (2004). *Policy analysis*. Nonthaburi: Sukhothai Thammathirat Open University.

Noosorn, N., & Petchpoom, J. (2016). Building participatory psychological immunity to reduce drug use risk among hill tribe children and youth by applying resilience principles against temptations in border areas of Tak Province. *EAU Heritage Journal Science and Technology*. *10*(3), 177–187. http://dx.doi.org/10.20546/ijcmas.2016.507.091

O'Toole, S., Maguire, J., & Murphy, P. (2018). The efficacy of exercise referral as an intervention for Irish male prisoners presenting with mental health symptoms. *International Journal of Prisoner Health, 14*(2), 109–123. https://doi.org/10.1108/IJPH-12-2016-0073

Office of the Narcotics Control Board, Ministry of Justice. (2022). *National policy and plan committee on the prevention, suppression, and resolution of drug problems (2023–2027)*. https://www.oncb.go.th/Home/Pages/ONCB_PLAN/Policyactionplan.aspx

Pankaeo, A. (2022). cannabis liberalization. http://wiki.kpi.ac.th/index.php?title=%E0%B8%81%E0%B8%B1%E0%B8%8D%E0%B8%8A%E0%B8%B2%E0%B9%80%E0%B8%AA%E0%B8%A3%E0%B8%B5

Phitsanulok Provincial Office. (2023). *Phitsanulok Provincial Development Plan (2023-2027)*. http://www2.phitsanulok.go.th/strategic

Phitsanulok Provincial Public Health Office. (2022). Drug treatment work for drug patients. https://cloud.plkhealth.go.th/index.php/s/DSaozqwLbpeDtoa#pdfviewer

Phitsanulok Provincial Public Health Office. (2022). *Drug treatment and rehabilitation for drug-dependent patients.* https://cloud.plkhealth.go.th/index.php/s/DSaozqwLbpeDtoa#pdfviewer

Photitan, W. (2007). *Basic concepts of democracy.* Nonthaburi: Training, Outreach, and Public Relations Office, King Prajadhipok's Institute

Pounpunwong, W. (2023). Situations, risks, considerations on the Thai state and drug-related youth problems: A case study of the lower northern provinces during 2019-2020. *RMUTSB Academic Journal (Humanities and Social Sciences)*, *8*(1), 61–76. https://so05.tci-thaijo.org/index.php/rmutsb-hs/article/view/262119

Pressman, J. L., & Wildavsky, A. (1984). *Implementation: How great expectations in Washington are dashed in Oakland; Or, why it's amazing that federal programs work at all, this being a saga of the Economic Development Administration as told by two sympathetic observers who seek to build morals on a foundation* (Vol. 708). University of California Press.

Puanpanwong, W. (2024). *Politics of cannabis: youth and the policy of marijuana legalization after changes in drug laws and regulations in 2021, A case study of Phitsanulok Province*. Bangkok: Centre for Addiction Studies (CADS), Department of Psychiatry, Faculty of Medicine, Chulalongkorn University.

Rattanamongkolmas, S. (1971). *Efficiency in public administration.* Bangkok: Bangkok Printing House.

Reeder, W. W. (1971). *Partial theories from the 25 years research program on directive factors in believer and social action*. McGraw-Hill.

Riboulet-Zemouli, K., Krawitz, M. A., & Ghehiouèche, F. (2021). History, science, and politics of international cannabis scheduling, 2015–2021. *Vienna: FAAAT editions*.

Rondinelli, D. A., Nellis, J. R., & Cheema, G. S. (1983). *Decentralization in developing countries* (World Bank Staff Working Paper No. 581). World Bank.

Ruangkanchanasetr, S., Plitponkarnpim, A., Hetrakul, P., & Kongsakon, R. (2005). Youth risk behavior survey: Bangkok, Thailand. *Journal of Adolescent Health, 36*(3), 227–235. https://doi.org/10.1016/j.jadohealth.2004.01.013

Jitnamthap, P. & Wiwatworapan, N. (2010). Youth risk behavior survey: Muang district, Nakhonratchasima, Thailand. *Journal of Health and Nursing Education*, 16(2), 51–64.

Srisukshayoakul, E. (2021). Cannabis in political. *Journal of the Association of Researchers*. *26*(2), 233–245. https://so04.tci-thaijo.org/index.php/jar/article/view/251808

Supachai, T., & Boonkham, S. (2017). Participatory development of home, temple, and school in problem-solving for young people within Phanom Sub-district Municipality, Phanom District. *Nakkhabut Paritat Journal,* 9(2), 154–166. https://so04.tci-thaijo.org/index.php/nakboot/article/view/105889

Thai PBS. (2022). Looking at the status of "cannabis" around the world. https://www.thaipbs.or.th/news/content/316449

Thai Post. (2022). '*Anusorn' points out that the world cannabis industry is worth enormous amounts. But Thailand may not be worth the health damage*. https://www.thaipost.net/general-news/164802/

Thammajai, A (2022). Poll expresses concern over youth in the era of cannabis liberalization. https://www.thaipost.net/one-newspaper/164837/

The Coverage Movement. (2022). 'Youth' begs the government to surround marijuana. Extract advertising-promotion-online recommend reviewing lessons from Alcohol-cigarette laws. https://www.thecoverage.info/news/content/4076

Van Meter, D. S., & Van Horn, C. E. (1975). The policy implementation process: A conceptual framework. *Administration & Society, 6*(4), 445–488. https://doi.org/10.1177/009539977500600404

Wiriyanupappong, K., & Watcharasit, R. (2023). Caring for children and adolescents in the context of Cannabis legalization: The role of community health nurses. Royal. *Thai Navy Medical Journal*, *50*(1), 218–233. https://he01.tci-thaijo.org/index.php/nmdjournal/article/view/262443

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How is coffee competitive for entrepreneurship in the rural tourism industry: Probability perspectives

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Abstract

This study examines the structure and competition of the ecosystem of the eastern Lombok regency coffee industry in Indonesia, with a particular focus on the intersection of tourism growth and the local coffee landscape. When a problem arises, coffee is explained in the context of one of the important monetary cultures of Indonesia, which, due to its rich biodiversity and suitable climatic conditions, has a high potential for coffee production. The research problem of this study is to understand the factors that contribute more to the positive strengthening of the competitiveness of coffee in the region. The study used a qualitative approach in which coffee growers and business owners, as well as members of the community, used a semi-structured interview method to obtain a lot of information based on their experiences and views. This study found evidence to support the notion that the cultural aspects of coffee drinking, which are inherent in both this region and its geography, are important in building a strong coffee industry in the country. It was concluded that improving the quality of coffee and taking advantage of opportunities related to the development of tourism can benefit the local economy while responding to the growing demand for Indonesian coffee both domestically and internationally. As this study shows, key players, including local authorities and coffee producing companies, should support quality improvement programs to get the most out of the high demand for coffee around the world, ultimately making Eastern Lombok a fierce competitor in the coffee market.

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Introduction

Coffee is Indonesia's leading commodity, able to absorb a lot of labor, create foreign currency for the country, and act as a source of income for farmers and other entrepreneurs engaged in growing, processing and marketing coffee beans. Coffee has a long history and is crucial for the development of the global economy including Indonesia. With its archipelago, Indonesia offers an ideal place to grow coffee plants (Ashardiono & Trihartono, 2024). The Indonesian location provides an optimal environment for the development and production of coffee. On the other hand, the complaints of coffee producers about access to financial support are not fully resolved. This obstacle prevents the acceleration of coffee trade transactions, both nationally and internationally. As a regulator, the government must unite coffee growers and provide infrastructure, technological assistance and training to reduce the shortage of coffee literacy. This practice is believed to increase farmers' added value economically.

The issue of coffee competitiveness in Indonesia is multifaceted, which includes a variety of factors such as climate change, market dynamics, government intervention, quality standards, and sustainability practices. Climate change poses a significant threat to coffee production in Indonesia, as studies have shown that changes in climate compatibility due to climate change can affect the production of Arabica coffee, the main variety cultivated in the country (Rahardjo et al., 2020). Despite this challenge, Indonesian coffee has been found to be highly competitive in the international market, with strong competitiveness, supported by indicators such as the revealed comparative advantage (RCA) and the Herfindahl index, which signal free competition and low market concentration. But the competitiveness of Indonesian coffee is not without fluctuations. While Indonesia has shown an increase in the competitiveness of the Robusta coffee market compared to major competitors such as Vietnam and India there are concerns about its ability to compete with countries such as Brazil, Vietnam, and Colombia on a global level. Factors such as price transmission mechanisms, export performance and market diversification play an important role in determining the competitiveness of Indonesian coffee.

To address these challenges and improve competitiveness, the Indonesian government plays an important role by focusing on various aspects such as production improvement, quality standards, human resource development, and cooperation with the private sector (Jazuli et al., 2022). In addition, sustainability practices, certification programs and the introduction of smart agricultural technologies have been identified as pillars to promote the competitiveness of Indonesian coffee and ensure long-term economic growth and poverty reduction.

Previous research has reviewed coffee, although the study design is not the same. Differences in terms of adoption of data analysis methods explain clearly how coffee is elaborated. An interesting study, for example, when viewed from the method examining food insecurity associated with seasonal hunger in the plains of Northern Nicaragua, used a combination of focus group discussion, observation, and interview. Their research examines the factors that cause seasonal hunger vulnerability, including price increases and rainfall, periodic storms and droughts, and insufficient coffee yields for operational costs (Ramli et al., 2021). Furthermore, research suggests coffee and its benefits on body health with an analysis of the effectiveness of coffee recycling system innovation. Based on the description of previous research, this research has a place among readers for several reasons. Methodologically, coffee probability analysis has not received much attention from researchers, especially in the tourism industry context. The existing literature has not found the same research concentration detailing how coffee opportunities survive in the tourism industry. This research is more convincing in terms of data because the data sources are collected from reliable cross-data, for example, coffee farmers, coffee holders, tourism communities, coffee connoisseurs, the central statistics agency, and several relevant data sources. This strength is also a robust research gap supported by the involvement of local community culture as a buffer determinant.

Literature Review

The Indonesian Coffee and its market

Indonesia is located in Southeast Asia and is well-known for its rich natural resources and diversity. Indonesia is a tropical country with a good climate and two seasons suitable for coffee: hot and rainy. Such strongly supports agricultural activities, so agriculture is one of the significant foreign exchange reserves. Indonesia's agricultural sector is relatively essential in improving the national economy. One of the farming subsectors that has an indispensable role in enhancing the national economy is the plantation subsector (Nugroho

et al., 2021). This subsector plays a significant role as the export value of the national plantation subsector commodity is higher than the import value of plantation commodities from the international market. In addition, the plantation subsector is one of the agricultural sector's subsectors that contributes to the value of exports in Indonesia's trade balance. The export value of the plantation subsector from 2013 through December 2021, reached 2,171 million USD.

The export commodity of the plantation subsector that plays an important role is coffee. Coffee has a long history and started to be introduced as a robust commodity in 1990 and it is essential for Indonesia's economic development. With its archipelagic countries, Indonesia provides an ideal place to grow coffee plants (Freitas et al., 2024). Indonesia's location provides an optimal environment for coffee development and production. Coffee is popular in everyday Indonesian consumption. Additionally, coffee is consumed worldwide and is successfully cultivated in several regions of Europe.

Methodology

Research Design

This study uses qualitative case design and focuses on the coffee sector in Indonesia's Eastern Lombok regency. Since its nature makes it possible to bring closer the experiences and perceptions of the participants and the socio-cultural aspects surrounding the process of producing and consuming coffee, the qualitative approach seems to be ideal for this study. The case study methodology allows for the analysis of the uniquely located coffee industry, and this makes it possible to evaluate the factors that increase the competitiveness of this industry.

Participants

The participants in this study were selected from individuals active in the coffee sector in Eastern Lombok. A total of 15 people were approached to participate among farmers, business owners, the coffee community, consumers and workers in the tourism sector. People who had a remarkable understanding and experience of making coffee and its importance to local culture were our main selection factors. A total of nine participants were included in the final sample, consisting of two business owners, three coffee growers, one coffee community member, one consumer and two from the tourism sector. Respondents were sourced through local social networks and community institutions, which ensured a variety of different perspectives in the coffee sector.

Data Collection and Procedure

Data were collected over a three-month period from January to March 2024 in several coffee-producing villages in the eastern part of the Lombok regency, specifically in the village of Sapiti and the Swela region. These places were chosen because they are of considerable interest in the cultivation of coffee and the specific socio-economic characteristics of the respective communities involved. The full address of the source data collection points is as follows:

The data collection lasted for three months, i.e. from January to March 2024, in several coffee production villages of the Eastern Lombok regency, i.e. specifically in the village of Sapiti and the Swela region. These locations were chosen because of their rich history of coffee cultivation and the unique socio-economic characteristics of the communities involved. The full address of the primary data collection points shall be provided as follows:

- Sapit Village, Swela District, East Lombok Regency, West Nusa Tenggara, Indonesia.

The data collection methods in this study included semi-structured interviews and participatory observation. Semi-structured interviews provided respondents with more in-depth information about their experiences, problems and views regarding coffee production and consumption. Each interview lasted about 45–60 minutes, and the interview was conducted in the local language so that participants could express their thoughts clearly and comfortably. The interviews were recorded, and the participants gave their consent to the recording of their voice, after which the data were transcribed for translations.

In addition to the interviews, observations of participants were conducted at community events and coffee-related activities that helped the researcher understand people's cultural practices and social relationships in relation to coffee. This approach provided contextual details that fully complemented the information provided in the questionnaires.

Sampling and Sample Size

In this study, the target sample was used as a method of data collection, which is important for a qualitative study, as it helps select people who are most likely to

have relevant information in the focus of the study. At first, there were 25 respondents who were found due to participation in the coffee sector. And then, after conducting preliminary interviews and screenings, only 20 people were considered eligible. Due to logistical problems, for example, when participants were away from the scene for interviews, the correct sample size was nine participants. This sample size is considered sufficient in qualitative studies, as it allows to maximize the topics and applicable perspectives of the Eastern Lombok coffee industry.

Data Analysis and Procedure

The data were analyzed thematically, which is a qualitative method of analysis related to the identification, analysis and interpretation of patterns in qualitative data. First of all, the scientist immersed himself in the data, transcribing the recorded interviews and getting acquainted with the transcripts in order to evaluate all the details contained in them. The researcher then tried to address research questions by deriving and encoding segments of transcriptions that seemed striking during interviews. In this way, these initial codes were formulated and later classified into topics that are more descriptive in nature, or at least more in line with respondents' perceptions of their experiences, aggregating similar codes and defining higher-level concepts. The processes described above made it possible to thoroughly verify and improve the topics studied so that they collect data reliably and can be reliably and consistently validated against the data. Each topic was thoroughly discussed and given a name that reflects and describes its contribution to answering research questions.

The analysis process has a final stage, which required its members to write a report summarizing the results. The report included quotes from some participants as examples of topics supporting the analysis. The whole process of data analysis took about four weeks, which indicates that the qualitative data were studied and interpreted significantly. The whole procedure was carried out using qualitative data analysis by experts (for example, NVivo), which helped to efficiently organize and encode information.

Results and Discussion

The participants in this study were carefully selected to provide a comprehensive overview of Lombok Timur's coffee industry. Initially, it was established that the group of 25 people was potentially eligible based on their participation in various aspects of the coffee sector. These included business owners, coffee growers, members of the coffee community, consumers, members of the tourism community, and locals who deeply understand coffee. In 20 of these cases, eligibility was verified through preliminary interviews and background checks to make sure they met the survey criteria (Tomaszewski et al., 2020). In the end, 15 persons were declared eligible. However, since people are out of the regions due to work, 6 of these people could not participate, leaving 9 participants in the final sample. These participants were then included in the study and monitored throughout the investigation period. Their knowledge and experience were analyzed to provide a diverse perspective on the coffee industry of Lombok Timur.

The final group consisted of two business owners, three coffee growers, one coffee community member, one consumer, one member of the tourist community and one local with extensive knowledge of coffee. Business owners gave an overview of the commercial aspects and market dynamics of coffee production and sales (Wright et al., 2024). Coffee growers shared their experiences and challenges in growing coffee, highlighting the practical aspects of growing coffee. A member of the coffee community shared information about local initiatives and community-based efforts to promote coffee culture. The consumer offered a perspective on coffee consumption habits and preferences. One participant in the tourism community discussed the intersection of coffee production and tourism and its impact on the local economy. Finally, the thorough local appreciation of coffee gave Lombok Timur's coffee its cultural significance and traditional customs. (Figure 1)

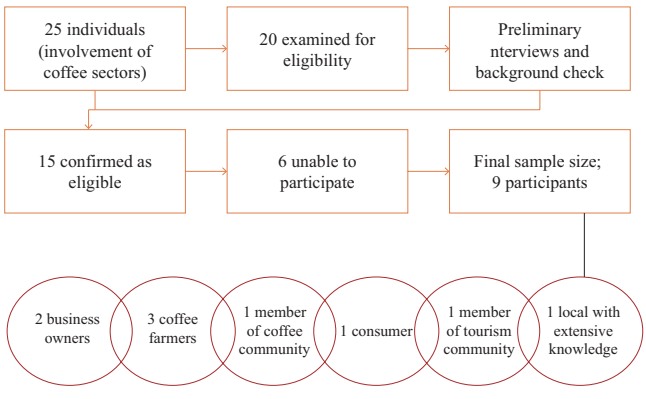


Figure 1 Participant selection

Capacity of Coffee Production of Lombok Farmers

The production of coffee in NTB on a quantitative basis is not as high as in the five provinces where the largest amount of coffee is produced in Indonesia (South Sumatra, Lampung, Northern Sumatra, Aceh, Bengkulu). Nevertheless, it is necessary to take into account the production of coffee products in the field of non-tariff barriers. Total coffee production in 2021 amounted to 5,822 tons of total planting area on 12,918 hectares (Sarvina et al., 2021). NTB ranks at least 14th as a region with coffee suppliers in Indonesia. The city of Mataram produces coffee from the entire NTB area, while others have different amounts of coffee. In addition, only the community is engaged in coffee production at NTB, and there are no large private and state plantations. Based on data collected by the NTB government through the NTB website, Satu's data showed that the province's largest coffee production came from the Sumbawa regency, where the total production of Robusta coffee reached 1979.94 tons in 2021, followed by the regencies of northern Lombok and central Lombok.

In addition, the production of Robusta coffee products is lower in the Lombok Timur region than in the three regions where the three largest coffee producers are located in NTB. As far as it is understood, robusta coffee has a place among people, because consuming coffee has long been an ingrained community behavior. Lombok Timur ranks fourth in the entire district; The volume of Robusta coffee production in Eastern Lombok in 2021 reached 389.21 tons. However, coffee production in the region is divided into robusta and arabica. Arabica coffee in NTB is grown only in two regions, namely, Dompu and Eastern Lombok (Magfirahti et al., 2021). The production of Arabica coffee reaches 558.5 tons, more than Robusta coffee. All in all, coffee production in Eastern Lombok is in second position, ahead of other regions. Arabica is one of the best types of coffee in Eastern Lombok Regency, as it is cultivated at an altitude of approximately 800 meters above sea level an elevation that is not found in many other regions of West Nusa Tenggara.

Robusta coffee is most consumed by local residents in Lombok Timur. Land allocation for planting two coffees with formations: Arabica, whose production area is 1,374 hectares, in contrast to Robusta produced on an area of 680 hectares. In addition, highland farmers prefer to grow Arabica coffee because of its price, which is relatively higher than Robusta coffee. Meanwhile, farmers living in the lowlands produce Robusta coffee. Although price is a major factor for farmers who grow Arabica coffee, few farmers claim that Robusta coffee is more profitable due to the more intensive harvest time, two to 4 times a year. Nationally, coffee production in western Nusa Tenggara (NTB) province is lower than among Indonesia's five largest coffee producers (Campuzano-Duque et al., 2021). The production capacity of NTB as a coffee supplier is still relatively low, because it is not the main concentration of most farmers. NTB's position as a national coffee supplier is in the 14th position. In 2021, NTB delivered 5,822 tons of coffee nationwide, which is much more than in the provinces of North Sumatra or Lampung. NTB farmers prefer to produce horticultural crops, rice and corn instead of coffee. This is based on the fact that the production is easier to market and the demand is higher. The demand for coffee from abroad may be high, but limited knowledge, experience, and less intensive collaboration between communities and governments make farmers ignorant.

The coffee production of Robusta and Arabica in Eastern Lombok coincides with the allotted land area. Robusta coffee has a harvesting capacity of 449.5 hectares, according to data released by the NTB government, and it successfully produces 389.21 tons. The land allocated for the cultivation of Arabica coffee is 1,610 hectares and provides 558.50 hectares, the productivity level is 3.47 percent. Lombok Timur robusta's coffee productivity is the highest among other regions, with a percentage index of 8.66, followed by the Dompu region with a percentage index of 8.03. In addition, in the lowlands there are farmers who grow robusta coffee. This is located in 5 districts: Aikmel, Sikur, Wanasaba, Suela and Masbagik. Judging from the accumulation of coffee production, Lombok Timur is a strategic part of meeting the need for coffee (Dagne & Birhanu, 2023). The region is the largest coffee producer in NTB province with the highest level of productivity in all regions. In terms of the type of coffee produced, East Lombok is the only region on the island of Lombok and one of the three NTB provinces with two types of coffee, robusta and arabica, and it is the largest producer—other regions focus on only one type, namely, robusta. In addition, coffee in parts of Eastern Lombok is currently predicted to increase coffee productivity. This is a good capital for the development of the coffee business in the region. (Table 1)

Table 1 Area, productivity, and production (ton) of Nusa Tenggara Barat Province 2015–2021

No	Region	2015			2016			2017			2018			2019			2020			2021		
		Area	Prod.	Production	Area	Prod.	Production	Area	Prod.	Production	Area	Prod.	Production	Area	Prod.	Production	Area	Prod.	Production	Area	Prod.	Production
1	Kota Mataram	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Lombok Utara	1,119.81	6.46	723.50	1,119.81	6.06	678.80	1,119.81	6.25	699.55	1,119.81	6.34	710.00	1,128.35	6.42	725.00	1,450.49	5.08	736.24	1,136.78	6.48	737.13
3	Lombok Barat	565.73	6.18	349.59	565.73	6.28	355.13	568.73	6.31	359.08	570.73	6.34	361.70	590.73	6.17	364.00	721.81	5.06	365.21	592.73	6.18	366.17
4	Lombok Tengah	631.95	6.31	398.90	667.19	6.51	434.10	486.71	7.34	357.21	705.57	5.52	389.46	777.44	5.91	460.00	1,264.58	4.58	579.40	982.20	7.18	705.48
5	Lombok Timur	466.50	3.34	155.76	443.50	3.22	142.88	443.50	3.10	137.37	374.50	3.17	118.66	424.50	4.34	184.00	680.00	5.40	367.15	449.50	8.66	389.21
6	Sumbawa Barat	23.00	60.61	139.40	23.00	13.85	31.86	260.00	6.07	157.85	260.00	6.07	157.85	260.00	5.68	148.00	341.00	4.33	147.70	251.00	5.84	146.53
7	Sumbawa	2,334.59	5.54	1,293.94	2,338.59	5.47	1,278.57	2,702.84	7.26	1,961.16	2,573.90	7.25	1,865.46	2,602.90	7.60	1,978.00	3,859.90	5.13	1,978.20	2,582.90	7.67	1,979.94
8	Dompu	795.36	6.92	550.31	805.81	6.92	557.99	823.07	6.84	563.37	958.95	6.79	650.80	995.40	6.71	668.00	1,317.40	4.41	580.34	982.36	8.03	788.80
9	Bima	911.90	4.90	446.80	911.90	5.00	455.75	886.65	3.81	337.94	886.65	3.14	278.38	886.65	3.14	278.00	1,040.40	2.76	287.30	1,352.20	2.54	343.50
10	Kota Bima	1.27	2.52	0.32	1.60	1.38	0.22	2.27	1.50	0.34	1.27	2.76	0.35	1.27	2.76	0.00	28.61	1.14	3.25	6.72	7.81	5.25
Total		6,850.11	5.92	4,058.52	6,877.13	5.72	3,935.30	7,293.58	6.27	4,573.87	7,451.38	6.08	4,532.66	7,667.24	6.27	4,805.00	10,704.19	4.71	5,045.00	8,336.39	6.55	5,462.00

Source: NTB one integrated data

Tourism and the Culture of Drinking Coffee

Tourism has been growing in West Nusa Tenggara for more than a decade and has brought economic benefits. The constant flow of visits to Lombok Island has a significant impact on the increase in the number of community businesses, such as coffee businesses. In tourist areas, coffee is an identity associated with local products that attracts tourists to buy as souvenirs or an authentic local experience (Kurniawan et al., 2023). This promotes the growth of a productive coffee business. Quoting one source from the interview session, it was said that:

"Tourism has really encouraged small businesses to live. We, the coffee growers here, feel that this tourism industry has helped us. There are many requests from outside the city and even from abroad that we cannot fulfill due to restrictions on coffee production (Kulyniak et al., 2021). It must be acknowledged that the current demand for coffee is not balanced with market demand."

Under the new regime, coffee was suspended due to the addition of food independence programs. The coffee was replaced by garlic and shallots, as is currently the case in the Semra subregion, which is the most potential Arabica coffee producer in the West Nusa Tenggara region. The arrival of tourism informs people that the demand for coffee in tourist destinations is very high, especially in the mountainous Simplon region. Cold weather continues to give coffee businesses room for demand (Hodacs, 2023). Upon further examination, coffee plants are supposedly intermediate cultures of plants, because they do not require much space. Other plants can grow side by side in one field. This reason later received serious attention from farmers in order to switch to planting coffee again. Some areas of Western Nusa Tenggara have begun to develop coffee tourism. The opportunities of the coffee business and the growth of tourism on the island of Lombok are in harmony and are growing positively. There is a very positive trend in tourism: cafes are blooming, and coffee has always been the main menu item. Business opportunities through coffee on the island of Lombok today are an enterprising fact. Although, so far, coffee production capacity has not been able to satisfy market demand, at least business opportunities through coffee are a good choice, given that tourism is a supportive system that cannot be separated from coffee.

In addition to cafes, the emergence of coffee tourism is also beneficial for coffee growers. Tourists can visit coffee plantations, see the processing process and taste the coffee directly. This will create new business

opportunities and raise awareness of local coffee. Tourism understands that the activity of tourists is the creation of experience (Vu et al., 2022). For coffee growers in Western Nusa Tenggara, relying on tourism can be an important income diversification strategy. In addition to selling coffee, they can also earn additional income from tourism, for example, by offering excursions to their coffee plantations, providing practical learning tools and experiencing first-hand how the planting process reaches the harvesting process.

The relationship between the tourism industry and the coffee business in Western Nusa Tenggara can be mutually beneficial, as the two sectors support each other's economic growth and strengthen the attractiveness of tourism in the region. Another reason coffee counts is that the Lombok community's robust coffee drinking culture supports it. In Lombok, drinking coffee has become an important part of culture and hospitality in entertaining guests. Coffee is the mandatory minimum that the host earns if there are guests who visit (Golo et al., 2024). This tradition has been practiced for generations and is still well preserved. In the Lombok traditions, coffee products are always consumed. Coffee often accompanies community activities such as religious events, social events, and other activities. Coffee has become strongly associated with social gathering and a regular ritual. Serving coffee to guests is a significant sign of hospitality in Lombok. When someone visits a home, they are often greeted with a warm cup of coffee, which is a sign of honor and acceptance.

Discussion

The Lombok Timur district administration and coffee growers have conducted an assessment as a preventive measure to increase coffee production. Discussing the production and quality of eastern Lombok coffee is crucial to provide concrete steps in evaluating production results (Peixoto et al., 2022). Therefore, assessing the performance of farmers and the government is not an immediate issue, which will be completed only through the discussions on Table 1. Extreme efforts, good knowledge and communication with local farmers are the first steps that need to be completed. Coffee growers will not all receive significant benefits if the optimization of knowledge, for example, in geographical indicators, is weak. This finding is evident from the miscoordination of regions or the inability to cooperate with coffee companies resulting in a lack of significant economic benefits for farmers.

The same literature also revealed that they criticize coffee relationship patterns that create gaps rather than contribute to the eradication of poverty. Thus, the existence of a specific government must be realized, which is consistent with the political economy of coffee that benefits farmers. In the Timur district of Lombok, coffee growers need special attention from the local government (Vicol et al., 2020). The opportunity for coffee to compete in the business world is quite strong. The government must have a collective awareness of the promotion of and access to coffee information. The results conclude that there are data and knowledge problems about coffee that need to be addressed immediately by the government and coffee producers. Sustainable coaching, data availability, and a positive coffee grower mindset must continue to be encouraged. This is because the role of coffee in the economy in improving global well-being is significant.

Lombok Timur is like most other regions of Indonesia where both robusta and arabica coffee can grow and such even become a global consumption. Criticism of government action on coffee production is aimed at the accuracy and availability of data. More detailed information on coffee production, to the extent that it comes either from printed and digital literature or from field research, cannot be used for research purposes (Querme & Lima, 2023). Detailed data on coffee production: The production of coffee in each region, the number of sub-regions and the method of distribution of coffee require even more in-depth research.

The same thing happens when discussing the quality of the coffee produced. Literature that studies the quality of coffee and the habits of farmers in preserving coffee products is still difficult to find. Almost all coffee growers have a tendency not to have a data bank that fully stores knowledge of coffee (Torrez et al., 2023). To obtain information about the quality of coffee, scientists rely on field research. In general, the quality of Eastern Lombok coffee is still not optimal. This conclusion is made on the basis of farmers' coffee harvesting methods, which have been ineffective. Farmers claim that they harvest coffee without waiting for the thorough ripening of coffee beans, which affects the quality of coffee. At the same time, many farmers' robusta coffee gets grade C; still, a few Robusta coffees have grade A.

This article has a number of limitations that can affect the generalizability of coffee finds. First, the study is geographically limited to Lombok Timur, which may not represent other coffee producing regions in Indonesia or around the world. The specific socio-economic and cultural context of Lombok Timur can influence the

results, making it difficult to universally apply these findings. Second, the study relies heavily on qualitative data from field studies and lacks reliable quantitative data to support its claims (Linton, 2020). The lack of comprehensive and detailed data on the production, marketing and quality of coffee reduces the reliability of the conclusions drawn. Another limitation is reliance on anecdotal evidence and data provided by farmers themselves, which can create bias and affect the accuracy of the findings. In addition, the study does not adequately address the technological and infrastructure differences that can affect the production and quality of coffee in different regions.

Generalizability is further limited by not taking into account external factors such as international market dynamics, climate change and global trade policy, which have a significant impact on coffee production and business (Carminati, 2020). Although the study highlights the potential of coffee as a business product of Lombok Timur, these results cannot easily be extended to other regions without similar socio-economic conditions and government support structures. Future research should include more diverse data sources and wider geographical coverage to improve the generalizability of results.

Conclusion

In conclusion, Indonesia is an important coffee-producing country that has significant coffee potential and is also able to meet the coffee needs of quite a few countries, including the United States, Malaysia, Egypt, Italy and Japan. Due to the growing conditions in the country, Robusta coffee has grown into the most produced variety, and Arabica coffee, which is much rarer, is grown and sold as a special product at a higher price. East Lombok Regency demonstrates the promise of coffee as an economic crop that will improve opportunities for tourism and coffee business development. Also, the growing regions of this country include both Robusta and Arabica-type coffee, which further proves that Indonesian coffee is indeed diverse and excellent.

Despite the fact that in Indonesia coffee is marketed only as a consumer product, coffee lovers believe that if the high-quality standards of Indonesian coffee are further supported and marketed, Indonesia will not only have a stronger position in the world market, but also an offer for its enthusiastic coffee consumers. In addition, as technology advances, Indonesia should focus on improving its coffee production methods. In order to contribute to society while meeting the demand for high-quality coffee, greater attention should also be paid to building the capacity of academic institutions. Indonesian producers, on the other hand, must be proactive, because focusing solely on improving the quality of the international market would not only mean determining the quantity demand, but would also ensure that its consumers are satisfied with the variety of Indonesian products. Strengthening these practices would be important to ensure the competitiveness of the Indonesian coffee industry. With a greater sense of responsibility for quality awareness and dealing with progress, Indonesia has a better chance of excelling globally in maintaining its coffee and profitable business.

Conflict of Interest

The author declares that there is no conflict of interest.

References

Ashardiono, F., & Trihartono, A. (2024). Optimizing the potential of Indonesian coffee: A dual market approach. *Cogent Social Sciences, 10*(1), 1–17. https://doi.org/10.1080/23311886.2024.2340206

Campuzano-Duque, L. F., Herrera, J. C., Ged, C., & Blair, M. W. (2021). Bases for the establishment of Robusta coffee (*Coffea canephora*) as a new crop for Colombia. *Agronomy, 11*(12), 2550. https://doi.org/10.3390/agronomy11122550

Carminati, L. (2020). Generalizability in qualitative research: A tale of two traditions. *Qualitative Health Research, 28*(13), 2094–2101. https://doi.org/10.1177/1049732318788379

Dagne, Y., & Birhanu, L. (2023). Floristic composition and plant community distribution along environmental gradients in guard dry Afromontane forest of Northwestern Ethiopia. *BMC Ecology and Evolution, 23*(1), 1–17. https://doi.org/10.1186/s12862-023-021546

Freitas, V. V., Borges, L. L. R., Vidigal, M. C. T. R., Santos, M. H. D., & Stringheta, P. C. (2024). Coffee: A comprehensive overview of origin, market, and the quality process. *Trends in Food Science & Technology, 146*, 104411. https://doi.org/10.1016/j.tifs.2024.104411

Golo, N. A. F. J., Girasto, N. E., Dewi, N. R. L. S., & Asrizal, N. S. N. (2024). Tourism's e conomic impact in West Southeast Nusa: Input–output analysis approach. *Journal of Economics, 29*(3), 421–445. https://doi.org/10.24912/je.v29i3.2339

Hodacs, H. (2023). Substituting coffee and tea in the eighteenth century: A rural and material history with global implications. *Journal of Global History, 18*(3), 461–80. https://doi.org/10.1017/S1740022823000086

Jazuli, M. R., Idris, M. M., & Yaguma, P. (2022). The importance of institutional quality: Reviewing the relevance of Indonesia's Omnibus Law on national competitiveness. *Humanities and Social Sciences Communications, 9*(1), 1–13. https://doi.org/10.1057/s41599-022-01343-w

Kulyniak, I., Karyy, O., & Yarmola, K. (2021). Coffee tourism: Current status and development prospects. *Pryazovskyi Economic Herald, 1*(24), 16–21. https://doi.org/10.32840/2522-4263/2021-1-3

Kurniawan, C., Purnomo, E. P., Fathani, A. T., & Fadhlurrohman, M. I. (2023). Sustainable tourism development strategy in West Nusa Tenggara Province, Indonesia. *IOP Conference Series: Earth and Environmental Science, 1129*(1), 012022. https://doi.org/10.1088/1755-1315/1129/1/012022

Linton, J. D. (2020). The limits of generalizability: Why good theory can have bad outcomes. *Technovation, 89*, 102096. https://doi.org/10.1016/j.technovation.2019.102096

Magfirahti, R., Tanaya, I. G. L. P., & Sjah, T. (2021). Supply chain of Robusta coffee in Gangga District, North Lombok Regency. *Advances in Social Science, Education and Humanities Research, 556*, 304–8. https://doi.org/10.2991/assehr.k.210525.095

Nugroho, A. D., Bhagat, P. R., Magda, R., & Lakner, Z. (2021). The impacts of economic globalization on agricultural value added in developing countries. *PLoS ONE, 16*(11), e0260043. https://doi.org/10.1371/journal.pone.0260043

Peixoto, J. A. B., Silva, J. F., Oliveira, M. B. P. P., & Alves, R. C. (2022). Sustainability issues along the coffee chain: From the field to the cup. *Comprehensive Reviews in Food Science and Food Safety, 22*(1), 287–332. https://doi.org/10.1111/1541-4337.13069

Querme, M. E. T., & Lima, D. A. (2023). Traceability automation in coffee production: A case study on QR-code integration to optimize manual steps. *Archives of Advanced Engineering Science, 2*(3), 1–12. https://doi.org/10.47852/bonviewaaes32021455

Rahardjo, B., Akbar, B. M. B., Iskandar, Y., & Shalehah, A. (2020). Analysis and strategy for improving Indonesian coffee competitiveness in the international market. *BISMA (Bisnis Dan Manajemen), 12*(2), 154–67. https://doi.org/10.26740/bisma.v12n2.p154-167

Ramli, N. N. S., Alkhaldy, A. A., & Jalil, A. M. M. (2021). Effects of caffeinated and decaffeinated coffee consumption on metabolic syndrome parameters: A systematic review and meta-analysis of data from randomised controlled trials. *Medicina, 57*(9), 957. https://doi.org/10.3390/medicina57090957

Sarvina, Y., June, T., Sutjahjo, S. H., Nurmalina, R., & Surmaini, E. (2021). The impacts of climate variability on coffee yield in five Indonesian coffee production centers. *Coffee Science, 16*, 1–9. https://doi.org/10.25186/.v16i.1917

Tomaszewski, L. E., Zarestky, J., & Gonzalez, E. (2020). Planning qualitative research: Design and decision making for new researchers. *International Journal of Qualitative Methods, 19*, 160940692096717. https://doi.org/10.1177/1609406920967174

Torrez, V., Benavides-Frias, C., Jacobi, J., & Speranza, C. I. (2023). Ecological quality as a coffee quality enhancer: A review. *Agronomy for Sustainable Development, 43*(1), 1–34. https://doi.org/10.1007/s13593-023-00874-z

Vicol, M., Neilson, J., Hartatri, D. F. S., & Cooper, P. (2020). Upgrading for whom? Relationship coffee, value chain interventions and rural development in Indonesia. *World Development, 110*, 26–37. https://doi.org/10.1016/j.worlddev.2018.05.020

Vu, O. T. K., Alonso, A. D., Martens, W., Ha, L. D. T., Tran, T. D., & Nguyen, T. T. (2022). Hospitality and tourism development through coffee shop experiences in a leading coffee-producing nation. *International Journal of Hospitality Management, 106*, 103300. https://doi.org/10.1016/j.ijhm.2022.103300

Wright, D. R., Bekessy, S. A., Lentini, P. E., Garrard, G. E., Gordon, A., Rodewald, A. D., Bennett, R. E., & Selinske, M. J. (2024). Sustainable coffee: A review of the diverse initiatives and governance dimensions of global coffee supply chains. *AMBIO, 53*(7), 984–1001. https://doi.org/10.1007/s13280-024-02003-w

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The impact of online reviews on trust and hotel booking intentions among Chinese visitors in Thailand

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Abstract

The growth of social media platforms and Online Travel Agencies (OTAs) has made it easier for Chinese visitors to access and contribute to online reviews. Applying the Stimulus-Organism-Response (S-O-R) model, this study aims to understand how online reviews impact trust and hotel booking intentions among Chinese tourists in Phuket, Thailand. It investigates to what extent online reviews, including review quality and positive and negative reviews, impact the trust and hotel booking intentions of 400 Chinese tourists who booked hotels online. The Structure Equation Modeling (SEM) findings showed that positive and negative reviews strongly affect trust among Chinese tourists, while reviewing quality, negative reviews, and trust directly affect hotel booking intentions. This study provides valuable insights for hotels to understand Chinese tourists' online booking behavior and intentions. It also highlights the influence of online reviews on Chinese tourists' booking intentions, which aided in managing tourists' overall services and experience in drawing Chinese tourists for hotel booking and tourism recovery.

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Introduction

Technology significantly transforms the tourism and hospitality industries (Wu et al., 2020). To meet customer expectations and satisfaction and sustainably grow their businesses in the long term, tourism and hotel operators should clearly understand the technological impacts on tourist behaviors, such as online purchasing (Pham et al., 2020), social media (Pop et al., 2022), and online reviews (Kim & Kim, 2022). As a result, online reviews have increasingly become a significant source of information for travel planning and influence consumers' purchasing decisions in the hotel industry (Kamble et al., 2020; Kim & Kim, 2022; Li et al., 2013). In addition, past research emphasizes the critical influence of online reviews on trust and online booking decisions (Cheng et al., 2019; Ozturk et al., 2017). Positive reviews can enhance trust in a hotel's quality and services, ultimately influencing their booking intentions (Kim et al., 2017; Sparks & Browning, 2011). Conversely, negative reviews can deter potential guests and decrease bookings (Chakraborty, 2019; El-Said, 2020). Nevertheless, some studies reveal different impacts of online quality, positive and negative reviews on trust, and online hotel booking (El-Said, 2020; Gellerstedt & Arvemo, 2019; Zhao et al., 2015; Zhu et al., 2020). Additionally, online reviews, including review quality, and positive and negative reviews impact trust and online booking intention, all these factors are not studied simultaneously in one study. Therefore, some knowledge gaps related to online reviews impacting trust and hotel booking intentions still exist.

Chinese tourists were among the most significant, substantial, and attractive tourist markets (Chen et al., 2023). Thailand was one of the most sought-after travel destinations among Chinese travelers (Chen et al., 2023). Chinese tourists entering Thailand numbered slightly over three million, or about 12.46 percent of the international tourists in 2023, and numbers have continuously increased in recent years (Ministry of Tourism and Sports, 2023). Chinese tourists are technologically savvy (Wu et al., 2020), rely heavily on online reviews when making travel decisions, and prefer online booking over other methods due to its flexibility, convenience, and attractive incentives (Fan et al., 2023). They prioritize digital social relationships when traveling and seek more deterministic information before planning a vacation to Thailand (Wan, 2022). Additionally, Zhao et al. (2015) also found that online reviews significantly influence Chinese business travelers' booking intentions, emphasizing the importance of timely and comprehensive reviews for hotels to attract Chinese tourists.

Although online booking has become a vital channel for booking hotels (Cheng et al., 2019; Kamble et al., 2020), only a few studies examine the impact of online reviews on hotel booking intention in the Chinese tourist segment (Chen et al., 2023; Wu et al., 2020; Zhao et al., 2015). Ozturk et al. (2017) supported the significance of trust and perceived value in online hotel booking intentions. Limited research focuses on how review content affects Chinese tourists' trust and hotel booking intentions in a destination-specific context, especially in Thailand (Chen et al., 2023). There remains a significant gap in understanding how Chinese tourists, specifically, are affected by the quality of online reviews (both positive and negative) when deciding to book a hotel in Thailand. Therefore, it is crucial to understand how online reviews impact Chinese tourists' trust and hotel booking intention. This study investigates whether the quality of the reviews and the positive and negative online reviews influence Chinese tourists' trust and their decisions to book hotels online in Thailand. This research expects to better understand of the effects of review quality and positive or negative online reviews on trust and hotel booking intention and provide insights for promoting hotels and increasing the quality and quantity of online bookings in the future.

Literature Review

The Application of Stimulus-Organism-Response (S-O-R) Model

The Stimulus-Organism-Response (S-O-R) model is a helpful framework that helps explain the complex interplay between external environmental effects, organisms' internal processes, and consumer behavior (Chang et al., 2014; Jang & Namkung, 2009; Mehrabian & Russell, 1974). The Stimulus (S) refers to any input that elicits a response from an individual, the Organism (O) is the reaction to the stimulus, and the Response (R) is the action that the organism takes because of the stimulus. By understanding how different stimuli impact an individual's response, marketers and researchers can create more effective campaigns and products that better meet the needs and desires of their target audience.

The wide application of the S-O-R model in past research includes a variety of consumer behaviors, purchasing decisions, brand loyalty, and product usage (Chang et al., 2014), online consumer behavior research and purchase intentions (Li & Yuan, 2018; Zhang et al., 2014), service quality on tourist satisfaction and engagement

in revisiting, recommending, and learning (Indrani & Gobinda, 2023), and forecasting tourists' revisit intentions in the tourism sector (Cheng et al., 2020).

In the hotel context, the S-O-R model is particularly effective in understanding the interactions between stimuli (e.g., hotel atmosphere, information quality, perceived interactivity, safety, privacy, price, promotion, and electronic word-of-mouth), individual's internal state or process (e.g., emotions, perceived value), and response (e.g., hotel loyalty, hotel booking intention) (Emir et al., 2016; Hsu et al., 2012; Jani & Han, 2015). Accordingly, this study applies the S-O-R model to understand stimuli (review quality, positive/negative reviews) and an organism (trust) impacting the process of hotel booking intention.

Research Model and Hypothesis Development

Online Reviews as Stimuli (S) Impacting Trust as an Organism (O)

Online reviews refer to an opinion on a product or service submitted by consumers on an e-commerce, retail, or third-party platform after purchasing and consist of two parts: (1) a rating (usually given on a scale of 1–5 stars); and (2) content written by consumers, which impact the hotel booking intention of future customers (Lim et al., 2022; Mudambi & Schuff, 2010). Online customer reviews have grown in importance as e-commerce has expanded, and they now frequently serve as crucial informational resources for customers (Baek et al., 2012), especially Chinese travelers' online hotel bookings (Zhao et al., 2015).

For an online hotel reservation to be effective, reviewers must be encouraged to provide helpful evaluations and make it simpler for customers to access such reviews when making an online hotel reservation (Baek et al., 2012). According to Gorade (2022), positive reviews are more prevalent in the hospitality industry than negative reviews. Positive eWOM accounts for nearly 70 percent of online reviews and considerably impacts hotel booking intentions, while negative reviews negatively impact hotel bookings on TripAdvisor (Gorade, 2022). Additionally, positive information with numerical ratings mitigates the negative effect (Gorade, 2022). Zhao et al. (2015) and Ermawati (2020) also presented that negative online reviews significantly impact hotel booking intention. Past research (Danish et al., 2019; Kim et al., 2017; Ponnapureddy et al., 2017; Zhao et al., 2015) finds online reviews and review valence (negative and positive) impacting travelers' online hotel booking intentions.

Trust refers to a positive perception of a person, interpersonal, or organization (Everard & Galletta, 2005; Lewicki & Bunker, 1996) and acts as a bridging variable between positive reviews and hotel booking intentions (Danish et al., 2019). This relationship reinforces the idea that consumers are more likely to book accommodations when they trust the information conveyed in online reviews. Hubble (2023) shows that most consumers read online reviews for local businesses and trust these reviews as much as personal recommendations. In addition, Chakraborty and Biswal (2020) indicate that various online hotel reviews create consumers' trust and reliability. Additionally, Park et al's. (2021) research shows that reviews with pictures effectively influence trust. On the other hand, Lăzăroiu et al. (2020) found that negative reviews are often perceived as more credible than positive ones, while positive reviews tend to foster greater initial trust, and trust moderately influences purchase intention. However, the influence of positive-negative online reviews on trust associated with hotel booking intentions has yet to be explored. Therefore, this study proposes the following hypotheses.

Hypothesis 1 (H1): Review quality positively affects trust.

Hypothesis 2 (H2): Positive reviews positively affect trust.

Hypothesis 3 (H3): Negative reviews negatively affect trust.

Trust as Organism (O) Impacting Hotel Booking Intention as a Response (R)

Trust affects the intention to make reservations (Kusumasondjaja, 2015). Trust in online reviews and perceived information quality significantly impact online hotel booking intention (Augustine & Adnan, 2020; Mansour et al., 2014). The intention to book is positively impacted by faith in third-party online booking platforms and trust in hotels, which is influenced by online reviews (Kim et al., 2017). Furthermore, trust can become a loyalty factor (Ju & Jang, 2023). Similarly, Lim et al. (2022) and Sreejesh and Anusree (2016) also illustrated that online reviews positively affect trust, subsequently influencing booking intentions. Therefore, trust influences hotel booking intention by mediating between various stimuli (such as online reviews and website features) and the ultimate response to making a reservation.

Hypothesis 4 (H4): Trust positively affects hotel booking intention.

Online Reviews as Stimuli (S) Impacting Hotel Booking Intention as a Response (R)

Although the usefulness of the S-O-R model in understanding the process of how stimuli (online reviews) impact the organism's reaction (trust) and result in a response (hotel booking intention), the S-O-R model does not always follow the particular order of Stimuli leading to Organism and Organism leading to Response (Kang, 2011). Therefore, the external environment (Stimulus) can directly impact response. For example, the quality of online reviews could affect consumer purchase intention (Park et al., 2007), and perceived credible online reviews positively influenced the booking intention of travelers for hotels (Chakraborty, 2019). In addition, previous research (Kim et al., 2017; Ponnapureddy et al., 2017; Zhao et al., 2015) reveals that the stimuli (positive and negative reviews) can directly affect the online booking intention, bypassing the organism process of trust that takes time to compare, analyze and evaluate the reviews from many sources in making an online hotel booking. Accordingly, the authors propose that review quality and positive feedback favorably influence consumers' intentions to book hotels online. In contrast, negative feedback has the opposite impact on consumers' intentions to book hotels online (Figure 1).

Hypothesis 5 (H5): Review quality positively affects hotel booking intention.

Hypothesis 6 (H6): Positive reviews positively affect hotel booking intention.

Hypothesis 7 (H7): Negative reviews negatively affect hotel booking intention.

Methodology

This study employed the quantitative method using an online survey to collect data from Chinese residents of mainland China who had traveled to Phuket and made at least one online hotel reservation. Hence, this study used questionnaires to analyze the impact of online reviews on trust and hotel booking intentions. Using a five-point Likert scale (from 1 strongly disagree to 5 strongly agree), the questionnaires were adapted from previous research: review quality by Chakraborty (2019), positive and negative reviews by Chakraborty (2019) and El-Said (2020), trust by Ponnapureddy et al. (2017), and booking intention by Chakraborty (2019). The questionnaire was back-translated from English to Chinese and Chinese to English to avoid misunderstanding or error. Two academic specialists and one industry expert in the research field tested the survey questions. After that, a pilot test was conducted with 30 respondents to ensure the reliability of the items at the preliminary stage. Then five experts assessed the instrument's content validity and Item-Objective Congruence (IOC) by evaluating each topic, variable, and statement. The IOC index, ranging from 0.90 to 0.70, indicated that the questionnaire's content was complete and usable.

This study investigates the influence of online review quality, positive and negative reviews, on the trust and hotel booking intentions of Chinese tourists visiting Phuket, Thailand. Understanding the impact of online reviews on the hotel booking intentions of Chinese visitors is particularly relevant, given Phuket's status as

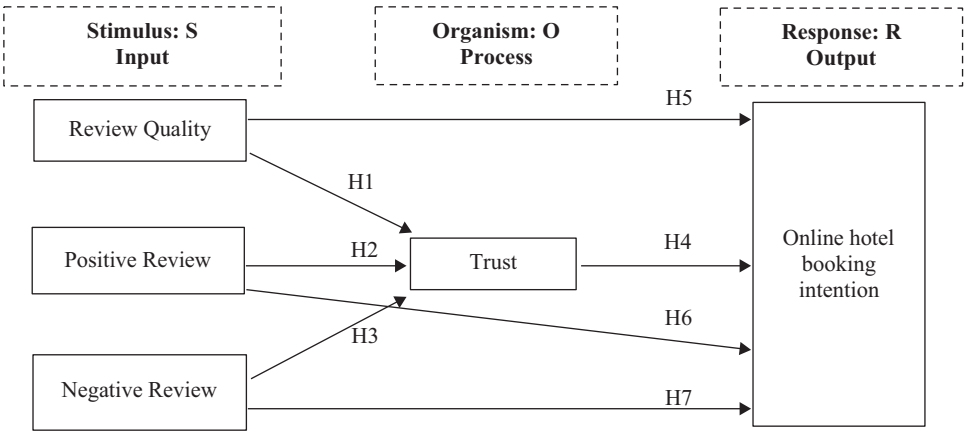


Figure 1 Research model and hypotheses

a premier destination for Chinese tourists with a tourism turnover forecast of 119,180.98 million baht in 2022 with a 35 percent occupancy rate (Angskul, 2023). Getting a sampling frame for the target population is important owing to confidentiality concerns. In this study, a non-probability convenience sampling was adopted. The online questionnaire was created on a Chinese online survey platform, Wen Juan Xing, and distributed via online channels and groups on a trusting source: WeChat (the most popular chat app among Chinese tourists) to prospective Chinese respondents worldwide (Ma et al., 2020), using snowball sampling, between January to February 2023. A total of 487 responses were collected. However, 87 incomplete responses were deleted after a validation check. Thus, 400 valid responses were analyzed using the Structural Equation Model (SEM) for hypothesis testing.

Results

Table 1 demonstrates the participants' demographic data. Most respondents were female (69%), 25–50 years old (87.2%) with a bachelor's degree (64.4%), were married (46.8%), and earned between 1,201 and 1,600 Yuan (73.5%) per month. Interestingly, most respondents had booked the hotel online at least twice (over 90%).

The fit indices show the statistical value of confirmatory factor analysis (X^2 = 181.680, df = 109, RMSEA = .042, SRMR = .039, CFI = .972, TLI = .966). Before testing the hypotheses, this study examined the measurement model to determine the construct validity and reliability. Table 2 displays the statistics for all constructions' standardized indicator loadings. The results demonstrate that all loadings are more than 0.50 (Hair et al., 2017), supporting the reliability of each indicator. The Average Variance Extracted (AVE), Composite Reliabilities (CRs), and Cronbach alpha (α)

Table 1 Participants' demographic data

Demographic data	Frequency (n = 400)	Percent
Gender		
Male	124	31.0
Female	276	69.0
Age (years old)		
18–24	11	2.8
25–35	200	50.0
36–50	149	37.2
51–64	28	7.0
65 and more	12	3.0
Education		
Vocational/diploma or lower level	28	7.0
Bachelor's degree	258	64.4
Master's degree	51	12.8
Doctoral degree	63	15.8
Status		
Single	159	39.8
Marriage	187	46.8
Others	54	13.4
Income (Chinese Yuan)		
Under 1,000 CNY	10	2.5
1,000–1,200 CNY	29	7.3
1,201–1,400 CNY	118	29.5
1,401–1,600 CNY	176	44.0
1,601–1,800 CNY	42	10.4
Above 1,800 CNY	25	6.3
Experience in online hotel booking (times)		
First time (one time)	29	7.3
Two times	138	34.5
Three times	189	47.3
Four times	30	7.4
More than four times	14	3.5

were used to investigate reliability and validity. All constructions' AVE, CR, and α values are higher than the threshold values of .5, .7, and .7, respectively.

Discriminant validity presented in Table 3 was evaluated to show that each concept has distinctive features that set it apart from other constructs in the structural model. If each construct's square root of AVE is greater than the correlation with other latent variables, statistically, discriminant validity is verified (Fornell & Larcker, 1981). All of the square roots of AVE in Table 3 are greater than the correlation values in column and row, demonstrating the establishment of discriminant validity. Therefore, this study also confirmed the acceptable reliability and validity of the constructs.

The findings of the hypothesis testing are shown in Table 4. The results confirmed Hypothesis 2 (H2): Positive reviews positively affect trust (z = 7.133***), Hypothesis 3 (H3): Negative reviews negatively affect trust (z = -2.855**), Hypothesis 4 (H4): Trust positively affects hotel booking intention (z = 4.987***), Hypothesis 5 (H5): Review quality positively affects hotel booking intention (z = 5.318***), and Hypothesis 7 (H7): Negative reviews negatively affect hotel booking intention (z = -4.283***). In contrast, the results did not support Hypothesis 1 (H1): Review quality positively affects trust. (z = 1.870), and Hypothesis 6 (H6): Positive reviews positively affect hotel booking intention (z = 0.608). Finally, the R^2 value displays the variances explained; it was investigated for this study's meaningful interpretation of path coefficients. This final dependent construct contributed R^2 = .441 for trust and R^2 = .546 for booking intention.

Table 2 Confirmatory factor analysis

Variables	Estimate Loading	AVE	CR	α
Review quality		.55	.78	.75
Online reviews on hotels provided are relevant and accurate.	.798			
Online reviews on hotels provide detailed and comprehensive information.	.859			
Online reviews on hotels are clearly explained with logical justifications.	.528			
Positive review		.54	.78	.76
Positive online hotel reviews (e.g., review score, review sentiment, review title sentiment) are consistent.	.727			
Positive online hotel reviews are reliable.	.727			
Positive reviews or recommendations influence you to book a hotel.	.759			
Negative review		.61	.82	.82
Negative reviews influence your hotel booking intention.	.795			
Negative reviews are going to terminate your intentions to book the hotel.	.716			
You will perceive a hotel negatively if it often receives negative reviews.	.828			
Trust		.50	.83	.81
I trust online hotel reviews because they are believable.	.633			
I trust online hotel reviews as credible because they are the consumer's opinion.	.753			
I trust online hotel reviews verified by credible third-party online booking platforms.	.738			
I trust the hotels that received high scores in online reviews.	.693			
I trust online reviews that are politely written and reviewed with logical reasons (without emotion, e.g., angry emotion may lead to bias).	.698			
Booking intention		.53	.77	.74
I mostly rely on online reviews as key information before booking the hotel.	.718			
I consider online reviews before making a hotel booking.	.761			
I read online reviews before deciding on my hotel booking.	.694			

Table 3 Discriminant validity

Variable	*M*	*SD*	1	2	3	4	5
Review quality	4.01	.71	.741				
Positive review	4.02	.65	.331**	*.735*			
Negative review	3.78	.75	.332**	.688**	*.781*		
Trust	3.92	.60	.365**	.681**	.540**	*.707*	
Booking intention	3.83	.63	.446**	.527**	.376**	.648**	.728

Note: Diagonal values represent the square root of AVE
** $p < .01$

Table 4 Hypotheses testing results

Variable	Trust	Booking intention
Review quality	H1: .103 (z = 1.870)	H5: .312 (z = 5.318***)
Positive review	H2: .990 (z = 7.133***)	H6: .154 (z = .608)
Negative review	H3: -.175 (z = -2.855**)	H7: -.402 (z = -4.283***)
Trust		H4: .795 (z = 4.987***)
R^2	.441	.546

Note: **p < .01, ***p < .001

Discussion

This study reveals the proportion of 31 percent male and 69 percent female participants, which was aligned with the report of the increasing number of young Chinese travelers by Khaosod English (2023) and the previous research conducted by Samerjai (2021). In addition, the respondent profile was in line with previous research (Donovan, 2022), highlighting that a family trip has become a target market niche as most Chinese tourists are married and prefer to travel with their families.

This study highlights the importance of the quality of online reviews on Chinese tourists' booking intentions. Chinese tourists use more technology for their trips, especially online channels, to save time and convenience when booking airplane tickets, hotels, travel packages, and restaurants (Donovan, 2022). The reliability and rationalism of online reviews can affect the review quality (Shin et al., 2017), and the valence of reviews is significant for decision-making regarding online bookings (Gellerstedt & Arvemo, 2019). Significantly, this study emphasizes the dominant impact of negative reviews on hotel booking intentions, which is consistent with past research (Gorade, 2022; Wen et al., 2021; Zhao et al., 2015).

Contrary to earlier studies (Danish et al., 2019; Ermawati, 2020) which concluded that good reviews were the most influential factor, this study found no substantial effect of favorable ratings on Chinese travelers' hotel booking intentions. This is because cultural influences, personal values, negative reviews, and the authenticity of reviews have a greater impact on shaping consumer behavior; Chinese tourists prefer practical and trustworthy negative review aspects of hotel selection over positive reviews. Gorade (2022) found that the most critical aspect of online customer reviews is the number of reviews, and thus, review quality might also be related to review quantity. Similarly, Hanandeh et al. (2019) state that eWOM significantly affects hotel preferences, especially regarding quality, quantity, and credibility.

As predicted, trust is positively impacted by positive reviews while negatively affected by adverse comments. This is consistent with Zhu et al. (2020), who states that the perceived information quality of positive online reviews significantly influences trust, contentment, and purchase intention. Park et al. (2021) reveal that negative reviews and pictures culminated in high trust perceptions. Supporting the previous studies (Lim et al., 2022; Zahidah & Rostian, 2021), the research finding highlights the impact of trust on booking intention. According to Tran (2020), the perceived effectiveness of social media platforms and online trust positively affects purchase intention. Chinese tourists use chatbots, such as WeChat, to be the source of online reviews (Chan, 2020). If customers have high trust in a website and perceive a low level of risk in electronic transactions, they will increase their intent to purchase products through that website (Mansour et al., 2014). Additionally, Sparks and Browning (2011) stated that booking intents and customer trust are increased by information that is presented positively and includes rating information. Therefore, trust is also an essential factor that affects online hotel booking (Ponnapureddy et al., 2017). The findings suggest that when the customer reads a negative review, it shows the incredibility of the hotel and, thus, undermines trust in hotel booking, which corresponds to Danish et al. (2019) who found that trust impacts online hotel booking while negative reviews indirectly affect customers' booking intention. Similarly, El-Said (2020) agrees that positive reviews have little significance on booking intentions but strongly affect negative reviews. However, when consumers read many positive reviews and evaluate the hotel's quality, it might increase their desire to book a hotel directly, as it is an intangible product or service that customers cannot sample before booking (Kim et al., 2017; Zhao et al., 2015). Additionally, the quality of both negative and positive reviews is an undeniable factor in customers' decision-making when choosing an online hotel (Hanandeh et al., 2019).

In conclusion, negative reviews, especially those with low star ratings and accompanying photos, have a stronger impact on booking decisions than positive

reviews as they erode trust. While a higher number of reviews generally increases trust, an increase in negative reviews can significantly deter books. Therefore, both the quality and quantity of reviews are crucial for shaping trust and influencing the online booking intentions of Chinese tourists. However, effective customer feedback management is essential for maintaining a positive online reputation.

Conclusion

Theoretical Implications

This research adds to the body of knowledge on consumer decision-making. Owing to the present, the changes in tourists' behavior, especially in the pre-visit stage, affect the tourism and hospitality sectors. This study is the first attempt to apply the S-O-R model in tourism and hospitality by testing the quality of the reviews and online reviews on trust and hotel booking intention among Chinese tourists in Thailand. The S-O-R model is a suitable framework for understanding the impact of the environment (stimuli) on people's behavior (Mehrabian & Russell, 1974). Specifically, this research shows the effect of review quality on trust and hotel booking intention. It also proves that Chinese tourists are more concentrated and sensitive to negative reviews than positive ones. Positive reviews greatly influence Chinese travelers' trust, but they are more likely to change their hotel booking plans when they read negative ones. According to the S-O-R model, when the customers receive the hotel's source information (the review quality and positive and negative reviews) (Stimulus: S), they recognize emotions stimulated by the external environment (Organism: O) regarding trust. Then, tourist behavior (Response: R) is changed by their evaluation of the information source based on their experience, influencing booking intention.

Practical Implications

The results of this study provide a practical application for hotels to understand Chinese tourist behavior and the impact of online reviews on hotel booking intentions. Specifically, Chinese tourists rely on online reviews as a significant source of information for travel planning, influencing consumers' trust and purchasing decisions on travel and hotel booking intentions. Applying the S-O-R model in this context underscores the importance of providing high-quality information and fostering a sense among reviewers. Hotels with positive reviews can create first impressions and trust, leading to booking intentions. In contrast, negative reviews can cancel the intention to book. To meet customer expectations and sustainably grow their businesses, tourism and hotel operators should prioritize changes in consumer behavior, especially in online purchasing, regarding review quality, negative reviews, and trust, which directly influence the online booking intentions of travelers. The study results can improve effectiveness, increase tourists' trust, and develop diverse marketing and promotion strategies in Thailand and other countries that respond to Chinese tourists, who are the main target market in Thailand, provide better service, a new channel of online booking innovation development, and motivate Chinese tourists to revisit Thailand continuously.

Limitations and Future Research

There are two major limitations to the research design. This study only investigates the effect of online review quality, positive/negative reviews on trust, and hotel booking intention among Chinese tourists (Demand side) who book hotels online. It did not include all influential variables affecting online hotel booking intention, such as brand image, perceived price, perceived value, security, and reliable payment system. Therefore, these variables should be considered in future studies. Additionally, future studies should include specific features of online reviews' content and sources, such as usefulness, reviewer expertise, timeliness, volume, valence, and comprehensiveness identified by Zhao et al. (2015), which future research should consider. Lastly, Li et al. (2013) highlighted that qualitative research through online reviews may help understand the evolving tourists' online behavior and provide insightful information. More qualitative research should be conducted on this topic.
Its sampling methods and valid data of more female Chinese participants may cause generalized issue. Therefore, the results cannot be generalized and may not apply to all nationalities of tourists who use online hotel booking. Future research should investigate more international tourists' online hotel booking intentions in other countries for comparison. In addition, the control sampling may help justify the generalized issue.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References

Angskul, T. (2023, April 27). *TAT expects 25 million visitors in 2023*. National News Bureau of Thailand. https://thailand.prd.go.th/en/content/category/detail/id/52/iid/177533

Augustine, A. A., & Adnan, W. H. (2020). The effects of perceived price, website, trust, and online reviews on online hotel booking intention in Kuala Lumpur. *Global Science Journal (GSJ)*, *8*(6), 374–388.

Baek, H., Ahn, J., & Choi, Y. (2012). Helpfulness of online consumer reviews: Readers' objectives and review cues. *International Journal of Electronic Commerce*, *17*(2), 99–126. https://doi.org/10.2753/JEC1086-4415170204

Chakraborty. U. (2019). Perceived credibility of online hotel reviews and its impact on hotel booking intentions. *International Journal of Contemporary Hospitality Management*, *31*(9), 3465–3483. https://doi.org/10.1108/IJCHM-11-2018-0928

Chakraborty, U., & Biswal, S. K. (2020). Impact of online reviews on consumer's hotel booking intentions: does brand image mediate?. *Journal of Promotion Management*, 26(7), 943–963. https://doi.org/10.1080/10496491.2020.1746465

Chan, A. (2020, July 28). *Fundamental differences in Chinese online behaviours (travel industry focused)*. Compass Edge. https://www.compassedge.com/fundamental-differences-in-chinese-online-behaviours-travel-industry-focused/

Chang, H., Yan, R., & Eckman, M. (2014). Moderating effects of situational characteristics on impulse buying. *International Journal of Retail & Distribution Management*, *42*(4), 298–314. https://doi.org/10.1108/IJRDM-04-2013-0074

Chen, G., Chen, Z., Saxon, S., & Yu, J. (2023, May 10). *Outlook for China tourism 2023: Light at the end of the tunnel*. McKinsey & Company https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/outlook-for-china-tourism-2023-light-at-the-end-of-the-tunnel

Cheng, W., Tsai, H., Chuang, H., Lin, P., & Ho, T. (2020). How can emerging event sustainably develop in the tourism industry? From the perspective of the S-O-R model on a two-year empirical study, *Sustainability*, *12*(23), 10075. https://doi.org/10.3390/su122310075

Cheng, X., Fu, S., Sun, J., Bilgihan, A., & Okumus, F. (2019). An investigation on online reviews in sharing economy driven hospitality platforms: A viewpoint of trust, *Tourism Management*, 71, 366–377. https://doi.org/10.1016/j.tourman.2018.10.020

Danish, R. Q., Hafeez, S., Ali, H. F., Shahid, R., & Nadeem, K. (2019). Impact of online consumer reviews on hotel booking intentions: The case of Pakistan, *European Scientific Journal*, *15*(7), 144–159. https://doi.org/10.19044/esj.2019.v15n7p144

Donovan, N. (2022). Chinese New Year trends and insights: Chinese travel behaviours uncovered. *Booking.com*. https://partner.booking.com/en-gb/click-magazine/trends-insights/chinese-travel-behaviours-uncovered

El-Said, O. A. (2020). Impact of online reviews on hotel booking intention: The moderating role of brand image, star category, and price. *Tourism Management Perspectives*, *33*, 100604. https://doi.org/10.1016/j.tmp.2019.100604

Emir, A., Halim, H., Hedre, A., Abdullah, D., Azmi, A., & Kama, S. B. M. (2016). Factors influencing online hotel booking intention: A conceptual framework from stimulus-organism-response perspective. *International Academic Research Journal of Business and Technology*, *2*(2), 129–134.

Ermawati, K. (2020). *Peningkatan loyalitas wisatawan hotel melalui online reviews dan online booking intention*. [Increasing hotel tourist loyalty through online reviews and online booking intention]. Service Management Triangle: Jurnal Manajemen Jasa, *2*(1), 20–30. https://ejurnal.ars.ac.id/index.php/jsj/article/view/235 [in Indonesian]

Everard, A., & Galletta, D. F. (2005). How presentation flaws affect perceived site quality, trust, and intention to purchase from an online store. *Journal of Management Information Systems*, *22*(3), 55–96.

Fan, X., Lu, J., Qiu, M., & Xiao, X. (2023). Changes in travel behaviours and intentions during the Covid-19 pandemic and recovery period: A case study of China. *Journal of Outdoor Recreation and Tourism*, *41*, 100522. https://doi.org/10.1016/j.jort.2022.100522

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Gellerstedt, M., & Arvemo, T. (2019). The impact of word of mouth when booking a hotel: Could a good friend's opinion outweigh the online majority? *Information Technology & Tourism*, *21*(3), 289–311. https://doi.org/10.1007/s40558-019-00143-4

Gorade, S. (2022, June 22). *Impacts of online customer reviews on hotel bookings*. LinkedIn. https://www.linkedin.com/pulse/impacts-online-customer-reviews-hotel-bookings-sachin-gorade

Hair, J. F., Babin, B. J., & Krey, N. (2017). Covariance-based structural equation modeling in the journal of advertising: Review and recommendations. *Journal of Advertising*, *46*(3), 454. https://doi.org/10.1080/00913367.2017.1329496

Hanandeh, A., Al-Ghadir, H., Hanandeh, R., & Al-Hawaidi, M. (2019). The impact of electronic word of mouth on intention to travel. *International Journal of Scientific & Technology Research*, *8*(12), 1356–1362. http://www.ijstr.org/final-print/dec2019/The-Impact-Of-Electronic-Word-Of-Mouth-On-Intention-To-Travel.pdf

Hsu, C. -L., Chang. K. -C., & Chen, M. -C. (2012). Flow experience and internet shopping behavior: Investigating the moderating effect of consumer characteristics, *Systems Research and Behavioral Science*, *29*(3), 317–332. https://doi.org/10.1002/sres.1101

Hubble. (2023, June 14). *The impact of online reviews and ratings on the travel industry*. Hubble Money. https://www.myhubble.money/blog/the-impact-of-online-reviews-and-ratings-on-the-travel-industry

Indrani, P. & Roy, G. (2023). How eco-service quality affects tourist engagement behavior in ecotourism: Eco-consciousness and eco activity-based learning and S-O-R theory. *Tourism Recreation Research*. *Advance online publication.* https://doi.org/10.1080/02508281.2023.2275240

Jang, S. C., & Namkung, Y. (2009). Perceived quality, emotions, and behavioral intentions: Application of an extended Mehrabian–Russell model to restaurants. *Journal of Business Research*, *62*(4), 451–460. https://doi.org/10.1016/j.jbusres.2008.01.038

Jani, D., & Han, H. (2015). Influence of environmental stimuli on hotel customer emotional loyalty response: Testing the moderating effect of the Big Five personality factors, *International Journal of Hospitality Management*, *44*, 48–57. https://doi.org/10.1016/j.ijhm.2014.10.006

Ju, Y., & Jang, S. C. S. (2023). The Effect of Covid-19 on hotel booking intentions: Investigating the roles of message appeal type and brand loyalty, *International Journal of Hospitality Management*, *108*, 103357. https://doi.org/10.1016/j.ijhm.2022.103357

Kamble, Z., Doan, Q. T., Nguyen, H. N., Zeng, Z., & Zihui, L. L. (2020). The significance of online reviews for hotel entrepreneurial success, In A. Masouras, G. Maris, & A. Kavoura (Eds.), *Entrepreneurial development and innovation in family businesses and SMEs* (pp. 75–86.). IGI Global. https://doi.org/10.4018/978-1-7998-3648-3.ch005

Kang, E. (2011). *The impact of sensory environments on spa-goers' emotion and behavioral intention* [Master's thesis, University of Houston]. University of Houston Libraries.

Khaosod English. (2023, May 3). *Thailand's tourism industry blossoms anew with influx of Chinese visitors*. https://www.khaosodenglish.com/news/2023/05/03/thailands-tourism-chinese-visitors/

Kim, S. Y., Kim, J. U., & Park, S. C., (2017). The effects of perceived value, website trust and hotel trust on online hotel booking intention. *Sustainability*, *9*(12), 2262. https://doi.org/10.3390/su9122262

Kim, Y. J., & Kim, H. S. (2022). The impact of hotel customer experience on customer satisfaction through online review. *Sustainability*, *14*(2), 848. https://doi.org/10.3390/su14020848

Kusumasondjaja, S. (2015). Information quality, homophily, and risk propensity: Consumer responses to online hotel reviews. *Journal of Economics, Business, and Accountancy Ventura*, *18*(2), 241–252.

Lăzăroiu, G., Neguriță, O., Grecu, I., Grecu, G., & Mitran, P. (2020). Consumers' decision-making process on social commerce platforms: Online trust, perceived risk, and purchase intentions. *Frontiers in Psychology*, 11, 890. http://doi.org/10.3389/fpsyg.2020.00890

Lewicki, R. J., & Bunker, B. B. (1996). Developing and maintaining trust in work relationships, In R. M. Kramer & T. R. Tyler (Eds.), *Trust in organizations: Frontiers in theory and research* (pp. 114–139). Sage Publications.

Li, H., Ye, Q., & Law, R., (2013). Determinants of customer satisfaction in the hotel industry: An application of online review analysis. *Asia Pacific Journal of Tourism Research*, *18*(7), 784–802. https://doi.org/10.1080/10941665.2012.708351

Li, W., & Yuan, Y. (2018). Purchase experience and involvement for risk perception in online group buying. *Nankai Business Review International*, *9*(4), 587–607. https://doi.org/10.1108/NBRI-11-2017-0064

Lim, J. E., Mohd Zahari, F., & Abidin, R. (2022). Factors affecting online hotel booking intention: A study on UUM students, *Journal of Technology and Operations Management*, *17*(1), 53–61. https://doi.org/10.32890/jtom2022.17.1.5

Ma, Y., Hardy, A., & Ooi, C. -S. (2020). Researching Chinese tourists on the move. *Journal of China Tourism Research*, *16*(2), 214–229.

Mansour, K. B., Kooli, K., & Utama, R. (2014). Online trust antecedents and their consequences on purchase intention: An integrative approach. *Journal of Customer Behaviour*, *13*(1), 25–42.

Mehrabian, A., & Russell, J.A. (1974). *An approach to environmental psychology*. MIT Press.

Ministry of Tourism and Sports. (2023). *สถิตินักท่องเที่ยวชาวต่างชาติที่เดินทางเข้าประเทศไทย ปี 2566* [International tourist arrivals to Thailand 2023]. https://www.mots.go.th/news/category/706 [in Thai]

Mudambi, S. M., & Schuff, D. (2010). What makes a helpful review? A study of customer reviews on Amazon.com. *MIS Quarterly*, *34*(1), 185–200.

Ozturk, A. B., Nusair, K., Okumus, F., & Singh, D. (2017). Understanding mobile hotel booking loyalty: An integration of privacy calculus theory and trust-risk framework. *Information Systems Frontiers*, *19*(4), 753–767. https://doi.org/10.1007/s10796-017-9736-4

Park, C. W., Sutherland, I., & Lee, S. K. (2021). Effects of online reviews, trust, and picture-superiority on intention to purchase restaurant services. *Journal of Hospitality and Tourism Management*, *47*, 228–236. https://doi.org/10.1016/j.jhtm.2021.03.007

Park, D. -H., Lee, J., & Han, I. (2007). The effect of on-line consumer reviews on consumer purchasing intention: The moderating role of involvement. *International Journal of Electronic Commerce*, *11*(4), 125–148. https://doi.org/10.2753/JEC1086-4415110405

Pham, L., Williamson, S., Lane, P., Limbu, Y., Nguyen, P. T. H., & Coomer, T. (2020). Technology readiness and purchase intention: role of perceived value and online satisfaction in the context of luxury hotels. *International Journal of Management and Decision Making*, 19(1), 91–117.

Ponnapureddy, S., Priskin, J., Ohnmacht, T., Vinzenz, F., & Wirth, W. (2017). The influence of trust perceptions on German tourists' intention to book a sustainable hotel: A new approach to analysing marketing information. *Journal of Sustainable Tourism*, *25*(7), 970–988. https://doi.org/10.1080/09669582.2016.1270953

Pop, R. A., Săplăcan, Z., Dabija, D. C., & Alt, M. A. (2022). The impact of social media influencers on travel decisions: The role of trust in consumer decision journey. *Current Issues in Tourism*, *25*(5), 823–843. https://doi.org/10.1080/13683500.2021.1895729

Samerjai. C. (2021). *ความตั้งใจในการใช้บริการที่พักในสถานการณ์ความปกติใหม่ของนักท่องเที่ยวชาวไทย* [The intention to use accommodation service during the new normal situation of Thai tourists]. *Journal of Humanities and Social Sciences Rajapruk University*, *7*(3), 21–41. https://so03.tci-thaijo.org/index.php/rpu/article/view/257425 [in Thai]

Shin, S. Y., Van Der Heide, B., Beyea, D., Dai, Y. N., & Prchal, B. (2017). Investigating moderating roles of goals, reviewer similarity, and self-disclosure on the effect of argument quality of online consumer reviews on attitude formation. *Computers in Human Behavior*, *76*, 218–226.

Sparks, B. A., & Browning, V. (2011). The impact of online reviews on hotel booking intentions and perception of trust. *Tourism Management*, *32*(6), 1310–1323. https://doi.org/10.1016/j.tourman.2010.12.011

Sreejesh, S., & Anusree, M. R. (2016). The impacts of customers' observed severity and agreement on hotel booking intentions: Moderating role of webcare and mediating role of trust in negative online reviews. *Tourism Review*, *71*(2), 77–89. https://doi.org/10.1108/TR-08-2015-0037

Tran, L. T. T. (2020). Online reviews and purchase intention: A cosmopolitanism perspective. *Tourism Management Perspectives*, 35, Article 100722. https://doi.org/10.1016/j.tmp.2020.100722

Wan, C. (2022). *Marketing strategies of community-based tourism for generation Y Chinese tourists: The case study of the Andaman Coast, Thailand*, [Doctoral dissertation, National Institute of Development Administration]. NIDA Wisdom Repository.

Wen, J., Lin, Z., Liu, X., Xiao, S. H., & Li, Y. (2021). The interaction effects of online reviews, brand, and price on consumer hotel booking decision making. *Journal of Travel Research*, *60*(4), 846–859. https://doi.org/10.1177/0047287520912330

Wu, L., Fan, A., & Shen, H. (2020). Embracing the future: New technology and mediated Chinese tourists. *Journal of China Tourism Research*, *16*(4), 487–493. https://doi.org/10.1080/19388160.2020.1845074

Zahidah, S. R., & Rostiani, R. (2021). *Kepercayaan pada ulasan daring meningkatkan niat memesan daring: Keuntungan mencari informasi?* [Trusting online reviews enhances intention to book online: The perks of seeking information?] *Jurnal Manajemen Bisnis*, *12*(2), 142–161. [in Indonesian]

Zhang, H., Lu, Y., Gupta, S., & Zhao, L. (2014). What motivates customers to participate in social commerce? The impact of technological environments and virtual customer experiences. *Information & Management*, *51*(8), 1017–1030. https://doi.org/10.1016/j.im.2014.07.005

Zhao, X., Wang, L., Guo, X., & Law, R. (2015). The influence of online reviews to online hotel booking intentions. *International Journal of Contemporary Hospitality Management*, *27*(6), 1343–1364. https://doi.org/10.1108/IJCHM-12-2013-0542

Zhu, L., Li, H., Wang, F.-K., He, W., & Tian, Z. (2020). How online reviews affect purchase intention: A new model based on the stimulus-organism-response (S-O-R) framework. *Aslib Journal of Information Management*, *72*(4), 463–488. https://doi.org/10.1108/AJIM-11-2019-0308

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Politeness strategies and speech acts used when handling problems during intercultural encounters: A case study of Thai cruise embarkation officers

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Abstract

As cruise tourism is a global business requiring embarkation officers to communicate effectively, this study aimed to investigate politeness strategies and speech acts of Thai embarkation officers in handling problems during their intercultural encounters. Ten students majoring in Cruise Tourism performing embarkation duties at a Thai port-of-call were asked to complete a Discourse Completion Task (DCT) with six scenarios. The data were analyzed using the frameworks of politeness strategy (Brown & Levinson, 1987), speech acts (Searle, 1969), and intercultural communication (Hall, 1976; Hofstede, 2001). The study revealed that the participants utilized three types of politeness strategies: negative, bald, and positive, respectively. To display politeness, four types of speech acts were performed. Representative speech acts were used the most since the participants were required to follow regulations while still pleasing the passengers, so they referred to rules set by the company. Expressive speech acts were used when they showed sympathy to passengers by apologizing. Commissive speech acts were utilized to order to promise that they would solve the problems at hand. Directive speech acts were also found since the participants were required to directly ask passengers to do what was needed. The participants were able to alter their behavior from that found in a high-context culture, using the type of direct responses that their Western passengers from low-context cultures use when communicating. The study's findings may assist educational institutions countrywide in preparing their graduates to function as effective communicators in global communication contexts.

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Introduction

Cruise tourism has grown significantly in the 21st century, with the number of cruise passengers worldwide increasing dramatically (Sun et al., 2011). Cruise manufacturers have built more cruise ships to respond to the immense demand, leading to an increase in job opportunities in the cruise industry. Following a temporary pause during the COVID-19 pandemic between 2020 and 2021, the cruise business triumphantly resumed its operations in 2022, and there are expectations of continued expansion in the coming years (Cruise Lines International Association [CLIA], 2020). With the cruise industry flourishing worldwide, the Thai government included a plan to expand the cruise business in Thailand in the 13th National Economic and Social Development Plan (2023–2027) in order to develop human resources and improve infrastructure in the cruise industry, particularly at the three ports-of-call for international cruise ships in Thailand: Laem Cha Bang, Phuket, and Samui (Office of the National and Social Development Council, 2023; Thangthong et al., 2019).

The international cruise industry can broadly be classified into two main sectors. The first is onboard operations, in which crew members hold various positions as waiters, housekeepers, butlers, bartenders, and casino staff members, for example. These crew members operate in a highly multicultural environment, assisting cruise passengers from a variety of cultural backgrounds. These crew members must therefore have a high level of English proficiency and possess advanced intercultural communication skills (Nomnian, 2014). The second sector, which is the focus of this study, involves port-of-call operations in which cruise ships dock at piers in various international destinations and cruise passengers are able to disembark from their ships in order to visit local attractions. New cruise passengers are also welcome to join the ships at these ports. Port-of-call staff members are required to provide service to cruise passengers during embarkation and disembarkation. Embarkation officers can be classified into three groups. Staff in the first group are employed by cruise agencies in various countries to carry out duties on board cruise ships. These embarkation officers usually operate on six-to-ten-month contracts. Staff in the second group are employed by port agencies in Thailand. They usually operate on long-term contracts but there are only a small number of staff in this category. Staff in the third group, some of whom were participants in this study, share similar conditions to those in the second group. However, they operate on daily contracts, performing their duties only on days when cruise passengers are embarking on or disembarking from cruises. They are often Thai university students majoring in Tourism, Hospitality, or Cruise Tourism (Thangthong et al., 2019). These Thai embarkation officers are required to use English to perform their tasks, which involve frequent interactions with foreign cruise passengers. Therefore, merely having a high level of English proficiency is insufficient. They also need to be strategic in politely communicating with passengers in various situations (Indahsari, 2019; Thurlow & Jarwoski, 2010).

Politeness is a significant concept in intercultural and interpersonal communication, commonly used in linguistic as well as sociolinguistic domains. Consequently, researchers have extensively studied politeness, both globally and in Thailand. Pan (2000) characterizes politeness as language that effectively displays a speaker's intention to lessen the potential risk of losing face. This aligns with Brown and Levinson's (1978) notion that speakers employ politeness in order to mitigate face-threatening acts (FTAs). The purpose of such a strategy is to alleviate the interlocutor's sense of imposition during the encounter. Furthermore, several scholars, such as Scollon and Scollon (1995), confirm that politeness strategies have a solid foundation within various cultural values and individual' expectations concerning what is considered polite. Simply put, politeness is believed to have a strong connection with socially dependent features, particularly the beliefs and values of the interlocutors. The officers' adequate level of English proficiency and their successful deployment of politeness strategies together ensure that foreign cruise passengers have memorable experiences during their trips (Kim et al., 2012).

Although research studies have explored English proficiency needs, politeness strategies, speech acts, and intercultural communication in various discourse communities, this study attempted to investigate those aspects in the cruise discourse community which had been underexplored. Thus, this study fills a previous void in the existing literature. Also, this study recommends that the Thai government and stakeholders in the cruise industry equip their current and future employees with appropriate politeness strategies to use during intercultural encounters.

The Scope of the Study

This study explored only types of politeness strategies, speech acts, and the notion of intercultural communication found at the lexical level from participants' responses.

The Objective of the Study

The study aimed to investigate politeness strategies and speech acts used by Thai embarkation officers when handling problems during intercultural encounters.

Literature Review

When dealing with foreign cruise passengers, Thai embarkation officers may encounter communication problems. To study how they communicate, the politeness framework proposed by Brown and Levinson (1978), the speech acts framework by Searle (1969) as well as the notion of intercultural communication discussed by Hofstede (2001) and Hall (1976) were used to analyze their responses.

Brown and Levinson's (1978) Politeness Theory

Politeness theory is a sociolinguistic and pragmatic framework that seeks to understand the ways in which people manage and mitigate the potential negative consequences of face-threatening acts in communication. In other words, politeness theory explores how individuals maintain social harmony and avoid conflict in their interactions. The politeness study by Brown and Levinson (1978) places an emphasis on how politeness is displayed in the utterances of interlocutors. This framework is widely used in academic analyses of social environments in which formality is present.

The term "face" emphasizes the importance of linguistic politeness. The concept was initially proposed by Goffman (1967), and further developed by Brown and Levinson (1978). In pragmatic studies, key aspects of face include positive face and negative face. The term *positive face* refers to a desire for social approval, connection, and inclusion, while the term *negative face* refers to a desire for autonomy and freedom from imposition as well as the right to make independent choices.

The first strategy within the politeness theory is known as *on-record without redress (bald)*, and it is the most direct and unambiguous one. This strategy entails being straightforward and to-the-point without attempting to mitigate any potential face-threatening acts. When someone chooses a bald, on-record strategy, they are opting for directness and clarity in their communication, often at the expense of minimizing potential threats to the hearer's face (positive or negative). People typically employ this strategy when the urgency, clarity, or explicitness of the message outweighs the risk of face-threatening acts.

The second one is *on-record with redress (positive politeness)*. This strategy involves emphasizing commonalities, showing solidarity, and using language that seeks to make the interlocutor feel valued and appreciated. Compliments, expressions of agreement, inclusive language, and the highlighting of shared interests are examples of positive politeness. We often use positive politeness in situations where maintaining a positive social relationship is crucial. It helps to build rapport, create a sense of camaraderie, and foster a positive atmosphere in communication.

The third approach, known as *on-record with redress (negative politeness)*, is also associated with redress. It involves mitigating potential threats to the interlocuters' negative face by using indirect language, hedging, and expressing deference to their autonomy. Examples of negative politeness include the use of modals, such as could or would, making requests indirectly, apologizing, and acknowledging the imposition of a request. We employ negative politeness when we need to make requests, give directives, or convey potentially face-threatening information while minimizing the risk of causing discomfort or offense. It acknowledges the other person's need for autonomy and personal space. Figure 1 illustrates Brown and Levinson's (1987) FTA strategies:

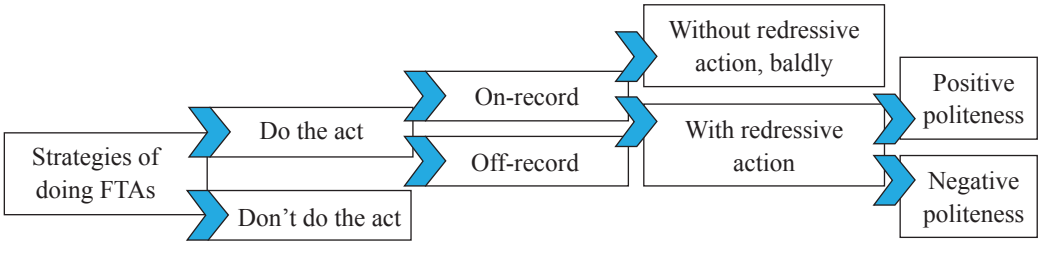


Figure 1 Strategies for doing FTAs
Adapted from Brown and Levinson, 1987

Redressive action refers to the efforts individuals make to repair or compensate for any harm they may have caused to the interlocutor's positive or negative face during communication. An FTA, such as a direct request, criticism, or imposition, may have an impact on the interpersonal relationship between the two parties as well as their respective needs. The subsequent response or behavior, known as redressive action, aims to repair any face-threatening damage and maintain social harmony. Apologizing is an example of redressive action. Offering an apology is a common redressive action when a message or behavior has caused offense, inconvenience, or hurt feelings. Apologizing acknowledges the impact on the other person's face and expresses regret. Another redressive action involves providing justification. Providing an explanation or justification for a potential FTA helps the speaker to clarify their intentions and reduce the perceived threat to the interlocutor's face. Moreover, offering assistance or cooperation is also considered a redressive act. If a direct request is made and is perceived as an imposition, the speaker may help or express a willingness to cooperate, thereby mitigating the negative face threat. Expressing gratitude is also a redressive action, in that it acknowledges and reciprocates positive face-enhancing behaviors. The last type of redressive action involves the use of positive politeness strategies. Employing positive strategies, such as emphasizing commonalities, expressing solidarity, or using inclusive language, can be examples of redressive action that aims to counterbalance the impact of an FTA.

The fourth politeness strategy is *off-record*. This strategy is also referred to as the indirect or hint strategy. It is a way of communicating that involves sending a message indirectly without making a direct request or statement. By allowing the interlocutor to save face or comply with a request without feeling obligated, this approach often mitigates potential face threats and maintains positive social relationships. The goal is to communicate a message while minimizing the imposition on the other person's negative face.

The fifth politeness strategy is to avoid doing FTAs altogether. When an individual has decided not to perform an action that could potentially threaten someone's face, several positive outcomes can be achieved. First, the individual is able to maintain a positive relationship with the other person. By avoiding face-threatening acts, one contributes to maintaining positive and harmonious relationships with others. In social and professional contexts that value positive interpersonal dynamics, this is especially crucial. Another benefit is that it reduces conflict. Face-threatening acts can lead to conflict or discomfort. Choosing not to engage in such acts helps to minimize the risk of misunderstanding, disagreement, or negative emotional reactions. The third advantage is that it preserves face. By using politeness strategies, one shows consideration for the other person's needs, which may include a desire for social approval, a need for connection (a positive face), or a yearning for autonomy and freedom, for example.

As service providers and representatives of authority, Thai embarkation officers need to directly communicate with foreign passengers during the embarkation process at their ports- of-call. Thus, politeness strategies are essential during their conversations. Oftentimes, they encounter difficult situations as well as passengers with both positive and negative faces, making their decisions to employ appropriate politeness strategies crucial.

Speech Acts

Politeness can be demonstrated using speech acts. In addition to producing utterances with words ordered in grammatical structures, humans also conduct certain actions by expressing these words in their interactions with others. Yule (1996) gives instances of where words can carry out actions. The statement "You're fired," for example, effectively terminates the employment of the worker being addressed. Speech acts are actions that utterances carry out. Austin (1962) presented the notion of the speech acts, and Searle (1969), a student of Austin's, expanded upon it. Three acts are involved in a speech act. Firstly, a locutionary act is one that results in a meaningful language utterance. Secondly, an illocutionary act is one that an utterance's communicative energy performs. Thirdly, a perlocutionary act is the result of speech that is intended by the speaker.

Searle (1969) divides speech acts into five categories based on their general purposes: declaratives, representatives, expressives, directives, and commissives. Declaratives are speech acts in which the speaker says something that can lead to a change, such as in the example above, "You're fired." Representatives convey the speaker's interpretation of the world based on their beliefs, e.g. "We need to comply with the rules and regulations." Expressives, involving joy or grief, for example, convey the speaker's emotional state. "I'm sorry to hear that" is an example of a spoken act that conveys sympathy. Directives are speech acts in which the speaker's goal is to persuade others to take action. "Could you open the bag for a manual inspection?" is one example. Commissives are speech acts in which the speaker promises to carry out actions later, e.g. "I will get back to you as soon as possible."

Yule (1996) distinguishes between direct and indirect speech acts. When a sentence structure and its function are directly related, an act of direct communication is accomplished. An example of a declarative sentence would be: "I'm hungry." This statement is used to declare how the speaker feels. When there is a difficult connection between a sentence's structure and its intended purpose, an indirect speech act is used. For example, the declarative sentence, "I'm hungry," might be used to indirectly request for food. Therefore, the employment of indirect speech acts is linked to the concealed meanings expressed through language.

Since the utilization of particular speech acts in conversation may affect the received meaning, Thai embarkation officers who use English as a foreign language need to be careful when choosing words to use in their conversations. Despite the intended meaning of speakers being positive, the speech acts that they use may lead interlocutors to perceive their messages differently. This demonstrates the power of the word choices that are used in different types of speech acts.

Intercultural Communication

Since politeness differs across cultures, intercultural communication can affect politeness during intercultural encounters. The notion of intercultural communication can generally be explained by referring to key cultural dimensions, focusing on Hofstede's and Hall's frameworks to understand communication and behavioral differences across cultures.

Hofstede's Cultural Dimensions

Hofstede (2001)'s model identifies five cultural dimensions: individualism vs. collectivism, power distance, uncertainty avoidance, masculinity vs. femininity, and long-term vs. short-term orientation. Individualistic cultures value self-reliance, while collectivistic cultures prioritize group harmony. With respect to the dimension of power distance, low-power cultures stress equality, whereas high-power cultures accept disparities in degrees of authority. Cultures with high uncertainty avoidance seek structure and avoid ambiguity, while those with low uncertainty avoidance are more comfortable with disorder. Masculine cultures emphasize competitive success, while feminine cultures prioritize relationships and care. Long-term oriented societies value perseverance, while short-term cultures focus on tradition and quick results. Thailand's culture is one characterized by collectivism, high power distance, low uncertainty avoidance, femininity, and long-term orientation. There is an emphasis on social harmony, humility, and patience. Hofstede's study has faced criticism for assuming uniformity within national cultures and using limited sample sizes. Critics argue that cultural diversity within nations is overlooked and that the study's narrow participant scope limits its applicability to broader cultural contexts.

Hall's Cultural Dimensions

Hall (1976)'s model contrasts high-context and low-context cultures, where the former relies on indirect communication and contextual cues (e.g., China, Japan, Korea) and the latter favors direct language (e.g., Germany, USA). Thailand is considered a high-context culture, in which there is an emphasis on indirect communication and face-saving behaviors. High-context cultures use spiral logic and prioritize respect for the others' face, while low-context cultures rely on direct speech acts and conflict resolution. As Ting-Toomey (1988) argues, differences also appear to exist in the respective ways in which high and low context cultures handle conflicts. Other researchers, however, adopt a more critical stance in relation to Hall's model. Scollon et al. (2012), for example, argue that its categorization of cultures is overly simplistic, suggesting that the analysis of context-dependent situations may be more useful in understanding communication nuances.

Intercultural encounters between Thai embarkation officers and foreign passengers involve communication between individuals whose respective cultures may display differences with respect to the linguistic features manifested in politeness and speech acts, as well as in relation to communication style. Therefore, it is crucial for parties on both sides to be aware of such differences in order to prevent unintentional and unnecessary conflict that may arise due to a lack of intercultural knowledge.

Previous Related Studies

Several cases exist of previous studies conducted with the goal of helping to improve various aspects of cruise tourism in Thailand. Monpanthong and Choibamroong (2015) discovered that service providers' engagement with foreign cruise passengers at ports-of-call affected the management of each respective port-of-call's performance in Phuket, Thailand. Thangthong and Khuanmuang (2020) found that many factors, including the behavior of staff members toward passengers on board cruises and at ports-of-call, affected passengers' perception

of their trips. This finding shows how personnel in the cruise industry, including embarkation officers, play an important role in shaping cruise passengers' experiences.

It is clear that politeness strategies, speech acts, and intercultural communication play key roles in communication between cruise staff and passengers. In a further example of a study conducted in the context of Thai tourism, Rattanapian (2015) revealed that Thai tourist police officers employed a combination of positive and negative politeness, as well as bald on-record and off-record strategies with foreign tourists coming for information at a Thai tourist information center. In an additional example of research relevant to this paper, Sodpiban (2002) revealed that foreign tourists were satisfied with how Thai hotel staff demonstrated politeness despite having trouble communicating with them.

Another way in which politeness is displayed relates to how speakers use word choices in conversation to achieve their intentions. Thus, speech acts are crucial in ensuring the conveyance of an intended meaning. In tourism contexts, Ganmanee et al. (2023) found that representative speech acts were mostly found in tourism slogans on online platforms based in various countries. Likewise, Izyra and Sartini (2023) revealed that assertive, directive, and expressive speech acts were used in online tourism promotion for the Indonesia and Malaysia Truly Asia campaigns. In a professional setting, Wattanawong (2023) ascertained that Thai hotel receptionists employed several types of speech acts in their conversations with hotel guests when dealing with complaints and responding to inquiries Such speech acts involved apologizing, suggesting, and requesting. These studies indicate the importance of speech acts in the tourism realm. All these studies employed Searle's (1969) speech act framework. This confirms that although much time has passed since the framework was originally proposed, it is still practical and continues to be widely used among scholars. Nonetheless, none of these studies explored the use of speech acts in the cruise industry. This study consequently aims to fill the gap in the literature and provide insightful results in order to help enhance communication by Thai workers in the cruise business.

Another important issue related to how politeness is understood and conveyed concerns differences in how speakers from diverse cultural backgrounds understand intercultural communication. Although there is a greater quantity of research concerning intercultural communication in Thailand today than in previous decades, a significant portion of this research is focused on pedagogical contexts. Some notable examples include Phongsirikul and Thongrin (2019), who investigated students' perspectives regarding their intercultural learning experiences in English classes; Wattanavorakijkul (2020), who evaluated the intercultural sensitivity of Thai university students participating in work and travel programs in the United States; and Nomnian and Jhaiyanuntana (2020), who investigated the intercultural communication strategies and obstacles faced by Thai undergraduate hotel interns.

In terms of customer satisfaction towards the intercultural communication of service providers, Tipmontree (2007) discovered that Thai tourist police officers struggled to understand cultural differences as well as different English accents. In the cruise tourism context, Khuanmuang (2022) found that Thai cruise ship staff possessed a high level of intercultural communicative competence due to their extensive exposure to multiculturalism in their workplace. However, it was found that they still needed to enhance their intercultural communicative competence in order to meet global standards. In the port-of-call context, Khuanmuang et al. (2024) found that Thai port staff had a low-to-moderate level of intercultural communicative competence, probably due to their lack of multicultural exposure. Since they were based in Thailand, their knowledge of intercultural communication was limited.

While these studies included observations made by participants in actual settings, their findings may not provide an accurate guide to how Thai embarkation officers would handle similar situations. This is because different discourse communities have their own communication practices. It is hoped that in addressing such issues, the current study will add clarity to an under-researched field of communication.

Methodology

Participants

The number of participants in a qualitative study can be limited in order to provide a body of rich information, as qualitative data can be purposively selected to serve the research objective (Battaglia, 2008; Gerring, 2007). Ten participants who were actual workers in the field were purposely selected to provide authentic and genuine data. They were selected based on two criteria. The first was their experience as embarkation officers. All of them were third-year Thai university students majoring in Cruise Tourism in Bangkok who had served at least under one daily contract with a port agency at Laem Cha

Bang Port-of-Call as embarkation officers. Aside from having experience as embarkation officers, they had also completed foundation-level English courses and an English for Seafarers Course required by the program. These selection criteria ensured the homogeneity of the participants. Participants were male and female students aged between 19 and 22.

Instrument

The Discourse Competition Task (DCT) was selected for the collection of data due to its advantages in allowing participants to write immediate responses in a timely manner. This is a rapid approach that is capable of collecting natural data based on the participants' thoughts (Blum-Kulka & Olshtain, 1984). The DCT included six scenarios corresponding to problems frequently found during tasks commonly performed by embarkation officers. The selected scenarios were developed from imperial data obtained during informal interviews with three experts: a cruise tourism scholar and two full-time embarkation officers. The scenarios were validated by three experts in the cruise industry in Thailand, ensuring the content aligned accurately with the duties of embarkation officers. The scenarios represented problems often found during the performance of the following six tasks: 1. checking in, 2. dropping off baggage, 3. issuing baggage tags, 4. inspecting baggage, 5. issuing keycards, and 6. handling special requests. The DCT is displayed in Table 1.

Data collection

We collected the DCT data at a university in Bangkok in December 2023. The participants were asked to respond to six situations in writing within thirty minutes. The aim was to elicit responses from the participants. During the data collection period, we were present on-site to provide clarification where needed. Consent forms were signed prior to the data collection to ensure that all participants took part in the study on a voluntary basis. Approximately fifteen minutes prior to the data collection period, we casually talked to participants in Thai about their career goals and life in general. We made sure that the conversation did not provide any hints as to the nature and contents of the questions in each scenario. This rapport building was initiated in order to build trust between the two parties so that the participants would feel comfortable while undergoing the DCT session. Instructions for the data collection were explained to the participants in Thai so as to mitigate the potential for any misunderstanding. The participants did not need to provide their names, allowing them to

Table 1 Discourse completion tasks with six situations

Situation 1: A passenger is about to check in. She just finds out from a customs officer that her passport is about to expire in two months, which exceeds the passport validity period. As a result, she is unable to board the cruise. She insists that it is not her fault since she is not aware of such a regulation. What would your response be? You: ……
Situation 2: A passenger is about to drop off his baggage, but the number and weight of the baggage exceed the limit as per the baggage regulations. He appears very upset and wants you to check all his baggage. What would your response be? You: ……
Situation 3: You've just given baggage tags to a passenger. However, the passenger is confused about the tags, which are in two different colors. Additionally, he must collect each bag with a different color code in different locations. The passenger seems to find this troublesome and appears to be upset. What would your response be? You: ……
Situation 4: During baggage inspection, the machine detects some prohibited items. You need to ask permission from the passenger to do the manual inspection. However, he refuses and says that you do not have the right to go through his personal belongings. What would your response be? You: ……
Situation 5: A passenger is waiting to collect the keycard for his room. However, there is a technical problem with issuing the card. The room reservation is duplicated. Therefore, the system has mistakenly registered two passengers in the same room. You need at least half an hour to fix the problem. The passenger is angry and says that it is your mistake, not his. He does not want to wait. What would your response be? You: ……
Situation 6: A passenger is waiting for a wheelchair. However, the information does not show up in the system. We can assume that an error occurs during online reservation. As a result, you are unable to provide her with the wheelchair right away, and she must wait for half an hour. She is upset and says that she is certain that she has requested a wheelchair during the online reservation. What would your response be? You: ……

complete the DCT without concerns about disclosure of personal information. Because we did not have a personal or professional relationship with the participants, the researchers' presence did not affect the participants' interests. Although their first language was Thai, they needed to use English as a medium of communication while performing their duties as embarkation officers. Therefore, the DCT was completed in English.

Data analysis

We qualitatively analyzed the DCT data in order to explore types of politeness strategies used, following Brown and Levinson's (1978) framework to see how participants employed politeness strategies. We also analyzed the types of speech acts proposed by Searle (1969) in order to determine the language the participants used to convey their intended meanings. The incorporation of intercultural communication in conversation was analyzed using the intercultural communication framework by Hofstede (2001) and Hall (1976). An example of data analysis is presented in Example 1:

> "I'm deeply sorry about our mistake. I will talk to the manager about the promotion we can give you."
>
> (Situation 5, Response 3)

This response shows that the speaker is trying to cope with the passenger's negative face by using negative politeness. The speaker uses the phrase "I'm deeply sorry…" in order to mitigate any potential threat by apologizing. In terms of speech acts, the phrase "I will talk to the manager…" indicates a promise, and can therefore be considered commissive speech act. Moreover, the use of the pronoun "we" reflects the collectivism culture of the speaker to preserve mutual face.

Because the participants worked as embarkation officers for international cruise lines, the responses were in English, so we discarded minor grammatical and spelling mistakes that did not significantly alter the intended meanings. The goal of such encounters is mutual comprehensions, and grammatical accuracy is not essential.

After the data analysis, the interpreted findings were shown to the participants, providing them with an opportunity to confirm correct interpretation as well as clarifying any ambiguity.

Results and Discussion

As noted above, the main goal of the research was to investigate politeness strategies and speech acts used by Thai embarkation officers when handling problems during intercultural encounters. A summary of the findings is presented in Table 2.

The findings revealed that participants only used three politeness strategies. The most popular one was negative politeness with 39 responses (65%). The second most common one was bald with 18 responses (30%), followed by positive politeness with 3 responses (5%). In terms of speech acts, 4 types of speech acts were used in the responses. The most frequent type of speech acts was representatives, with 41 tokens (34.45%), while the least frequently used type was commissives, with 24 tokens (20.17%).

Politeness Strategies

Based on the findings of this study, negative politeness was found to be the most effective politeness strategy. This could be due to the participants' roles as service providers. However, several problems may occur during the embarkation process, as demonstrated in the six situations in the DCT. Passengers seemed to show negative face when encountering problems. As service providers, participants demonstrated politeness with redressive action in order to mitigate additional problems and to show that they were aware of the problems and were trying to solve them. Interestingly, although bald was the second most frequently used politeness strategy, the frequency was significantly lower than that for positive politeness. This could be due to the dynamic and fast-paced environment in the actual settings, where foreign cruise passengers tended to try and board their ships as soon as possible. However, since they were

Table 2 Overall politeness strategies and speech acts employed in all situations

Politeness strategies	Frequencies	Speech acts	Frequencies
A. Negative politeness	39 (65%)	A. Representatives	41 (34.45%)
B. Bald	18 (30%)	B. Expressives	31 (26.05%)
C. Positive politeness	3 (5%)	C. Commissives	24 (20.17%)
		D. Directives	23 (19.33%)
Total	60 (100%)	Total	119 (100%)

working in front-line, customer-facing roles, participants had to project politeness by redressing their words in order to communicate with passengers in a professional manner. Their performances would determine their success or failure during these intercultural encounters. The three types of politeness strategies are as follows.

A. On-record with redressive action (negative politeness)

Often, the Thai embarkation officers had to give commands to foreign cruise passengers who displayed negative face as they were not pleased with the situation. Thus, the participants needed to respond to negative face by referring to rules and regulations. However, the utterances were redressed by adding apologies. Doing so made the messages more polite. This type of approach is displayed in Example 2:

"We do apologize for the inconvenience. We suggest you to renew your passport before travelling to avoid travel disruption due to the regulations."

(Situation 1, Response 7)

"We apologize for this inconvenience. As the regulations, you should get rid of some stuff to fit the limit."

(Situation 2, Response 10)

Moreover, participants often employed modal verbs to indirectly express their thoughts. The use of modal verbs helps lessen the tension between interlocutors as it makes messages less direct and less imposing. This can be seen in Example 3:

"Sorry Miss, I could not able you to board the cruise. You must have to do your new passport."

(Situation 1, Response 4)

"Your baggage exceeds the limit. According to the regulation, we cannot check in all your baggage."

(Situation 2, Response 4)

B. On-record without redressive action (bald)

When participants gave directives, they often did not include apologies. This made the utterances sound more direct, as shown in Example 4:

"It was our policy, so you need to comply".

(Situation 3, Response 2)

"It is the regulation. You must do as I told you."

(Situation 3, Response 3)

These two utterances are more inclined to be classified as examples of the use of a bald strategy. This is because participants did not apologize but requested compliance with rules and regulations that all passengers needed to follow. Consequently, it is possible to claim that these Thai embarkation officers used a mix of negative politeness and bald-on-record strategies.

C. On-record with redressive action (positive politeness)

Some of the Thai embarkation officers employed a positive politeness strategy when dealing with problems by showing the passengers who complained that they understood how they felt. This created a sense of camaraderie between the Thai embarkation officers and the foreign cruise passengers, as demonstrated in Example 5:

"I'm sorry for this inconvenient and I'm truely truly understand your point, but we have to do this for everyone's safety. I hope you understand."

(Situation 1, Response 1)

"I'm sorry for this trouble. I understand that this can be confusing. Here, let me explain it for you."

(Situation 3, Response 4)

In brief, negative politeness was the most frequently used politeness strategy. This differs from the findings of Rattanapian (2015), who found that Thai tourist police officers primarily used bald strategy. This may have been due to their limited English proficiency and lack of experience in intercultural communication, especially with respect to politeness. Additionally, the results of this study showed that participants encountered difficulties when communicating in English, which was not the participants' first language. This corresponds with the findings of Tipmontree (2007), who found that the tourist police officers possessed poor English grammar and had difficulty understanding different English accents. This may also account for the negative politeness used by many Thai embarkation officers without any redress. When speaking in a concise and straightforward manner, they did not have to worry about any grammatical mistakes they may have been making. The findings from this current study also demonstrated that the Thai embarkation officers seemed to handle problems involving foreign cruise passengers rather well due to their use of negative politeness and their reasonable level of English proficiency. This may indicate that they are proficient in communicating during intercultural encounters to some degree.

Speech Acts

Representatives were the most frequently used. This is likely due to the fact that their duties revolved

around safety, requiring them to refer to the appropriate regulations when encountering unfavorable reactions from passengers. Expressive speech acts were the second most frequently used. This could be due to the nature of this service-related job, which emphasizes the need to please passengers by showing empathy and understanding. Thus, apologies were used regularly. The officers frequently made commitments in order to reassure passengers that they would personally resolve their problems. Due to the nature of the embarkation contexts, the officers also utilized directives when complying with specific regulations. Also, directive speech tended to be concise and direct. This may also have been due to the limited English proficiency of the participants. Thus, they might have felt uncomfortable producing longer utterances. This could have inadvertently turned actions intended to inform into actions intended to issue orders. Such factors may impact politeness in intercultural encounters.

A. Representative speech acts

Representative speech acts express representations of the world as the speaker believes it to be. We found that this type of speech act occurred with the highest frequency (34.45%). The subtypes of acts within this category include "informing and asserting" as showcased in Example 6.

"I apologize for the problem from online reservation system. The wheelchair will come to you in half an hour."

(Situation 6, Response 8)

The speaker informed the hearer about the online reservation system, which had caused the problem, so that the hearer could understand why the speaker was taking the action.

"I'm deeply sorry about our mistake. I will talk to the manager about the promotion we can give you."

(Situation 5: Response 3)

The speaker asserted an intention to help the hearer by talking to the manager about complimentary items that the speaker may have been authorized to give to the hearer in compensation for the inconvenience caused or the possibility of an upgrade for the hearer, so that the hearer could feel that their problem was being dealt with in a serious manner.

B. Expressive speech acts

Expressive speech acts ranked second in terms of frequency (26.05%). These are acts that state what the speaker feels. "Apologizing, expressing concern, and thanking" are the subtypes of this category of speech act. Linguistic strategies used to perform these acts involve the deployment of words expressing emotion as displayed in Example 7.

"We apologize for the inconvenience. It is about the online mistake. It does not show your wheelchair reservation on the screen. We will bring a wheelchair to you immediately."

(Situation 6, Response 6)

The speaker made an apology to the hearer for mistakes the company had made so that the hearer could feel that the problem had been acknowledged and that the staff member was sorry about it.

"We have baggage tags different color code in different locations for easily management. Please understand our regulations, thank you".

(Situation 3: Response 1)

The speaker expressed gratitude by thanking the hearer for understanding the situation so that the hearer could feel that the staff member appreciated their action in understanding the situation.

C. Commissive speech acts

Commissives are speech acts that speakers employ to make promises to themselves about future behavior. With a frequency of 20.17 percent, this kind of speech act came in third in the study. The "promising" subtype was identified as seen in Example 8:

"I'm apologize for the problem from online reservation system. The wheelchair will come to you in half an hour".

(Situation 6, Response 8)

The speaker promised to bring a wheelchair in half an hour so that the hearer could feel reassured that the wheelchair they had booked as part of their online reservation would arrive soon.

"I'm really apologize for this situation. The problem will be fixed soon. I will prepare some drinks for you during this time."

(Situation 5, Response 9)

The speaker promised to prepare some drinks for the hearer while they waited for the problem to be resolved so that the hearer could feel comfortable and relaxed while waiting.

D. Directive speech acts

Directives are speech acts that speakers use to get others to do things. The data revealed that this type of act was the least commonly used, with a frequency of 19.33 percent. Both "requesting" and "forbidding" subtypes were identified, as seen in Example 9:

"I'm so sorry for duplicated. It's a mistake from registered. Please calm down for a minute, we are fixing the problem now."

(Situation 5, Response 8)

The speaker requested that the hearer calm down while they tried to solve the problem so that the hearer could feel more relaxed while waiting for the problem to be solved.

"You having problem we inspect your baggage, you are not allowed to get in"

(Situation 4, Response 6)

The speaker forbade the hearer from boarding the ship due to a problem with the latter's baggage. Now the hearer knew they could not board the ship.

Intercultural Communication

In addition, many participants used the inclusive term "we" to represent themselves on behalf of the company. This could make utterances sound as if the speakers had adapted to using positive politeness. However, when reading carefully, the meaning of "we" in such examples does not represent speaker and hearer, which would create a sense of camaraderie. On the contrary, "we" in this case refers to the Thai embarkation officers and the cruise line, and does not include the foreign cruise passengers. Use of this term by officers suggests that the notion of collectivism is more salient than that of individualism in this context, reflecting cultural differences in the field of intercultural communication (Hofstede, 2001). Also, the employment of "we" entails other-face and mutual-face strategies which are prominent in collectivist cultures such as those of Thailand and many other Asian countries (Ting-Toomey, 1988). This is shown in Example 10.

"I'm deeply sorry about our mistake. I will talk to the manager about the promotion we can give you."

(Situation 5, Response 3)

"We apologize for the inconvenience. It is about an online mistake. It does not show your wheelchair reservation on the screen. We will bring a wheelchair to you immediately."

(Situation 6, Response 6)

Based on our understanding of low-context and high-context cultures, we found that most of the Thai embarkation officers used the direct style when performing their tasks. They seemed to go straight to the point and always justify their claims in order to make their speech actions more compelling instead of using indirect speech acts (Yule, 1996). Hall (1976) classified Thai people as belonging to a high-context culture, indicating their tendency towards indirect communication. The speech acts recorded in this study demonstrate that the Thai participants were able to adjust themselves to a different setting in which most of the passengers were from western countries, which have low-context cultures favoring direct communication. (Scollon & Scollon, 1995). However, the officers' ability to culturally adjust themselves contradicted the findings by Khuanmuang et al. (2024), who found that Thai cruise port staff had low to moderate intercultural competence. This could be because their study included many port-of-call positions. Embarkation officers tended to have a moderate level of comprehension of intercultural communication, which seemed to be enough to handle problems.

Conclusion and Recommendations

This study aimed to investigate the politeness strategies and speech acts used by Thai embarkation officers when handling problems during intercultural encounters. Its findings can be analyzed in three key areas. The first one is the relationship between directness and empathy. The officers favored negative politeness and bald strategies in order to minimize inconvenience for passengers. This meant being clear and avoiding complex explanations. Likewise, directive speech acts and expressive speech acts were used to command passengers while showing sympathy. This showed empathy and acknowledged the passengers' situations, demonstrating a service-oriented approach. The second is the emphasis on clarity in the selection of speech acts. While dealing with negative face, the officers often relied on representative speech acts, including stating rules and regulations and referring passengers to their superiors. These straightforward statements ensured clear communication while showing the officers' intention to help. When they were unable to solve problems right away, the officers tended to use positive politeness to show that they understood how the passengers felt being in problematic situations. While doing so, the officers tended to employ commissive speech acts by promising that the problems would be solved. The third is the

incorporation of intercultural communication. When tackling problems, the officers could adjust to a culture different from their own by using a mixture of politeness strategies and speech acts. This strategic combination allowed the Thai embarkation officers to balance rule enforcement with concern for passengers, leading to the efficient resolution of various problems.

Recommendations

This study explored politeness strategies and speech acts by focusing on linguistic elements and asking participants to complete a Discourse Completion Task. The data, therefore, may not be as natural as that derived from other sources, such as audio recordings, observation, and videotaping, since effective communication includes both linguistic and non-linguistic elements. Future research may employ different methods for the retrieval of linguistic and non-linguistic evidence. Also, while the participants in this study were university students majoring in Cruise Tourism and operating under short-term contracts with a port agency, participants in future studies may include embarkation officers operating under permanent or long-term contracts. As these officers have more experience dealing with foreign cruise passengers on a regular basis, they may utilize different politeness strategies when dealing with problems during intercultural encounters.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

Austin, J. L. (1962). *How to do things with words*. Harvard University Press.

Battaglia, M. P. (2008). Nonprobability sampling. In P. J. Lavrakas (Eds.), *Encyclopedia of survey research methods* (pp. 524–526). SAGE Publications.

Blum-Kulka, S., & Olshtain, E. (1984). Requests and apologies: A cross-cultural study of speech act realization patterns (CCSARP). *Applied Linguistics*, *5*(3), 196–213. https://doi.org/10.1093/applin/5.3.196

Brown, P., & Levinson, S. C. (1978). *Politeness: Some universals in language usage*. Cambridge University Press.

Cruise Lines International Association [CLIA]. (2020, September 21). *CLIA research highlights*. http://cruising.org/-/media/Infographics/Cruise-Research-Highlights.

Ganmanee, P., Wongkittiporn, A., & Laddawan, C. (2023). An analysis of illocutionary act in tourism slogan. In N. Pantaratorn (Ed.), *The 8th RSU International Research Conference 2023 on Social Science and Humanities, Education, and Management* (pp. 106–114). Rangsit University.

Gerring, J. (2007). *Case study research: Principles and practices*. Cambridge University Press.

Goffman, E. (1967). *Interactional rituals*. Doubleday.

Hall, E. T. (1976). *Beyond culture*. Doubleday.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*. SAGE Publications.

Indahsari, F. (2018). Interlanguage pragmatics development in complaints responded used by Indonesian EFL learners. In Y. Nasucha. & M. H. Hikmat. (Eds.), *The 2nd International Conference on Language, Literature, and Teaching* (pp. 82–90). Universitas Muhammadiyah Surakarta.

Izyra, I., & Sartini, N. (2023). The analysis of speech act of tourism promotion in pesona Indonesia and Malaysia truly Asia: A cross-cultural pragmatic study. *ELS Journal on Interdisciplinary Studies in Humanities, 6*(3), 627–639. https://doi.org/10.34050/elsjish.v6i3.30927

Khuanmuang, C. (2022). Intercultural communicative competence of Thai crew members for international cruise lines. *Journal of Studies in the Field of Humanities, 29*(2), 253–275. https://so04.tci-thaijo.org/index.php/abc/article/view/251786/177795

Khuanmuang, C., Thangthong, N., Srisuan, J., & Inmoonnoi, K. (2024). An analysis of intercultural communication of Thai ship port staff for international cruise lines. In P. Youngsuk. & K. Panmarerng. (Eds.), *Proceedings of the 19th National and 9th International Conference SPUCON2024*, (pp 192–201). Sripatum University.

Kim, J. H., Richie, J. R. B., & McCormick, B. (2012). Development of a scale to measure memorable tourism experiences. *Journal of Travel Research, 51*(12), 12–25. https://doi.org/10.1177/0047287510385467

Monpanthong, P., & Choibamroong, T. (2015). Performance of Phuket's port of call management for cruise tourism: An assessment of IPA application. *WMS Journal of Management Walailak University, 4*(1), 1–11. https://so06.tci-thaijo.org/index.php/wms/article/view/52371

Nomnian, S. (2014). Thai entrepreneurs' needs of English language for raft service business. *Silpakorn University Journal of Social Sciences, Humanities, and Arts, 14*(3), 101–128. https://so02.tci-thaijo.org/index.php/hasss/article/view/25948

Nomnian, S., & Jhaiyanuntana, A. (2020). Intercultural communication challenges and strategies for the Thai undergraduate hotel interns. *PASAA, 59*(1), 204–235. https://doi.org/10.58837/CHULA.PASAA.59.1.9

Office of the National and Social Development Council. (2023). *The thirteenth national economic and social development plan (2023–2027)*. https://www.nesdc.go.th/article_attach/article_file_20230615134223.pdf

Pan, Y. (2000). *Politeness in Chinese face-to-face interaction (Vol. 67)*. Cambridge University Press.

Phongsirikul, M., & Thongrin, S. (2019). Developing intercultural awareness in ELT: Students' attitudes toward their intercultural learning experience. *Reflections, 26*(1), 78–114. https://doi.org/10.61508/refl.v26i1.203947

Rattanapian, S. (2015). *Politeness and miscommunication in service encounters at tourist police centers in Thailand* [Doctoral dissertation, Thammasat University]. TU Digital Collections. https://digital.library.tu.ac.th/tu_dc/frontend/Creator/personDc/131801

Scollon, R., & Scollon, S. W. (1995). *Intercultural communication: A discourse approach*. Blackwell.

Searle, J. R. (1969). *Speech acts: An essay in the philosophy of language*. Cambridge University Press.

Sodpiban, P. (2002). *Intercultural communication in tourism development*. Language Institute, Prince of Songkla University, Phuket Campus.

Sun, X., Jiao, Y., & Tian, P. (2011). Marketing research and revenue optimizing for the cruise industry: A concise review. *International Journal of Hospitality Management, 30*(3), 746–755. https://doi.org/10.1016/j.ijhm.2010.11.007

Thangthong, N., & Khuanmuang, C. (2020). Exclusive memorable experiences of international cruisers at Thailand's ports of call. *Journal of Multidisciplinary in Social Sciences*, *16*(3), 47–52. https://so03.tci-thaijo.org/index.php/sduhs/article/view/268137

Thangthong, N., Inmoonnoi, K., & Khuanmuang, C. (2019). Traveling behaviors of international cruise passengers in Thailand. In Wongwailkhit. K. (Ed), *Proceedings of the RSU International Research Conference* (pp. 1210–1216). Rangsit University.

Thurlow, C., & Jaworski, A. (2010). *Tourism discourse: Language and global mobility*. Macmillan.

Ting-Toomey, S. (1988). Intercultural conflict styles: A face-negotiation theory. In Y. Y. Kim & W. B. Gudykunst (Eds.), *Theories in intercultural communication*. SAGE Publications.

Tipmontree, S. (2007). *The use and the problems of English and intercultural communication skills of Thai tourist police officers*. [Master's thesis, University of Thai Chamber of Commerce]. UTCC Central Library. https://hdl.handle.net/20.500.14437/2787

Wattanavorakijkul, N. (2020). Measuring intercultural sensitivity of Thai university students: Impact of their participation in the US summer work travel program. *Reflections, 27*(1), 81–102. https://doi.org/10.61508/refl.v27i1.241822

Wattanawong, W. (2023). *English for tourism: Presentation of speech acts in relation to language interactions in Thai hotel settings*. [Doctoral dissertation, The University of Auckland]. University of Auckland Digital Doctoral Theses. https://hdl.handle.net/2292/63462

Yule, G. (1996). *Pragmatics*. Oxford University Press.

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Causal relationship model of factors influencing sustainability preferences in community-based tourism in Thailand

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Abstract

The purpose of this research was to study the consistency between the causal relationship model of factors influencing Sustainability Preferences (SUS) in Community-Based Tourism (CBT) in Thailand and empirical data, while also analyzing the direct and indirect effects of variables within the model. The sample consisted of 200 domestic tourists and 200 foreign tourists, totaling 400 individuals visiting CBT destinations. Descriptive statistics, including frequency, mean, percentage, and standard deviation, were employed for validation and analysis, alongside confirmatory factor analysis and path analysis. The findings indicated a strong fit between the causal relationship model and empirical data (x^2= 98.514, df = 81, p = .09, CFI = 0.996, AGFI = 0.938, GFI = 0.976, RMR = 0.010, and RMSEA = 0.023), so it can be seen that all-important statistical indices meet the specified criteria. The variables of the model could describe 96 percent with SUS directly affected by Attractiveness (AT) and Tourist Experiences (TE) with the effect sizes 0.08 and 0.88, respectively. Moreover, SUS was indirectly affected by AT and TE through Community Involvement (CI) with the effect size 0.370 and 0.247, respectively.

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Introduction

Over recent years, the tourism and hospitality industry has seen continuous development and growth, driven by the increasing number of tourists and rising tourism income. Today, these sectors have become integral to driving the nation forward, contributing millions of baht to the economy and benefiting people across all levels. The landscape is marked by intense competition in both hotels and accommodations, alongside the expansion of the low-cost airline sector. Additionally, the government plays a crucial role in stimulating tourism activities.

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There has been a notable shift in the concept of tourism management. Initially focused on meeting tourists' needs and satisfaction through various resources, the current approach now emphasizes community participation, aligning with the principles of localism. This shift redirects tourism management towards the host communities, who are the stewards of these resources, fostering the development of community-based tourism management.

Community-Based Tourism (CBT) started in Thailand in 2002. The tourism model has been developed since after the 1997 economic crisis when the Thai government started using tourism as a stimulus by announcing 1998–1999 as the year to promote Thai tourism (Amazing Thailand). In 2001, the One Tambon One Product (OTOP) project was started. In 2004, Homestay Standards were set, officially called "Rural cultural accommodation", which is considered the beginning of community-based tourism in Thailand. Community-Based Tourism involves sustainable tourism practices wherein the community takes an active role in guiding its direction and managing it autonomously. This approach is increasingly favored by global tourists seeking authentic local experiences. Community tourism serves as a vital tool for empowering communities in resource and cultural management, employing participatory processes to determine development paths and reap tourism benefits. Additionally, it aids in environmental restoration and conservation. Crucially, successful community tourism development hinges on recognizing tourism as a supplementary activity rather than a primary occupation, necessitating the utilization of diverse community resources such as traditional knowledge, artistic expressions, local culture, and lifestyle. Integrating these resources into the tourism cost structure aligns with strategies to foster public engagement, essential for ensuring the quality of tourism experiences. Community involvement across various sectors is pivotal in facilitating community-based tourism management, necessitating government support to facilitate community engagement, collaborative planning, decision-making, joint actions, and equitable benefit distribution.

These data will enhance comprehension of destination allure within Community-Based Tourism (CBT) in rural areas of Southeast Asia, with a focus on Thailand. The primary objective of this study is to explore CBT Attractiveness, Local Community Involvement, and Tourist Experience, about CBT Sustainability Preference Behaviors in Thailand, aiming to identify strategies for optimizing tourists' experiences.

Literature Review

Tourist Perception of CBT Attractiveness

Tourism quality is recognized as a pivotal aspect of tourist allure, particularly within Community-Based Tourism (CBT). This concept encompasses various elements, including a collection of natural features shaped by historical contexts and constructed in accordance with their respective eras. These elements comprise leisure qualities, natural qualities, cultural qualities, and special qualities. Additionally, facilitating travel arrangements allows leisure travelers to fully appreciate the assets of their chosen destinations. Tourism infrastructure can be categorized into two main groups: Technical infrastructure (e.g., food and accommodation facilities) and Social infrastructure (e.g., service offices, tourist information centers), alongside the availability of transportation, which can stimulate tourism development and provide access to pristine natural environments (Usmonova & Alieva, 2022).

Vengesayi et al. (2009) tourists choose destinations based on characteristics, such as accommodations (luxury or budget), accessibility, activities (indoor or outdoor), amenities, atmosphere, cultural attractions. historical attractions, natural attractions and service quality, etc. Many scholars have categorized tourism components in the form of A's such as the 3A's: Attractions, Amenities, Accessibility (Collier & Harraway, 1997), 4A's: Attractions, Amenities, Accessibility, Ancillary service or Ambience (Fletcher et al., 2017), 5A's: Attraction, Accommodation, Accessibility, Amenities and Activities (Ortaleza & Mangali, 2021), 6A's: Attractions, Amenities, Accessibility, Activities, Available packages, and Ancillary services (Buonincontri & Micera, 2016). The 10A's include: Attractiveness, Access, Activities, Awareness, Availability, Appearance, Assurance, Appreciation, Actions, Accountability (Lee & King, 2019).

CBT Attractiveness and Tourism Sustainability

Many scholars (Grilli et al., 2021; Mathew & Sreejesh, 2017; Nok et al., 2017) have identified that the understanding of sustainability expressed by tourists is linked to a passion for sustainable travel. It is known to provide economic and social advantages to local communities. The value proposition of a travel company should be to be able to attract like-minded travelers in practicing sustainability and participating respectfully in

community activities and social environment. That is, the consumer's preferences for the external environment and infrastructure facilities within a tourist attraction can have an impact on its success of sustainable tourism. (Jetter & Chen, 2011).

Local Community Involvement and Tourism Sustainability

Numerous studies have sought to specify that population support for tourism development can yield positive impacts on tourism (Lv & Xie, 2017; Riyanto et al., 2023). Community involvement is not only recognized as a crucial factor in the development of community-based tourism but also underscores that it creates greater opportunities for the host population to benefit from tourism development. Community participation also plays a pivotal role in the development of tourism destinations, serving as a catalyst for enhancing the value and competitiveness of the destination while promoting sustainability at the local level (Firdausia & Lestari, 2020). Through community involvement, a shared vision can be fostered, and by prioritizing heritage and culture, destinations can attain distinctiveness (Murphy, 2013). Therefore, possessing adequate community knowledge about tourism could enable local communities to actively participate in tourism development and thereby achieve sustainable rural tourism development (Fong & Lo, 2013).

Tourist Experience and Tourism Sustainability

Sustainable tourism can be seen as a form of tourism development in the direction of basing tourist satisfaction on three pillars: conserving the resources of the natural environment, preserving the cultural social values of the local community, and ensuring long-term economic benefits for stakeholders from tourism businesses, workers, investors to local communities. (WTO, 2005), where Wehrli et al. (2011) proposed that sustainable tourism will remain important in the future. The main features influencing tourists' needs include destination attributes, tourist education, environmental awareness, and recreation costs. According to Saptutyningsih and Duant (2021), tourist satisfaction with the physical environment and infrastructure development in tourist destinations may affect the success of sustainable tourism.

Mtapuri et al. (2015) developed a Community-based Visitors Affinity Index (CBTVAI) useful to owners or managers of CBT. This is because CBT ventures exist in different contexts and have different requirements. However, the index represents a flexible framework that can continually evolve and be reformatted according to the specific needs of CBT agencies. The sustainability of CBT is appropriate for this study. Three sustainability factors in tourism include: the environment, Society and Economy

Research Framework

From the above literature review, the research framework is presented in Figure 1. CBT sustainable preferences from tourists' perspectives are the results of CBT Attractiveness, local community involvement, and tourists' experiences in CBT.

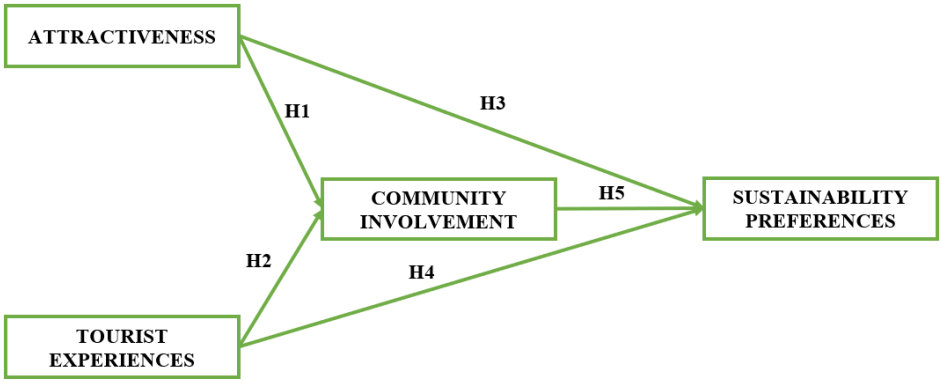


Figure 1 Research Framework

Methodology

Data Collection

The population are all the tourists who have had some experiences visiting CBT sites in Thailand. The subjects were sampling specifically in Chiang Mai, Thailand, which has the most community-based tourism villages in northern Thailand (Thailand CBT Network Coordination Center: CBT-N-CC, 2023). The samples were divided into two groups: 200 domestic tourists and 200 foreign tourists, totaling 400 samples visiting the CBT destinations.

Data Analysis

The questionnaire was used as a data collection tool. "Tourist perceptions of CBT Attractiveness" was adapted from the research tool of Mtapuri et al. (2015), who conducted research on Community-based tourism affinity index: a visitor's approach. "Community Involvement" and "Sustainability Preferences" were adapted from the research tool of Usmonova et al. (2022), who conducted research on Yurt Invited: Combining Tourists and Stakeholders Perceptions of Sustainable Community-Based Tourism in Central Asia. For "Tourist Experience" section, it was from all the related literature reviews. Five-point scales have been used in previous comparable studies, ranging from One = strongly disagree to Five = strongly agree, except the section on Tourist Perception of CBT Attractiveness ranging from One = worst to Five = excellent.

The content Validity was through three CBT experts, and the index of item-objective congruence (IOC) from three experts has an average value for the entire questionnaire equal to 0.95, meaning the questionnaire has usable reliability, as well as a pilot test with 30 tourist samples who had CBT experiences in Thailand. For Reliability, the Cronbach alpha coefficient was used to analyze the data when completing the data collection. The overall Cronbach alpha coefficient was 0.960. The Cronbach alpha coefficient for Thai tourists was 0.963 while the Cronbach alpha coefficient for foreign tourists was 0.970. This confirms the high reliability of the research tools.

Discussion

Personal data and CBT Behaviors of tourists

The results of data analysis on the general status of respondents using descriptive statistics such as frequency distribution and percentage values to describe the general characteristics of respondents, including gender, age, education level, occupation, and average income/month. Details of the data analysis results are as shown in the following Table 1

As shown in Table 1 above for the personal data of the samples, most of the tourists are female (209 samples = 52.2%) while there are 191 male tourists (47.8%). The majority of samples are in the age of 21– 30 years old (200 samples = 50%, followed by 31– 40 years old (81 samples = 20.2%). For marital status, most of them are single (200 samples = 50%), followed by married (176 samples = 44%). Most of them have Bachelor's degree (308 samples = 77%) with the occupation of business owners (112 samples = 28%), followed by private company staff (111 samples = 27.8%) and students (84 samples = 21%). The average income per month for most of them is 100–500 USD (135 samples = 33.8%), followed by 501–1,000 USD (127 samples = 31.8%). For the nationality of the respondents, there were 200 Thai tourist samples as set as the quota while the most foreign tourists are from Europe, (54 samples = 13.5%), followed by Chinese (44 samples = 11.1).

For the comparison of personal data between the Thai and the foreign tourist samples, the majority of both samples are female (108 Thai = 54%, 101 Foreign = 50.5%), while there are 191 male tourists (92 Thai = 46%, 99 Foreign = 49.5%). Both of the samples are mostly in the age of 21–30 years old (83 Thai = 41.5%, 119 Foreign = 59.5%), followed by 31–40 years old for the Thai tourists (53 samples = 26.5%) whereas followed by 20 years old and below for the foreign tourists (39 samples = 19.5%). This implies that the foreign tourists are younger than the Thai tourists. As to the marital status, most of the Thai tourists are married (100 samples = 50%) while most of the foreign tourists are single (125 samples = 62.5%). Most of both samples have earned a Bachelor's degree (149 Thai = 74.5%, 165 Foreign = 82.5%) while there are more "Lower than Bachelor's degree" for the Thai tourists (45 Thai = 22.5%, 25 Foreign = 12.5%). For the occupation, most of the Thai tourists are private company staff (69 samples = 34.5%) whereas most of the foreign tourists are business owners and students (65 samples = 32.5%

for each occupation). When considering their average incomes per month, most of the Thai tourists earned more than most of the foreign tourists (501–1,000 USD for 70 Thai samples = 35% while 100–500 USD for 76 foreign samples = 38%).

The results of respondents' CBT behaviors, including modes of access to CBT sites (multiple responses) and length of stay, are presented in Table 2.

According to Table 2 above, overall, most tourists have accessed the CBT sites by car (268 samples = 57.5%), followed by bus (97 samples = 20.8%) and by motorbike (90 samples = 19.3%). For the Thai tourists, most of them also traveled by car (135 samples = 62.8%), followed by motorbikes (59 samples = 27.4%), as well as the foreign tourists who preferred traveling to CBT by car (156 samples = 56.3%), followed by bus (89 samples = 32.1%) and by motorbike (32 samples = 11.5%). For the length of visit, the majority had 1 day trip (242 samples = 60.5%), followed by 2–3 day trip (120 samples = 30%). Also, both the Thai and the foreign tourists chose to have 1 day trip (134 Thai = 67%, 102 Foreign = 51%), followed by 2-3 day trip (59 Thai = 29.5%, 72 Foreign = 36%).

Factor of CBT Attractiveness, Community Involvement, Values, and Tourist Experiences that Influence Sustainability Preferences

The results of CBT Attractiveness, Community Involvement, Tourist Experiences, and Sustainability Preferences of Thai tourists, foreign tourists, and overall tourist results are as shown in the following Table 3.

Table 1 Frequency and percentages of personal data of the samples

Item	Thai		Foreign		Overall	
	Count	%	Count	%	Count	%
Gender						
Male	92	46	99	49.5	191	47.8
Female	108	54	101	50.5	209	52.2
Age						
20 years old and below	7	3.5	39	19.5	41	10.2
21–30 years old	83	41.5	119	59.5	200	50
31–40 years old	53	26.5	30	15	81	20.2
41–50 years old	32	16	5	2.5	44	11.0
51–60 years old	22	11	3	1.5	26	6.5
Above 61 years old	3	1.5	4	2	8	2
Marital status						
Single	81	40.5	125	62.5	200	50
Married	100	50	69	34.5	176	44
Widowed	13	6.5	6	3	18	4.5
Divorced/Separated	6	3	0	0	6	1.5
Educational level						
Lower than the bachelor's degree	45	22.5	25	12.5	71	17.8
Bachelor degree	149	74.5	165	82.5	308	77
Higher than the bachelor's degree	6	3	10	5	21	5.3
Occupation						
Student	27	13.5	65	32.5	84	21
Government state enterprise employee	40	20	14	7	57	14.3
Private company staff	69	34.5	38	19	111	27.8
Business owner	50	25	65	32.5	112	28
Housewife/Retired officer	12	6	15	7.5	29	7.3
Others: Designers, Teachers	2	1	3	1.5	7	1.8
Average income/month						
Less than 100 USD	2	1	20	10	20	5
100 - 500 USD	57	28.5	76	38	135	33.8
501–1,000 USD	70	35	59	29.5	127	31.8
1,001–1,500 USD	49	24.5	25	12.5	71	17.8
1,501–2,000 USD	10	5	13	6.5	21	5.3
More than 2,000 USD	12	6	7	3.5	26	6.5

Table 2 Frequency and percentages of general information (more than 1 choice)

Item	Thai		Foreign		Overall	
	Count	%	Count	%	Count	%
How to access CBT sites (more than 1 choice)						
By car	135	62.8	156	56.3	268	57.5
By bus	12	5.6	89	32.1	97	20.8
By bike	4	1.9	0	0	5	1.1
By motorbike	59	27.4	32	11.5	90	19.3
By foot	1	0.5	0	0	2	0.4
By public vehicle	4	1.9	0	0	4	0.9
Total	215	100	277	100	466	100
CBT length						
1 day trip	134	67.0	102	51	242	60.5
2–3 day trip	59	29.5	72	36	120	30
More than 3 day trip	7	3.5	26	13	38	9.5
Total	200	100	200	100	400	100

Table 3 Means of CBT Attractiveness, Community Involvement, Tourist Experiences and Sustainability Preferences of Thai Tourists, Foreign Tourists, and Overall Tourist

Factor	Thai Mean	Result	Foreign Mean	Result	Overall Mean	Result
Attractiveness	3.54	Agree	3.94	Agree	3.78	Agree
Community Involvement	4.11	Agree	4.21	Agree	4.16	Agree
Tourist Experiences	4.10	Agree	4.14	Agree	4.16	Agree
Sustainability Preferences	3.97	Agree	4.10	Agree	4.05	Agree

As shown in Table 3 above, when considering the CBT Attractiveness, Community Involvement, Tourist Experiences, and Sustainability Preferences in the perceptions of the tourists, all the factors are rated as "Agree": the overall tourist Attractiveness ($\bar{x}$ = 3.78), Community Involvement ($\bar{x}$ = 4.16), Tourist Experiences ($\bar{x}$ = 4.16) and Sustainability Preferences ($\bar{x}$ = 4.05). Moreover, it is noticeable that the foreign tourists had better perceptions of values than the Thai tourists since all the mean values were higher, but all the factors are rated as "Agree": Attractiveness ($\bar{x}$ = 3.54 for Thai and $\bar{x}$ = 3.94 for Foreign), Community Involvement ($\bar{x}$ = 4.11 for Thai and $\bar{x}$ = 4.21 for Foreign), Tourist Experiences ($\bar{x}$ = 4.10 for Thai and $\bar{x}$ = 4.14 for Foreign) and Sustainability Preferences ($\bar{x}$ = 3.97 for Thai and $\bar{x}$ = 4.10 for Foreign)

Overall Model of CBT Attractiveness, Community Involvement, Values, Tourist Experiences that influence Sustainability Preferences

The results of the structural equation model analysis after adjusting it by connecting the error values of the indicators according to the recommendations of Modification indices (MI) found that the adjusted model is consistent with the empirical data and the statistical values used to test the model are acceptable. Comparison of before and after model adjustment results are presented in Table 4. The final adjusted structural model is illustrated in Figure 2.

Table 4 Comparison of the model adjustment results for the overall tourist samples

Statistics	Criteria	Assumption model		Adjusted model	
		Statistics	Result	Statistics	Result
Chi-Square (x^2)	There is no statistical significance at the level > 0.05	739.668	-	98.514	-
df	-	164	-	81	-
p-value	$p > .05$	0.000	Non pass	0.090	pass
$\chi 2$ /df	$\chi 2$ /df < 3	1.510	Non pass	1.216	pass
CFI	> 0.90	0.823	Non pass	0.996	pass
GFI	> 0.90	0.712	Non pass	0.976	pass
AGFI	> 0.90	0.631	Non pass	0.938	pass
RMSEA	< 0.08	0.133	Non pass	0.023	pass
RMR	< 0.05	0.045	pass	0.010	pass
HOELTER	> 200	53	Non pass	418	pass

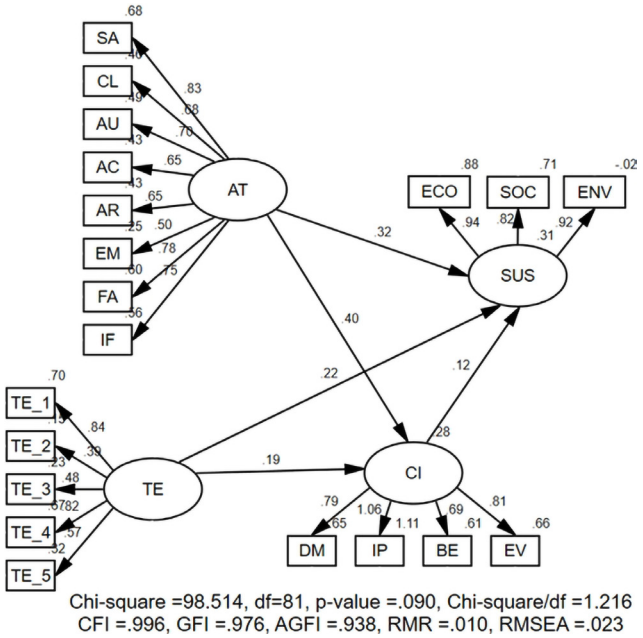


Figure 2 The after - adjusted overall model of CBT Attractiveness, Community Involvement and Tourist Experiences that influence Sustainability Preferences

The results of hypothesis testing for the causal relationship model of the overall tourist sample are presented in Table 5.

According to Table 5 above, in overall tourist sample, when separated into Direct Effect and Indirect Effect, it was found that Community Involvement (CI) had positive direct effect on Attractiveness (AT) equal to 0.401 and had a positive direct effect from Tourist Experiences (TE) equal to 0.184. In addition, Sustainability Preferences (SUS) also had positive direct effect by Attractiveness (AT) equal to 0.322 and through Community Involvement (CI) total effect equal to 0.370, positive direct effect by Tourist Experiences (TE) equal to 0.224, and through Community Involvement (CI) total effect equal to 0.247.

The results of hypothesis testing based on the total effect coefficients for the overall tourist samples are shown in Table 6.

Table 5 Statistics to test the hypothesis of the causal relationship model results for the overall tourist samples

Hypothesis	Structural Path Relationship	*p*	Standardized Regression Coefficient		
			DE	IE	TE
H1	AT → CI	.000	0.401	-	0.401
H2	TE → CI	.000	0.184	-	0.194
H3	AT → SUS	.000	0.322	-	0.370
H4	TE → SUS	.000	0.224	-	0.247
H5	CI → SUS	.005	0.120		0.120
H6	AT → CI → SUS		0.322	0.048	0.370
H7	TE → CI → SUS		0.224	0.023	0.247

Table 6 Research hypothesis testing results for the overall tourist samples

Hypothesis	Variable		Total Effect coefficient	Result
	Independent	Dependent		
H1	AT	CI	0.401***	Accept
H2	TE	CI	0.194***	Accept
H3	AT	SUS	0.370***	Accept
H4	TE	SUS	0.247***	Accept
H5	CI	SUS	0.120**	Accept
H6	AT → CI	SUS	0.370	Accept
H7	TE → CI	SUS	0.247	Accept

Note: ***$p < .001$, **$p < .05$

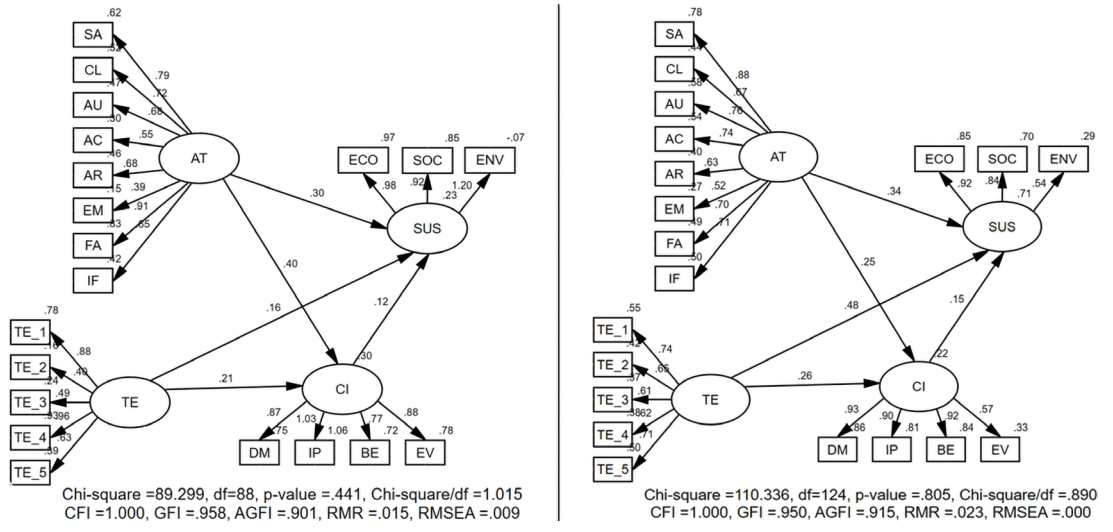
According to Table 6 above, in overall tourist sample, the results of the hypothesis testing found H1: Accept Hypothesis by Attractiveness (AT) has a positive direct total effect coefficient on Community Involvement (CI) equal to 0.401 ($t = 6.131, p < .001$) , H2: Accept Hypothesis by Tourist Experiences (TE) has a positive direct effect coefficient on Community Involvement (CI) equal to 0.194 (t = 3.348, p < .05) , H3: Accept Hypothesis by Attractiveness (AT) has a positive direct effect coefficient on Sustainability Preferences (SUS) equal to 0.370 (t =4.959, p < .05) , H4: Accept Hypothesis by Tourist Experiences (TE) has a positive direct effect coefficient on Sustainability Preferences (SUS) equal to 0.247 (t =3.633, p < .05) , H5: Accept Hypothesis by Community Involvement (CI) has a positive direct effect coefficient on Sustainability Preferences (SUS) equal to 0.120 (t = 2.807, p < .05) , H6: Accept Hypothesis by Attractiveness (AT) has a positive direct effect coefficient on Sustainability Preferences (SUS) through Community Involvement (CI) equal to 0.370 and H7: Accept Hypothesis by Tourist Experiences (TE) has a positive direct effect coefficient on Sustainability Preferences (SUS) through Community Involvement (CI) equal to 0.247.

Comparison Model of CBT Attractiveness, Community Involvement, Values, Tourist Experiences that Influence Sustainability Preferences of Thai Tourist and Foreign Tourist

The results of the structural equation model analysis after adjusting it by connecting the error values of the indicators according to the recommendations of Modification indices (MI) of Thai tourists and foreign tourists found that the adjusted model is consistent with the empirical data and the statistical values used to test the model are acceptable. Comparison of Thai Tourists and Foreign Tourists model adjustment results are as shown in the following Table 7, Figure 3.

Table 7 Comparison of the model adjustment results for the Thai and foreign tourist samples

Statistics	Criteria	Thai Tourist model		Foreign Tourist model	
		Statistics	Result	Statistics	Result
Chi-Square (x^2)	There is no statistical significance at the level > 0.05	89.299	-	110.336	-
df	-	88	-	124	-
p-value	$p > .05$	0.441	pass	0.805	pass
$\chi 2$ /df	$\chi 2$ /df < 3	1.015	pass	0.890	pass
CFI	> 0.90	1.000	pass	1.000	pass
GFI	> 0.90	0.958	pass	0.950	pass
AGFI	> 0.90	0.901	pass	0.915	pass
RMSEA	< 0.08	0.009	pass	0.000	pass
RMR	< 0.05	0.015	pass	0.023	pass
HOELTER	> 200	248	pass	273	pass



Thai Tourist Model Foreign Tourist Model

Figure 3 Comparison analysis models of Thai and foreign tourist Samples

Table 8 reports the results of hypothesis testing for the causal relationship model of the Thai and foreign tourist samples, including direct, indirect, and total effects.

According to Table 8 above in the Thai and foreign tourist samples, when considering direct effect and indirect effect, it was found for the Thai tourist samples, Community Involvement (CI) had a positive direct effect on Attractiveness (AT) and Tourist Experiences (TE) equal to 0.395, 0.211. In addition, Sustainability Preferences (SUS) also had positive direct effect by Attractiveness (AT) equal to 0.296 and through Community Involvement (CI) a total effect equal to 0.395, a positive direct effect by Tourist Experiences (TE) equal to 0.157 and through Community Involvement (CI) total effect equal to 0.476. For the Foreign tourist Sample, Community Involvement (CI) had a positive direct effect on Attractiveness (AT) and Tourist Experiences (TE) equal to 0.246, 0.258. In addition, Sustainability Preferences (SUS) also had positive direct effect by Attractiveness (AT) equal to 0.339 and through Community Involvement (CI) a total effect equal to 0.376, a positive direct effect by Tourist Experiences (TE) equal to 0.476 and through Community Involvement (CI) total effect equal to 0.514.

The results of hypothesis testing based on the direct effect coefficients for the Thai and foreign tourist samples are presented in Table 9.

According to Table 9 above, in Thai and foreign tourist samples, the results of the hypothesis testing found H1: Accept Hypothesis by Attractiveness (AT) has a positive direct effect coefficient on Community Involvement (CI) equal to 0.395 ($t = 5.139$, $p < .001$) for Thai tourist samples and equal to 0.246 ($t = 2.063$, $p < .05$) for foreign tourist samples, H2: Accept Hypothesis by Tourist Experiences (TE) has a positive direct effect coefficient on Community Involvement (CI) equal to 0.211 ($t = 3.074$, $p < .05$) for Thai tourist samples and equal to 0.258 ($t = 2.044$, $p < .05$) for Foreign Tourist sample, H3: Accept Hypothesis by Attractiveness (AT) has a positive direct effect coefficient on Sustainability Preferences (SUS) equal to 0.296 ($t = 3.719$, $p < .001$) for Thai tourist samples and equal to 0.339 ($t = 3.547$, $p < .001$) for foreign tourist samples, H4: Accept Hypothesis by Tourist Experiences (TE) has a positive direct effect coefficient on Sustainability Preferences (SUS) equal to 0.157 ($t = 2.244$, $p < .05$) for Thai tourist samples and equal to 0.476 ($t = 4.525$, $p < .001$) for foreign tourist samples, H5: Accept Hypothesis by Community Involvement (CI) has a positive direct effect coefficient on Sustainability Preferences (SUS) equal to 0.117 ($t = 2.178$, $p < .05$) for Thai tourist samples and equal to 0.148 ($t = 2.511$, $p < .05$) for foreign tourist samples, H6: Accept Hypothesis by Attractiveness (AT) has a positive direct effect coefficient on Sustainability Preferences (SUS) through Community Involvement (CI) equal to 0.395 for Thai tourist samples and equal to 0.376 for foreign tourist samples and H7: Accept Hypothesis by Tourist Experiences (TE) has a positive direct effect coefficient on Sustainability Preferences (SUS) through Community Involvement (CI) equal to 0.182 for Thai tourist samples and equal to 0.514 for foreign tourist samples.

Table 8 Statistics to test the hypothesis of the causal relationship model results for the Thai and foreign tourist samples

Hypothesis	Structural Path Relationship	Thai tourist				Foreign Tourists			
		p	Standardized Regression Coefficient			*p*	Standardized Regression Coefficient		
			DE	IE	TE		DE	IE	TE
H1	AT ➔ CI	.000	0.395	-	0.395	.039	0.246	-	0.246
H2	TE ➔ CI	.002	0.211	-	0.211	.041	0.258	-	0.258
H3	AT ➔ SUS	.000	0.296	-	0.296	.000	0.339	-	0.339
H4	TE ➔ SUS	.029	0.157	-	0.157	.000	0.476	-	0.476
H5	CI ➔ SUS	.025	0.117	-	0.117	.012	0.148	-	0.148
	AT ➔ CI ➔ SUS		0.296	0.046	0.395		0.339	0.036	0.376
	TE ➔ CI ➔ SUS		0.157	0.025	0.182		0.476	0.038	0.514

Table 9 Research hypothesis testing results for the Thai and foreign tourist samples

Hypothesis	Variable		Thai Tourist		Foreign Tourist	
	Independent	Dependent	Direct Effect coefficient	Result	Direct Effect coefficient	Result
H1	AT	CI	0.395***	Accept	0.246**	Accept
H2	TE	CI	0.211**	Accept	0.258**	Accept
H3	AT	SUS	0.296***	Accept	0.339***	Accept
H4	TE	SUS	0.157**	Accept	0.476***	Accept
H5	CI	SUS	0.117**	Accept	0.148**	Accept
H6	AT ➔ CI	SUS	0.395	Accept	0.376	Accept
H7	TE ➔ CI	SUS	0.182	Accept	0.514	Accept

Note: ***$p < .001$, **$p < .05$

Conclusion

This study has introduced a comprehensive model, along with comparison models, regarding the attractiveness of Community-Based Tourism (CBT), Community Involvement, and Tourist Experiences, which influence Sustainability Preferences among Thai and foreign tourists. These models offer valuable insights for CBT destination management, enhancing comprehension of CBT destination allure in rural regions of Southeast Asia, particularly in Thailand. They enable better responses to the demands of Thai and foreign tourists by addressing their perceptions regarding CBT Attractiveness, Community Involvement, Values, Tourist Experiences, and Sustainability Preferences.

The Structural Equation Model analysis reveals that, for both overall tourists and Thai tourists, the variable with the most positive effect on Sustainability Preferences is CBT Attractiveness as for Thai tourists, both the attractiveness and the Community Involvement. Consistent with Phuong et al. (2020), it was found that safety, infrastructure and facilities affect tourism by communities that aim for sustainable development. Conversely, for foreign tourists, the variable with the most positive effect on Sustainability Preferences is Tourist Experiences. Consistent with Kyriakaki and Kleinaki (2022), nowadays, tourists have more travel experience. They will know more about the destination, culture, tourism services, etc. They will become more aware of the environment and often seek destinations that are certified sustainable.

Recommendation

1) Another limitation to consider is the generalizability of findings, influenced by the unique culture and location of the study, conducted solely in Chiang Mai, Thailand. Future research could explore CBT in different cities in Thailand or other countries.

2) While this study's focus lies on Tourist Perceptions regarding CBT Attractiveness, Local Community Involvement, and Tourist Experience, leading to CBT Sustainability Preference Behaviors, future studies could broaden their scope to include aspects such as tourist satisfaction, loyalty, or online awareness of CBT.

3) Subsequent research should investigate the collaboration and interactions between local communities, tour operators, and governmental sectors, while also comparing the impacts and benefits of community-based tourism in Thailand with neighbouring countries.

4) Further research could delve into the roles of travel bloggers and influencers, who serve as pivotal figures in promoting and driving economic growth within the tourism industry in Thailand.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References

Buonincontri, P., & Micera, R. (2016). The experience co-creation in smart tourism destinations: a multiple case analysis of European destinations. *Information Technology & Tourism*, 16, 285–315. https://doi.org/10.1007/s40558-016-0060-5

Collier, A., & Harraway, S. (1997). *Principle of tourism*. Auckland: Longman.

Firdausia, S., & Lestari, Y. D. (2020). The level of community participation in developing tourism sustainability: impact of locals' perception and opportunity. *International Journal of Business and Globalisation*, *26*(1-2), 165–185. https://doi.org/10.1504/IJBG.2020.109826

Fletcher, J., Fyall, A., Gilbert, D., & Wanhill, S. (2017). *Tourism: Principles and practice*. Pearson UK.

Fong, S. F., & Lo, M. C. (2015). Community involvement and sustainable rural tourism development: Perspectives from the local communities. *European Journal of Tourism Research*, 11, 125–146.

Grilli, G., Tyllianakis, E., Luisetti, T., Ferrini, S., & Turner, R. K. (2021). Prospective tourist preferences for sustainable tourism development in Small Island Developing States. *Tourism Management*, *82*, 104178. https://doi.org/10.1016/j.tourman.2020.104178

Jetter, L. G., & Chen, R. J. (2011). Destination branding and images: Perceptions and practices from tourism industry professionals. *International Journal of Hospitality & Tourism Administration*, *12*(2), 174–187. https://doi.org/10.1080/15256480.2011.564498

Kyriakaki, A., & Kleinaki, M. (2022). Planning A Sustainable Tourism Destination Focusing On Tourists'Expectations, Perceptions And Experiences. *Geo Journal of Tourism and Geosites*, *40*(1), 225–231. https://doi.org/10.30892/gtg.40127-823

Lee, C. F., & King, B. (2019). Determinants of attractiveness for a seniors-friendly destination: a hierarchical approach. *Current Issues in Tourism*, *22*(1), 71–90. https://doi.org/10.1080/13683500.2016.1250725

Lv, Q., & Xie, X. (2017). Community involvement and place identity: the role of perceived values, perceived fairness, and subjective well-being. *Asia Pacific Journal of Tourism Research*, *22*(9), 951–964. https://doi.org/10.1080/10941665.2017.1345772

Mathew, P. V., & Sreejesh, S. (2017). Impact of responsible tourism on destination sustainability and quality of life of community in tourism destinations. *Journal of Hospitality and Tourism management*, *31*, 83–89. https://doi.org/10.1016/j.jhtm.2016.10.001

Mtapuri, O., Giampiccoli, A., & Jugmohan, S. (2015). Community-based tourism affinity index: A visitor's approach'. African Journal of Hospitality, *Tourism and Leisure*, *4*(2), 1–13.

Murphy, P. (2013). *Tourism: A community approach (RLE Tourism)*. Routledge.

Nok, L. C., Suntikul, W., Agyeiwaah, E., & Tolkach, D. (2017). Backpackers in Hong Kong–motivations, preferences and contribution to sustainable tourism. *Journal of Travel & Tourism Marketing*, *34*(8), 1058–1070. https://doi.org/10.1080/10548408.2016.1276008

Ortaleza, M. S., & Mangali, G. R. (2021). Attributes of travel destinations that influence tourists' decisions: A systematic review. *International Tourism and Hospitality Journal (ITHJ)*, *4*(8), 1–10. https://doi.org/10.37227/ITHJ-2021-03-247

Phuong, N. T. M., Van Song, N., & Quang, T. X. (2020). Factors affecting community-based tourism development and environmental protection: Practical study in Vietnam. *Journal of Environmental Protection*, *11*(02), 124. https://doi.org/10.4236/jep.2020.112009

Riyanto, Iqbal, M., Supriono, Fahmi, M. R. A., & Yuliaji, E. S. (2023). The effect of community involvement and perceived impact on residents' overall well-being: Evidence in Malang marine tourism. *Cogent Business & Management, 10*(3), 2270800. https://doi.org/10.1080/23311975.2023.2270800

Saptutyningsih, E., & Duanta, A. (2021). Tourists' Preferences for Sustainable Tourism: The Case of Pok Tunggal Beach, Yogyakarta Indonesia. *Jurnal Ekonomi & Studi Pembangunan*, *22*(1), 128–143. https://doi.org/10.18196/jesp.v22i1.10130

Usmonova, G., Alieva, D., & León, C. J. (2022). Yurt Invited: Combining Tourists and Stakeholders Perceptions of Sustainable Community-Based Tourism in Central Asia. *Sustainability*, *14*, 7540. https://doi.org/10.3390/su14137540

Vengesayi, S., Mavondo, F. T., & Reisinger, Y. (2009). Tourism destination attractiveness: Attractions, facilities, and people as predictors. *Tourism Analysis*, *14*(5), 621–636. https://doi.org/10.3727/108354209X12597959359211

Wehrli, R., Schwarz, J., & Stettler, J. (2011). Are Tourists Willing to Pay More for Sustainable Tourism?-A Choice Experiment in Switzerland. *ITW Working Paper Series Tourism 003/2011)*.

WTO. (2005). *Making Tourism More Sustainable. A Guide for Policy Makers* (English version). https://doi.org/10.18111/9789284408214

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Procedure for generating competency in exploring the living world for high school students in the Vietnamese Mekong Delta

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Abstract

The study aims to explore procedures for increasing high school students' competency in exploring the living world. We developed an approach for improving this competency, including competency-based instruction, experiential learning activities, deriving processes from experience, continual practice, skill enhancement, and evaluation. After a year of using this procedure, high school students in Can Tho City, Soc Trang, and Ca Mau provinces in the Mekong Delta were effectively given this competency. Both male and female students performed similarly on the questionnaire, with no significant variations in replies among students from the three locations. Focusing the educational process on project-based learning, mainly when teaching applicable "cell biology" components, significantly increased students' grasp of the subject. Integrating project-based learning helped students understand and internalize the intricacies of the living world. This strategy resulted in revolutionary growth in their cognitive talents, fostering long-term competency in exploring the living world.

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Introduction

Competency refers to a person's ability to use their current knowledge and skills in their field of expertise, especially when their intervention is required. Biology is an experimental discipline that allows students to examine the natural world through hands-on activities. This strategy helps students apply their knowledge in real-world situations and leads them in their post-secondary career direction. It is essential in assisting students in achieving competency in exploring the living world (CELW) (Ministry of Education and Training, 2018b).

The 2018 general education curriculum emphasized the significance of competency development, including three broad competencies (self-regulation, communication and collaboration, and problem-solving) and specific competencies. The biology curriculum, in particular, stresses the acquisition of three different biology-specific competencies, including the CELW (Ministry of Education and Training, 2018b; Nguyen et al., 2024a).

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This skill enables people to study and explain biological occurrences. Improving students' CELW fosters successful learning and research approaches, encourages proactive and creative thinking, and helps apply information to real problems (Nguyen et al., 2025). These skills are becoming more critical in our quickly changing scientific and technological context (Ministry of Education and Training, 2021).

According to Cooper et al. (2000); Grant (1997); Nguyen et al. (2024d), well-structured outdoor education and fieldwork dramatically improve long-term memory by providing powerful experiences. Such experiential learning improves personal growth and social skills, assisting in developing critical abilities for future success. This study in Vietnam's Mekong Delta, a region with diverse educational contexts, evaluated high school students' CELW in central, suburban, and distant locations (Nguyen et al., 2024a). The study used nine sample high schools to find regional variances in skill levels. The findings of this study will assist educators in developing successful lesson plans and instructional practices to improve students' CELW.

Project-based learning is an educational approach that prioritizes student-centered experiences based on three core constructivist principles: learning within a contextual framework, active student participation, and achieving goals through collaborative social interactions that facilitate the exchange of knowledge and insights (Cocco, 2006; Nguyen et al., 2024c). This method is viewed as a subset of inquiry-based learning in which genuine questions and real-world problems are presented to generate authentic contexts (Al-Balushi & Al-Aamri, 2014), resulting in meaningful educational experiences (Nguyen et al., 2024b; Wurdinger et al., 2007). Blumenfeld and colleagues described the project-based science process, emphasizing that students should build knowledge by tackling real-world problems, including developing and refining questions, planning and carrying out investigations, gathering, analyzing, and interpreting data, making conclusions, and presenting findings (Blumenfeld et al., 2000).

In project-based learning, students had to perform the following activities and content (Figure 1):

Through the implementation of learning projects, students developed many corresponding competencies, such as problem-solving and creativity, self-study skills, communication and cooperation skills, mathematical competencies, and information technology skills. Additionally, project-based learning contributed to forming specific subject competencies, such as scientific research capabilities, practical application of knowledge, field competencies, experimental skills, and especially the CELW. From the factors listed above, the authors found that the project-based learning method was utterly suitable for developing students' CELW.

While foundational research has established a theoretical framework for increasing biological awareness among Vietnamese students, there is a notable lack of research on improving high school students' mathematical literacy in ecology and environmental biology. This study seeks to determine how to form and develop CELW for high school students in the Mekong Delta.

Literature Review

In Biology, scientific competence was developed through exploring and solving issues related to the natural world and living organisms (Stoddart et al., 2002). This affirmed that scientific exploration enhanced students' understanding of scientific concepts and positive thinking skills. The study analyzed the inquiry-based learning model, focusing on student-centered activities with teachers as guides. The three main features were: (1) Problem-solving and knowledge integration, (2) Student-centered approach, and (3) Combining new and existing knowledge (Saab et al., 2007). Other authors also highlighted the importance of scientific inquiry skills for students and factors affecting this competence, including teachers' planning and lesson design (Chaerunisa et al., 2023; Malik, 2015; Nilawati et al., 2017; Yamashita et al., 2016).

Outdoor Education (OE) techniques are widely utilized to teach and improve CELW (Nguyen et al., 2025). Prior research has shown that active learning procedures promote knowledge retention (Cooper et al., 2000;

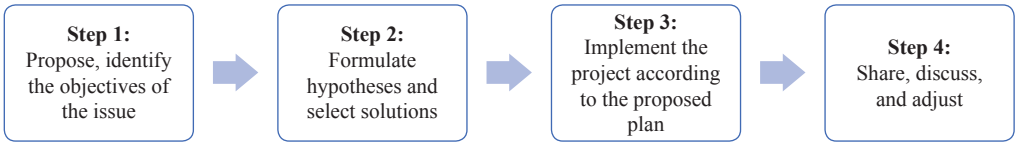


Figure 1 Steps to implement project-based learning

Grant, 1997), boost motivation and engagement (Kern & Carpenter, 1986), and help students build practical skills (Kent et al., 1997; Nguyen et al., 2024b). Several studies in Vietnam have looked into how students' perception of the living world evolves. For example, Pham et al. (2020) surveyed 10th-grade students at Hanoi National University of Education and discovered that cell observation experiments significantly improve students' biological comprehension. Similarly, Dang and Nguyen (2020) created a framework for enhancing cognitive skills relevant to the living world, including 14 competency indicators and a procedure for generating experimental activities to increase students' knowledge. Additionally, hands-on investigations in Biology grade 11 effectively promote students' CELW (Nguyen et al., 2024b).

Project-based learning is implemented into a blended teaching paradigm for university students to meet the needs of the digital age in current classrooms, improving student outcomes by preparing them for real-world difficulties through critical thinking, memory, and creativity (Lou et al., 2012). It has been shown to improve student achievement (Duke & Halvorsen, 2017), and a high-quality project-based learning framework with authentic projects engages students in meaningful problems, increasing academic performance. High school teachers understand the value of collaboration in project-based learning, emphasizing the significance of conflict resolution in group situations (de la Torre-Neches et al., 2020). During the COVID-19 pandemic, mixed-method project-based learning increased student involvement while reducing online fraud and ensuring trustworthy and valid assessment of learning outcomes (Nguyen et al., 2024b; Saba' Ayon & Harb, 2021).

In Vietnam, project-based learning research is conducted at several educational levels, including universities (Dang & Nguyen, 2024; Le & Nguyen, 2019) and high schools (Nguyen et al., 2025; Nguyen & Nguyen, 2016). These studies show that, despite differences in content and methodology, the goal is still to improve learners' positivity, initiative, and creativity.

Methodology

This study surveyed 450 high school students in the Mekong Delta using a cross-sectional approach, leveraging quantitative research methodologies (Cohen et al., 2017). Data were gathered through a structured questionnaire, following the method proposed by Pham and Nguyen (2011). A Likert scale was employed to gauge agreement levels (Allen & Seaman, 2007), with intervals of (5–1)/5=0.8 (Narli, 2010; Yavuz et al., 2013). Accordingly, the meanings of the scale were determined as follows: $1.0 \leq M < 1.8$: Strongly disagree; $1.8 \leq M < 2.6$: Disagree; $2.6 \leq M < 3.4$: No idea; $3.4 \leq M < 4.2$: Agree; $4.2 \leq M \leq 5.0$: Strongly agree.

A pilot test was done before the primary survey to check the questionnaire's reliability and make any necessary adjustments (Dinh et al., 2011a, 2011b). The data collected were encrypted and analyzed using SPSS v.21. The Mann-Whitney U test was used to detect potential differences in perspectives between male and female students, whereas the Kruskal-Wallis H test was used to compare students from three distinct regions. All tests were performed with a significance level of $p < .05$.

Results and Discussion

Developing Procedure Principles for Competency in Exploring the Living World

The learners' competency can be formed and developed by applying the following principles: (1) Student autonomy in competency training: Before teaching a specific skill, educators should inform students about the required skills and the significance of the training, ensuring students and teachers actively participate throughout the process, and students should be clear about the goal of their learning and the tasks they are completing. (2) The gradual shift towards increased and decreased teacher roles: Competencies develop with time; therefore, teachers initially advise students on essential skills and processes; as students improve, their role diminishes, allowing them to exercise greater autonomy until they completely understand the abilities. (3) Adherence to competency framework: Setting up a competency framework with particular abilities, criteria, and procedures emphasizes the steps required to achieve each competency, which entails learning each skill separately before integrating them to create a holistic competency. (4) Integration of competency training and knowledge growth: Competency training should supplement students' knowledge development, a technique for increasing competencies and the consequence of active learning; as students' competencies expand, teachers must reinforce their understanding of the subject. (5) Linking the training process to student progress evaluation: Competency training should be carried out in phases, with assessments and modifications made at each stage that should contain an assessment of the training techniques, tools, and stages, as well as the student's achievement levels for each competency criterion (Le & Phan, 2016).

The Basis of Building Development Competency in Exploring the Living World Procedure

The process of forming and developing the CELW in students is complex and multidimensional, requiring a combination of experiential education and family and community support. Key components include (1) Establishing a solid knowledge base across various domains such as history, geography, natural sciences, and culture; (2) Fostering curiosity and research through an engaging learning environment; (3) Improving critical thinking and analytical skills; (4) Practicing through real-world experiences; (5) Providing individualized support to meet each student's needs; (6) Linking students to the community and real-world contexts; and (7) Continuous feedback and assessment to support progress and skill improvement (Ha et al., 2023; Le & Phan, 2016).

Several researchers have added to the corpus of knowledge about competency-based teaching techniques for studying the living world. Research findings and recommendations on teaching and learning practices aimed at developing students' CELW suggest: (1) Teachers should develop specific training programs to cultivate this competency; (2) Educators need to implement appropriate measures to ensure students' thorough exploration of the living world; (3) Development of assessment tools is necessary to evaluate the effectiveness of these competency development measures (Ha et al., 2023).

Process of Developing Competency in Exploring the Living World

Based on the competency development method described by Le and Phan (2016), we identified five critical steps for learner training, including:

(1) Introduction to competency-based teaching: In order to provide a clear understanding, teachers should introduce the broad concept of competency-based education, detailing its components and the proactive efforts students must make before their training begins.

(2) Experiential learning activities: During this phase, teachers facilitated activities to develop specific competencies, using focused resources to practice the skills and actions essential to competency-based teaching.

(3) Deriving competency-based processes from experience: Students acquired particular approaches for developing competency-based teaching strategies through hands-on activities using individual and collaborative learning techniques, which marked the beginning of practical competency-based training.

(4) Continued practice and skill enhancement: Students improved their skills and advanced to higher proficiency levels within the competency-based teaching framework.

(5) Evaluation and adjustment: This final phase entailed measuring students' competency progress and adjusting to get better results.

The Initial Result After Application in Some Vietnamese Mekong Delta High Schools

The research encompassed a varied cohort of 450 individuals, comprising 228 females (50.67 percent) and 222 males (49.3 percent) selected through random sampling for the survey. Notably, all survey respondents attend educational establishments in the Mekong Delta region, focusing on Can Tho City (145 students), Soc Trang province (31 students), and Ca Mau province (274 students). For a comprehensive breakdown of participant demographics, please refer to Figure 2 for pertinent information.

Proficiency in The Field of "Cell Biology" Equips Students With the Ability to Delve Into The Intricacies of The Living World

Cell biology is a discipline of biology that studies cell behavior, structure, and function. This discipline investigates the core components and operating mechanisms of cells, both prokaryotic and eukaryotic. Cell metabolism, communication, the cell cycle, biochemistry, and cellular composition are covered in cell biology.

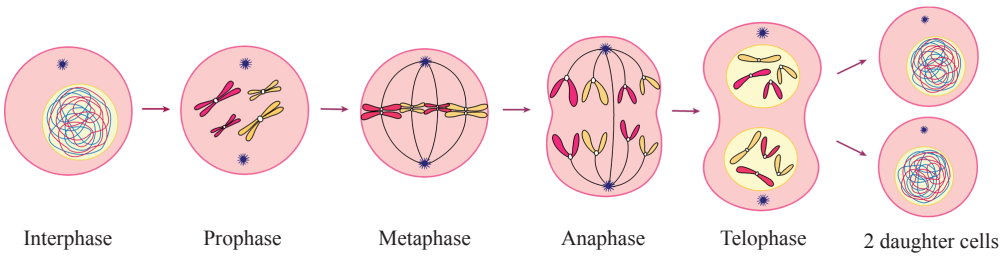


Figure 2 Diagram of the cell reproduction stages by etiological mechanism
Adapted from Mai et al., 2020

Remembering

The eukaryotic cell cycle is divided into four distinct phases: G_1 phase, S phase (synthesis), G_2 phase (also known as interphase), and M phase (mitosis and cytokinesis)) (Israels & Israels, 2000). Understanding the cell cycle was critical because it provided the foundation for increased understanding at higher education levels. When asked about the order of these phases, the majority of students firmly agreed on the sequence $G_1 \rightarrow S \rightarrow G_2 \rightarrow M$ (M = 4.23 ± 0.04). The analysis found no significant difference in replies between male and female students (Mann-Whitney U, $p > .05$ in all cases) (Table 1).

Similarly, when students from other provinces (Can Tho, Soc Trang, and Ca Mau) were assessed, there was no significant regional variation in their understanding of the cell cycle stages (Kruskal-Wallis H, $p > .05$ for all cases) (Table 2).

We received 422 replies to the essay-type topic "Observe the picture below and describe the stages of mitosis" in Figure 2, presented in Figure 3.

Figure 3 showed more than 85 percent of students adequately described the mitotic stages. Telophase was correctly identified by 92.42 percent of students, most likely because of its distinctive characteristics. Prophase, on the other hand, had the lowest correct response rate of 85.31 percent, which could be attributed to its complex properties, such as chromosomal shape and nuclear membrane dynamics. The survey result showed students could extract information from photos to answer the question.

Students' responses to the topic "Characteristics of the process of cytoplasmic division in animal cells during mitosis" differed. While Q32 had the highest average rating (3.37 ± 0.07 SE) for "No idea," it was evaluated similarly to the incorrect answer Q31 (2.48 ± 0.07 SE) (Table 3). The gender-based analysis found no significant differences in mean scores (Mann-Whitney U, $p > .05$ for all cases) (Table 3).

In contrast, the province-based analysis indicated significant differences in mean scores among students from Can Tho, Soc Trang, and Ca Mau in various categories (Q31 - Q34) with Kruskal-Wallis H, $p < .05$ for all cases (Table 4).

Table 1 Students' assessment regarding the cell cycle phase sequence

Code	Content	Mean ± SE			Mann Whitney U
		Total	Female	Male	
Q11	G_1, G_2, S, M	1.59 ± 0.04	1.61 ± 0.06	1.56 ± 0.06	Z = -.875, p = .381
Q12	S, G_1, G_2, M	1,65 ± 0.05	1.68 ± 0.06	1.62 ± 0.07	Z = -1.457, p = .145
Q13	G_1, S, G_2, M	4.25 ± 0.05	4.22 ± 0.08	4.28 ± 0.08	Z = -1,235, p = .271
Q14	G_2, G_1, S, M	1.51 ± 0.04	1.55 ± 0.05	1.46 ± 0.05	Z = -1,532, p = .176

Note: 1.0 ≤ M < 1.8: Strongly disagree; 1.8 ≤ M < 2.6: Disagree; 2.6 ≤ M < 3.4: No idea; 3.4 ≤ M < 4.2: Agree; 4.2 ≤ M ≤ 5.0: Strongly agree

Table 2 Spatial variation in students' assessment regarding phase sequence of cell cycle

Code	Content	Mean ± SE			Kruskal-Wallis H (df = 2)
		Can Tho	Soc Trang	Ca Mau	
Q11	G1, G2, S, M	1.50 ±0 .07	1.87 ± 0.27	1.60 ± 0.05	χ^2 = 4.229, p = .121
Q12	S, G1, G2, M	1.56 ± 0.07	1.39 ± 0.15	1.73 ± 0.06	χ^2 = 6.560, p = .083
Q13	G1, S, G2, M	4.37 ± 0.09	3.68 ± 0.29	4.25 ± 0.06	χ^2 = 3.415, p = .280
Q14	G2, G1, S, M	1.72 ± 0.06	1.52 ± 0.19	1.54 ± 0.05	χ^2 = 4.261, p = .121

Note: 1.0 ≤ M < 1.8: Strongly disagree; 1.8 ≤ M < 2.6: Disagree; 2.6 ≤ M < 3.4: No idea; 3.4 ≤ M < 4.2: Agree; 4.2 ≤ M ≤ 5.0: Strongly agree

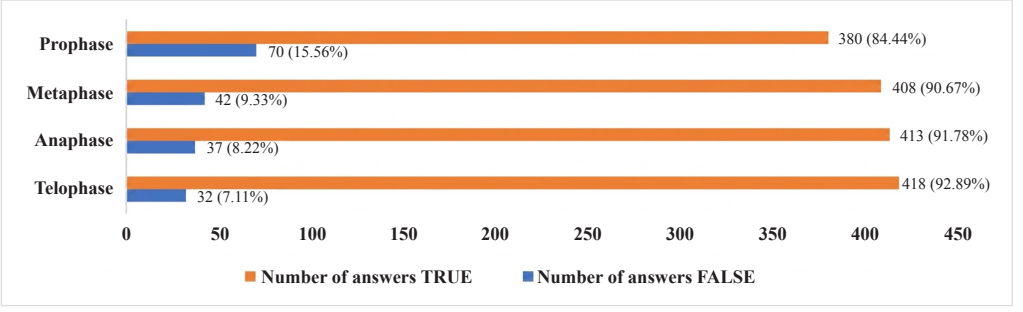


Figure 3 Students' answers on the characteristics of mitosis stages

Table 3 The students' assessment regarding animal cytoplasm dividing traits in mitosis

Code	Content	Mean ± SE		Mann Whitney U
		Female	Male	
Q31	Create a partition in the equatorial plane	2.47 ± .10	2.48 ± .11	Z = -.250, p = .803
Q32	Tighten the cell membrane in the middle of cells	3.34 ± .11	3.49 ± .11	Z = -.433, p = .665
Q33	Cell membrane elongation	1.71 ± .06	1.83 ± .07	Z = -.419, p = .675
Q34	Create septa and elongate cell walls	2.09 ± .09	2.20 ± .09	Z = -.690, p = .490

Note: 1.0 ≤ M < 1.8: Strongly disagree; 1.8 ≤ M < 2.6: Disagree; 2.6 ≤ M < 3.4: No idea; 3.4 ≤ M < 4.2: Agree; 4.2 ≤ M ≤ 5.0: Strongly agree

Table 4 Spatial variation in students' assessment regarding animal cytoplasm dividing traits in mitosis

Code	Content	Mean ± SE			Kruskal-Wallis H
		Can Tho	Soc Trang	Ca Mau	(df = 2)
Q31	Create a partition in the equatorial plane	2.04 ± 0.11	2.84 ± 0.33	2.66 ± 0.09	χ^2 = 19.765, p = .000
Q32	Tighten the cell membrane in the middle of cells	3.69 ± 0.13	2.90 ± 0.31	3.25 ± 0.09	χ^2 = 11.180, p = .004
Q33	Cell membrane elongation	1.57 ± 0.08	1.61 ± 0.20	1.89 ± 0.06	χ^2 = 15.586, p = .000
Q34	Create septa and elongate cell walls	1.36 ± 0.10	2.00 ± 0.25	2.31 ± 0.08	χ^2 = 18.266, p = .000

Note: 1.0 ≤ M < 1.8: Strongly disagree; 1.8 ≤ M < 2.6: Disagree; 2.6 ≤ M < 3.4: No idea; 3.4 ≤ M < 4.2: Agree; 4.2 ≤ M ≤ 5.0: Strongly agree

Survey results for "Remembering" level questions show that students can easily recollect learned material because these questions do not require substantial cognitive effort. Following psychologist Ebbinghaus's "forgetting curve" strategy, teachers routinely reinforce this knowledge. According to Ebbinghaus (1985), new knowledge is initially kept in short-term memory and must be repeated to prevent quick forgetting.

Understanding

Bloom defines "understanding" as the ability to grasp, interpret, explain, or infer concepts (predict results). It requires more than just repetition; pupils must communicate topics in their own words. When designing test questions, teachers might utilize verbs such as interpret, differentiate, illustrate, depict, restate, rewrite, give examples, summarize, and explain to assess students' comprehension.

While asked about the topic "Choose the right idea when talking about meiosis," students needed to think deeper to recognize wrong answers rather than just recalling information. Table 5 shows that Q42 was the correct response with the highest average rating (4.07 ± 0.06 SE). A gender-based analysis revealed no significant differences in average scores (Mann-Whitney U, p > .05 for all cases) (Table 5).

In contrast, the province-based analysis revealed significant variations in mean scores among students from Can Tho, Soc Trang, and Ca Mau in several categories (Q41-Q44) (Kruskal-Wallis H, p < .05 for all cases) (Table 6).

Students were asked to observe an image (Table 7) and determine the present stage of cell division, "What is the species' diploid number?" The results showed significant variation in rating levels (Table 7). Although Q54 was the correct response, its average rating (2.74 ± 0.08 SE) was significantly lower than the wrong Q51 (3.16 ± 0.08). This indicated that students' ability to analyze visuals at the "Understanding" level was limited. The average ratings of male and female students did not differ significantly (Mann-Whitney U, p >.05 for all cases) (Table 7).

Table 5 Students' assessment regarding meiosis traits

Code	Content	Mean ± SE			Mann Whitney U
		Total	Female	Male	
Q41	Each cell can undergo meiosis once or many times	1.86 ± 0.05	1.79 ± 0.07	1.86 ± 0.08	Z = -0.096, p = .923
Q42	Meiosis undergoes two cell divisions, but chromosomes only duplicate once	4.07 ± 0.06	4.17 ± 0.08	4.05 ± 0.09	Z = -0.112, p = .911
Q43	Meiosis occurs in every cell of the sex organ	2.05 ± 0.06	1.90 ± 0.08	2.10 ± 0.09	Z = -0.920, p = .357
Q44	Meiosis does not undergo cytoplasmic division	1.79 ± 0.05	1.79 ± 0.07	1.73 ± 0.07	Z = -0.669, p = .503

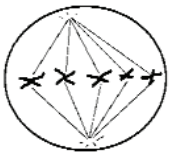
Note: 1.0 ≤ M < 1.8: Strongly disagree; 1.8 ≤ M < 2.6: Disagree; 2.6 ≤ M < 3.4: No idea; 3.4 ≤ M < 4.2: Agree; 4.2 ≤ M ≤ 5.0: Strongly agree

Table 6 Spatial variation in students' assessment regarding meiosis traits

Code	Content	Mean ± SE			Kruskal-Wallis H (df = 2)
		Can Tho	Soc Trang	Ca Mau	
Q41	Each cell can undergo meiosis once or many times	1.65 ± 0.09	1.52 ± 0.19	1.94 ± 0.07	χ^2 = 14.772, p = .001
Q42	Meiosis undergoes two cell divisions, but chromosomes only duplicate once	4.33 ± 0.09	4.00 ± 0.26	4.01 ± 0.07	χ^2 = 10.751, p = .005
Q43	Meiosis occurs in every cell of the sex organ	1.66 ± 0.09	1.84 ± 0.23	2.20 ± 0.08	χ^2 = 18.985, p = .000
Q44	Meiosis does not undergo cytoplasmic division	1.63 ± 0.08	1.74 ± 0.21	1.83 ± 0.06	χ^2 = 9.047, p = .011

Note: 1.0 ≤ M < 1.8: Strongly disagree; 1.8 ≤ M < 2.6: Disagree; 2.6 ≤ M < 3.4: No idea; 3.4 ≤ M < 4.2: Agree; 4.2 ≤ M ≤ 5.0: Strongly agree

Table 7 Students' assessment in a specific cell cycle stage determining

Image	Code	Content	Mean ± SE			Mann Whitney U
			Total	Female	Male	
	Q51	Metaphase, 2n = 10	3.16 ± 0.08	2.94 ± 0.11	3.33 ± 0.11	Z = -2.348, p = .091
	Q52	Prophase, 2n = 10	1.78 ± 0.05	1.71 ± 0.07	1.77 ± 0.07	Z = -.282, p = .778
	Q53	Prophase I, 2n = 10	1.80 ± 0.05	1.82 ± 0.07	1.77 ± 0.08	Z = -0.994, p = .320
	Q54	Metaphase I, 2n = 10	2.74 ± 0.08	2.87 ± 0.11	2.55 ± 0.11	Z = -1.935, p = .053

Note: 1.0 ≤ M < 1.8: Strongly disagree; 1.8 ≤ M < 2.6: Disagree; 2.6 ≤ M < 3.4: No idea; 3.4 ≤ M < 4.2: Agree; 4.2 ≤ M ≤ 5.0: Strongly agree

The Kruskal-Wallis H test revealed considerable variation in the average assessment of Q51 (Metaphase, 2n=10) between provinces (χ^2 = 16.028, p = .000). Students from Can Tho (2.82 ± 0.14 SE), Soc Trang (2.65 ± 0.33 SE), and Ca Mau (3.36 ± 0.99 SE) had significant disparities in their ratings, with the majority of Ca Mau students believing Q51 was the correct response. There were no significant variations in average evaluation scores for Q52, Q53, and Q54 across provinces (Q52: χ^2 = 9.197, p = .010; Q53: χ^2 = 5.469, p = .065; Q54: χ^2 = .944, p = .624) (Table 8).

When asked about the field of biotechnology, students identified Q61 ("In vitro environment for the maintenance and proliferation of cells and tissues, thereby producing products for human use") as the correct answer, receiving the highest average score (3.99 ± 0.06 SE) (Table 9). Male and female students did not have significantly different average scores (Mann-Whitney U, p > .05 for all cases) (Table 9).

There was no significant difference in the average assessments for Q62, Q63, and Q64 between students from Can Tho, Soc Trang, and Ca Mau (Kruskal-Wallis H, p > .05 for all responses) (Table 10).

Proficiency in cell biology enables students to delve into the intricacies of the living world. Cell biology not only provides foundational knowledge about cell structures and functions but also enhances understanding of processes such as cell metabolism, intercellular communication, and the cell cycle. By mastering the cell cycle (including G1, S, G2, and M phases), students can build a solid foundation for exploring advanced biological concepts, such as molecular and developmental biology. Interestingly, despite the complexity of the subject, research shows no significant gender or regional differences in students' grasp of the cell cycle stages. This indicates that with proper guidance, all students have equal potential to access this knowledge.

Table 8 Spatial variation in students' assessment in a specific cell cycle stage determining

Code	Content	Mean ± SE			Kruskal-Wallis H (df = 2)
		Can Tho	Soc Trang	Ca Mau	
Q51	Metaphase, 2n = 10	2.82 ± 0.14	2.65 ± 0.33	3.36 ± 0.99	χ^2 = 16.028, p = .000
Q52	Prophase, 2n = 10	1.64 ± 0.09	1.74 ± 0.22	1.79 ± 0.06	χ^2 = 9.197, p = .010
Q53	Prophase I, 2n = 10	1.76 ± 0.10	1.68 ± 0.19	1.83 ± 0.06	χ^2 = 5.469 , p =0.065
Q54	Metaphase I, 2n = 10	2.78 ± 0.14	2.87 ± 0.30	2.66 ± 0.90	χ^2 = 0.944, p = .624

Note: 1.0 ≤ M < 1.8: Strongly disagree; 1.8 ≤ M < 2.6: Disagree; 2.6 ≤ M < 3.4: No idea; 3.4 ≤ M < 4.2: Agree; 4.2 ≤ M ≤ 5.0: Strongly agree

Table 9 Students' assessment regarding in vitro role cell technology

Code	Content	Mean ± SE			Mann Whitney U
		Total	Female	Male	
Q61	In vitro (in vitro) maintains and increases cells and tissues, producing products that serve human life	4.04 ± 0.06	4.04 ± 0.08	4.04 ± 0.08	Z = 0.256 p = .798
Q62	The biological environments maintain and increase cells and tissues, producing products to serve human life	2.33 ± 0.07	2.30 ± 0.09	2.36 ± 0.10	Z = -0.135 p = .893
Q63	Water maintains and increases cells and tissues, producing products that serve human life	1.94 ± 0.05	1.99 ± 0.08	1.89 ± 0.07	Z = -0.840 p = .401
Q64	A shallow medium maintains and increases cells and tissues, producing products that serve human life	1.90 ± 0.05	2.84 ± 0.11	2.86 ± 0.11	Z = -0.468 p = .627

Note: $1.0 \le M < 1.8$: Strongly disagree; $1.8 \le M < 2.6$: Disagree; $2.6 \le M < 3.4$: No idea; $3.4 \le M < 4.2$: Agree; $4.2 \le M \le 5.0$: Strongly agree

Table 10 Spatial variation in students' assessment regarding in vitro role cell technology

Code	Content	Mean ± SE			Kruskal-Wallis H (df = 2)
		Can Tho	Soc Trang	Ca Mau	
Q61	In vitro (in vitro) maintains and increases cells and tissues, producing products that serve human life	4.39 ± 0.09	3.16 ± 0.32	3.95 ± 0.08	$\chi 2$ = 11.062 p = .004
Q62	The biological environments maintain and increase cells and tissues, producing products to serve human life	2.01 ± 0.11	2.29 ± 0.28	2.50 ± 0.08	$\chi 2$ = 3.175 p = .204
Q63	Water maintains and increases cells and tissues, producing products that serve human life	1.79 ± 0.09	2.13 ± 0.26	1.99 ± 0.06	$\chi 2$ = 3.829 p =0.147
Q64	A shallow medium maintains and increases cells and tissues, producing products that serve human life	1.80 ± 0.10	2.03 ± 0.25	1.93 ± 0.06	$\chi 2$ = 2.448 p = .294

Note: $1.0 \le M < 1.8$: Strongly disagree; $1.8 \le M < 2.6$: Disagree; $2.6 \le M < 3.4$: No idea; $3.4 \le M < 4.2$: Agree; $4.2 \le M \le 5.0$: Strongly agree

Arranging Instructional Endeavors to Cultivate Competency in Exploring the Living World Using Project-Based Learning Approaches

The project-based teaching process consisted of ten steps: (1) deciding on the project topic; (2) defining the result; (3) structuring the project; (4) preparing information gathering requirements; (5) collecting information; (6) preparing data analysis requirements; (7) synthesizing and analyzing information; (8) preparing reporting requirements; (9) presenting the final product; and (10) evaluating the project (Du & Han, 2016). The procedure for adapting to Vietnamese educational conditions was divided into three phases: preparation, implementation, and evaluation (Vu & Nguyen, 2022). This approach was used to construct instructional activities for "Cell Biology". The procedure is as follows:

Step 1: Prepare

The requirement to "Perform a project or topic to learn about the application of cell multiplication" is mentioned in the Biology 10 program (Ministry of Education and Training, 2018a). The content of the project is shown in Table 11.

The preparation steps to organize the activity are carried out as follows:

- The teacher described knowledge and skill objectives, emphasizing the activity's goal of developing students' CELW. The teacher explained the competency framework and activity procedures.

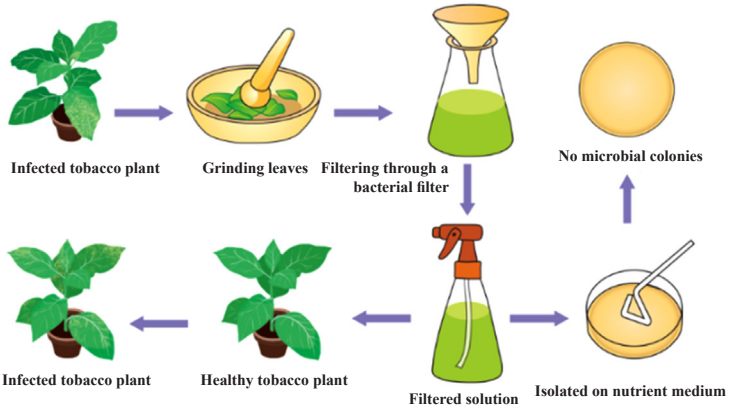
- The teacher began the activity using the content from Table 11. The activity sheet contained a complete list of activity needs. Student groups indicated activity needs, and the teacher clarified processes and tracked progress, making necessary adjustments.

Step 2: Develop an implementation plan

- Teachers organized students into groups for classroom or home activities. Students used photographs to capture their group activities and record the results. They debated and evaluated the data to test the hypothesis. If the theory was validated, they reached study conclusions. Teachers help pupils write scientific reports, potentially utilizing poster templates. If results do not support the hypothesis, students should discover the cause or develop and test a new theory.

- After completing the assignment, students gave a scientific report (poster or PowerPoint) to defend their findings. Other groups could ask questions, and the teacher might ask open-ended questions to stimulate discussion and reasoned answers.

Table 11 Teaching content of the project "Cell Biology"

Dmitri Ivanovsky demonstrated in 1892 that sap from a diseased tobacco plant could infect a healthy tobacco plant even after it had been filtered via bacteria-trapping filters. No microbiological colonies were found when the filtrate was grown on nutritional media. Students should watch the experiment, pose questions, form hypotheses, and draw scientific conclusions. 
The research question is: ……
The scientific hypothesis is: ……
The scientific conclusion is: ……

Step 3: Evaluate Research question

A research question outlines the subject under investigation and should be adequately stated. For the information in Table 9, an applicable inquiry was, "Why does the sap of a diseased tobacco plant transmit disease to a healthy plant even after bacterial filtration?" The result showed a considerable variation in the proportion of students who answered correctly and wrongly (30.23% and 69.77%).

The scientific hypothesis

The scientific hypothesis was a challenging and complex problem and was studied by many authors. Duong (2002) states, "Hypothesis is the predictive solution to a research problem and is expressed in the form of generalizations or propositions". Le and Nguyen (2004) revealed that "Scientific hypothesis is a hypothetical model or a probabilistic prediction about phenomena' nature, interrelationships, and causes. It was a prediction of the expectations of the research process". The scientific hypothesis had the following characteristics: Orientation, prediction of research results, authenticity not known, and need verification. A hypothesis was defined as a relationship between two or more variables.

The scientific hypothesis for the teaching project we are working on was that "the virus's genetic material has been introduced into the tobacco sap cells". The survey results for this question showed that 77.53 percent of students answering incorrectly and 22.47 percent answering correctly.

Scientific conclusion

For the above activity, the appropriate scientific conclusion was made: "What is filtered out is only the shell of that virus, and the genetic material has been introduced into the cell". The results showed that the difference between the percentage of students who answered correctly and students who answered incorrectly is quite significant, with the percentage of students who responded correctly being only 24.17 percent while the percentage of students who answered incorrectly accounted for 75.83 percent.

This result reflected the student's CELW through project teaching with the "Cell Biology" theme. As mentioned above, forming the CELW required a long-term accumulation process to be successful. The percentage of students who could identify the research question when implementing a learning project shows that students are gradually building the CELW.

The project-based learning (PBL) approach was a vital tool for cultivating students' CELW. This process included selecting topics, defining outcomes, gathering information, analyzing data, and presenting final results. In cell biology, an example project like "application of cell cloning" enabled students to conduct experiments and address real-world problems. Results showed this method enhances critical thinking, analytical skills, and student engagement. However, the percentage of students who correctly answered research questions or provided accurate scientific conclusions remained low (below 30%).

This highlighted that developing CELW requires long-term accumulation and support from teachers, especially in guiding hypothesis building and result evaluation. Recently, the application of project-based learning to develop competencies related to exploring the natural world for students from elementary to high school levels demonstrated effectiveness in various subjects through several studies by many authors (Han & Do, 2023; Nguyen et al., 2024; Pham & Bui, 2023; Vu & Nguyen, 2022).

Conclusions and Recommendations

This study demonstrated the effectiveness of competency-based and project-based learning methods in enhancing high school students' CELW in Vietnam's Mekong Delta. By applying a structured framework of experiential learning, students significantly improved their comprehension, particularly in cell biology. The findings indicated that gender and geographic differences did not affect student performance, confirming the universal applicability of the teaching methods. Although students showed promising results in cognitive growth and long-term skill development, challenges such as low hypothesis-building success rates suggest continuous teacher support and instructional refinement.

Based on these compelling findings, an innovative and forward-looking idea arises, suggesting the deliberate and systematic broadening of research horizons. This expansion should encompass a broader range of geographical regions and delve into various thematic areas. Applying this approach across different subjects within the 11th and 12th-grade biology curriculum would be advisable. To further enhance student's CELW, educators should: (1) Expand the application of project-based learning to other biological subjects for grades 11 and 12 to provide a holistic understanding; (2) Offer more intensive training in hypothesis formulation and scientific analysis; (3) Implement regular feedback mechanisms to refine teaching methodologies and address student challenges; (4) Encourage collaboration between schools and communities to enrich experiential learning opportunities; (5) Explore the application of this competency-based approach across diverse educational contexts to validate its adaptability and impact. This would allow for a more comprehensive evaluation of the strategy's effectiveness in improving high school students' CELW.

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Declaration of conflicting interests

The authors declare no potential conflicts of interest concerning the research.

References

Al-Balushi, S. M., & Al-Aamri, S. S. (2014). The effect of environmental science projects on students' environmental knowledge and science attitudes. *International Research in Geographical and Environmental Education, 23*(3), 213–227. https://doi.org/10.1080/10382046.2014.927167

Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. *Quality Progress, 40*(7), 64–65. https://www.bayviewanalytics.com/reports/asq/likert-scales-and-data-analyses.pdf

Blumenfeld, P., Fishman, B. J., Krajcik, J., Marx, R. W., & Soloway, E. (2000). Creating usable innovations in systemic reform: Scaling up technology-embedded project-based science in urban schools. *Educational Psychologist, 35*(3), 149–164. https://doi.org/10.1207/S15326985EP3503_2

Chaerunisa, Z. F., Ramli, M., & Sugiharto, B. (2023). Students' inquiry skills progression based on STEM approach and inquiry lab. *JPBI (Jurnal Pendidikan Biologi Indonesia), 9*(2), 206–216. https://doi.org/10.22219/jpbi.v9i2.25698

Cocco, S. (2006). *Student leadership development: The contribution of project-based learning* [Unpublished master's thesis]. Royal Roads University. https://central.bac-lac.gc.ca/.item?id=MR17869&op=pdf&app=Library&oclc_number=271429340

Cohen, L., Manion, L., & Morrison, K. (2017). Surveys, longitudinal, cross-sectional and trend studies. In *Research methods in education* (pp. 334-360).

Routledge. Cooper, J. L., MacGregor, J., Smith, K. A., & Robinson, P. (2000). Implementing small-group instruction: Insights from successful practitioners. *New Directions for Teaching and Learning, 2000*(81), 63–76. https://doi.org/10.1002/tl.8105

Dang, T. D. T., & Nguyen, T. D. P. (2020). Tổ chức hoạt động thực hành thí nghiệm theo định hướng phát triển năng lực tìm hiểu thế giới sống trong dạy học phần sinh học cơ thể ở trung học phổ thông [Organizing experimental practice activities towards developing inquiring about the world of life competence for students in teaching module "Biology body" at high school]. *Vietnam Journal of Education, 480*, 25–30. [In Vietnamese]

Dang, V. D., & Nguyen, T. N. (2024). Áp dụng mô hình lớp học đảo ngược (flipped classroom) trong đổi mới phương pháp dạy học ở khoa Địa lí, Trường Đại học Sư phạm Hà Nội theo định hướng phát triển năng lực [Applying the flipped classroom model in innovating teaching methods at the Department of Geography, Hanoi University of Education according

to the orientation of capacity development]. *Journal of Educational Equipment: Applied Research, 1*(304), 69–72. [In Vietnamese]

de la Torre-Neches, B., Rubia-Avi, M., Aparicio-Herguedas, J. L., & Rodríguez-Medina, J. (2020). Project-based learning: An analysis of cooperation and evaluation as the axes of its dynamic. *Humanities and Social Sciences Communications, 7*(1), 167. https://doi.org/10.1057/s41599-020-00663-z

Dinh, M. Q., Nguyen, T. K. T., & Tran, T. B. (2011a). Kết quả khảo sát bước đầu về tình hình sử dụng "Hai giờ tự học" của sinh viên Trường Đại học Cần Thơ [The primary survey results on the using of "two self-study periods" by students at Can Tho University]. *Can Tho University Journal of Science, 20a*, 183–192. [In Vietnamese]

Dinh, M. Q., Nguyen, T. K. T., & Tran, T. B. (2011b). Kết quả nghiên cứu bước đầu về việc xây dựng mô hình sinh hoạt chi đoàn theo học chế tín chỉ tại Trường Đại học Cần Thơ [The primary results of the survey about the way to form "an activity model of the youth branch" based on the credit-based system at Cantho University]. *Can Tho University Journal of Science, 20a*, 176–182. [In Vietnamese]

Du, X., & Han, J. (2016). A literature review on the definition and process of project-based learning and other relative studies. *Creative Education, 7*(7), 1079–1083. https://doi.org/10.4236/ce.2016.77112

Duke, N. K., & Halvorsen, A.-L. (2017). *New study shows the impact of PBL on student achievement*. Edutopia. https://www.edutopia.org/article/new-study-shows-impact-pbl-student-achievement-nell-duke-anne-lise-halvorsen

Duong, T. T. (2002). *Research methods in educational and psychological sciences* (Vol. 2). https://fr.slideshare.net/slideshow/phng-php-nghin-cu-khoa-hc-gio-dc-v-tm-l/250358123

Ebbinghaus, H. (1985). Remembering Ebbinghaus. *Contemporary Psychology, 30*(7), 519–523. https://doi.org/10.1037/023895

Grant, R. (1997). A claim for the case method in the teaching of geography. *Journal of Geography in Higher Education, 21*(2), 171–185. https://doi.org/10.1080/03098269708725423

Ha, V. D., Pham, T. H. T., Nguyen, T. H. N., Duong, T. T., & Nguyen, N. T. (2023). Nguyên tắc và quy trình đánh giá năng lực tìm hiểu thế giới sống trong dạy học môn Sinh học ở trường trung học phổ thông [Principles and procedures for assessing the ability to understand the living world in teaching biology in high schools]. *Vietnam Journal of Education, 23*(11), 12–17. [In Vietnamese]

Han, T. H. T., & Do, H. T. (2023). Tổ chức dạy học dựa trên vấn đề bài học STEM "hiện tượng bay hơi và ngưng tụ" (Khoa học tự nhiên 6) nhằm phát triển năng lực khoa học tự nhiên cho học sinh [Organizing teaching based on the STEM lesson problem "evaporation and condensation" (Natural Science 6) to develop students' natural science capacity]. *Vietnam Journal of Education, 23*(13), 29–35. [In Vietnamese]

Israels, E., & Israels, L. (2000). The cell cycle. *The Oncologist, 5*(6), 510–513. https://doi.org/10.1634/theoncologist.5-6-510

Kent, M., Gilbertson, D. D., & Hunt, C. O. (1997). Fieldwork in geography teaching: A critical review of the literature and approaches. *Journal of Geography in Higher Education, 21*(3), 313–332. https://doi.org/10.1080/03098269708725439

Kern, E. L., & Carpenter, J. R. (1986). Effect of field activities on student learning. *Journal of Geological Education, 34*(3), 180–183. https://doi.org/10.5408/0022-1368-34.3.180

Le, D. T., & Phan, T. T. H. (2016). *Dạy học theo định hướng hình thành và phát triển năng lực người học ở trường phổ thông* [Teaching oriented towards forming and developing learners' capacity in high school]. University of Education Publishers. [In Vietnamese]

Le, T. C., & Nguyen, V. D. (2004). *Phương pháp nghiên cứu khoa học giáo dục* [Scientific research methodology]. Hanoi Pedagogical University Publishing House. [In Vietnamese]

Le, T. K. N., & Nguyen, T. T. (2019). Organizing project-based teaching in teaching "object-oriented programming" for college students of applied informatics at Quang Tri Pedagogical College. *Vietnam Journal of Education, 474*(2), 1–5.

Cohen, L., Manion, L., & Morrison, K. (2017). Surveys, longitudinal, cross-sectional and trend studies. In *Research methods in education* (pp. 334-360). Routledge.

Mai, S. T., Dinh, Q. B., Le, T. P. H., Tran, T. T., Ngo, V. H., & Doan, V. T. (2020). *Sách giáo khoa Sinh học 10 - Cánh Diều* [Biology textbook grade 10 - Kite series]. Ho Chi Minh City University of Education Publishing House. [In Vietnamese]

Malik, A. (2015). Model pembelajaran problem based instruction untuk meningkatkan penguasaan konsep dan keterampilan proses sains mahasiswa. *Jurnal Penelitian & Pengembangan Pendidikan Fisika, 1*(1), 9–16. https://doi.org/10.21009/1.01102

Ministry of Education and Training. (2018a). *Chương trình giáo dục phổ thông - Chương trình Sinh học (Ban hành kèm theo Thông tư số 32/2018/TT-BGDĐT)* [General education program - Biology curriculum]. Ministry of Education and Training. [In Vietnamese]

Ministry of Education and Training. (2018b). *Chương trình giáo dục phổ thông - Chương trình tổng thể (Ban hành kèm theo Thông tư số 32/2018/TT-BGDĐT)* [General education program - Master plan]. Ministry of Education and Training. [In Vietnamese]

Ministry of Education and Training. (2021). *Thông tư số 39/2021/TT-BGDĐT: Ban hành danh mục thiết bị dạy học tối thiểu cấp Trung học phổ thông* [Circular No. 39/2021/TT-BGDDT: Promulgating the list of minimum teaching equipment for high school level]. Ministry of Education and Training. https://datafiles.chinhphu.vn/cpp/files/vbpq/2022/01/39-bgddt.pdf [In Vietnamese]

Narli, S. (2010). An alternative evaluation method for Likert type attitude scales: Rough set data analysis. *Scientific Research and Essays, 5*(6), 519–528.

Nilawati, W., Desnita, D., & Akbar, N. (2017). Perangkat perkuliahan terpadu berbasis KPS untuk meningkatkan kompetensi mahasiswa pendidikan fisika mengembangkan lembar kerja siswa. *Jurnal Penelitian & Pengembangan Pendidikan Fisika, 3*(1), 103–110. https://doi.org/10.21009/1.03114

Nguyen, T. H. V., & Nguyen, T. H. (2016). Tổ chức dạy học dự án trong dạy học Sinh học trung học phổ thông [Organizing project teaching in high school biology teaching]. *Vietnam Journal of Education, 392*, 56–59. [In Vietnamese]

Nguyen, T. H., Pham, T. H. T., Nguyen, T. T., Ha, V. D., & Nguyen, T. H. N. (2024). Vận dụng phương pháp khoa học để phát triển năng lực tìm hiểu thế giới sống cho học sinh trong dạy học chủ đề "Sinh học vi sinh vật và virus" (Sinh học 10) [Applying scientific methods to develop students' inquiry skills in teaching the topic "Microbial biology and viruses" (Biology 10)]. *Vietnam Journal of Education, 24*(5), 11–16. [In Vietnamese]

Nguyen, T. K. T., Nguyen, D., & Dang, T. D. T. (2024a). Educational status of high school biology teachers to develop living world understanding competency in students: A case study in the Mekong Delta, Vietnam. *The International Journal of Interdisciplinary Social and Community Studies, 19*(2), 63–83. https://doi.org/10.18848/2324-7576/CGP/v19i02/63-83

Nguyen, T. K. T., Nguyen, D., & Dang, T. D. T. (2024b). An eight-step process of revitalizing living understanding competency for high school students in biology teaching. *Kasetsart Journal of Social Sciences*, *45*(4), 1259–1268. https://doi.org/10.34044/j.kjss.2024.45.4.19

Nguyen, T. K. T., Nguyen, D., & Dang, T. D. T. (2024c). Teaching equipment and assessment methods, techniques, and tools used by Biology teachers to enhance living world understanding competency for high school students in the Vietnamese Mekong Delta. *Kasetsart Journal of Social Sciences*, *45*(3), 791–802. https://doi.org/10.34044/j.kjss.2024.45.3.10

Nguyen, T. K. T., Nguyen, D., & Dang, T. D. T. (2024d). Understanding of the living world of high school students in the Mekong Delta, Vietnam. *Kasetsart Journal of Social Sciences, 45*(1), 95–102. https://doi.org/10.34044/j.kjss.2024.45.1.10

Nguyen, T. K. T., Nguyen, D., & Dang, T. D. T. (2025). Assessing the competency in exploring the living world of high school students through practical examples: A case study in the Mekong Delta, Vietnam. *Kasetsart Journal of Social Sciences*, *46*(2), 460222. https://doi.org/10.34044/j.kjss.2025.46.2.22

Pham, H. H., & Bui, T. T. H. (2023). Phát triển năng lực nghiên cứu khoa học cho sinh viên dựa trên dạy học tích hợp nghiên cứu [Developing students' scientific research capacity through integrated research-oriented teaching]. *Vietnam Journal of Educational Sciences, 19*(11), 1–9. https://doi.org/10.15625/2615-8957/12311101. [In Vietnamese]

Pham, T. H. T., Dang, T. T. H., & Hoang, A. T. (2020). Dạy học thực hành thí nghiệm nhằm phát triển năng lực cho học sinh ở trường trung học phổ thông [Teaching practical experiments to develop Biology competence for high school students]. *Vietnam Journal of Education, 483*(8), 38–43. [In Vietnamese]

Pham, V. Q., & Nguyen, Q. T. (2011). *Phương pháp nghiên cứu xã hội học* [Methods of sociological research]. Hanoi National University Publishing House. [In Vietnamese]

Saab, N., Van Joolingen, W. R., & Van Hout-Wolters, B. H. (2007). Supporting communication in a collaborative discovery learning environment: The effect of instruction. *Instructional Science, 35*, 73–98. https://doi.org/10.1007/s11251-006-9003-4

Saba 'Ayon, N., & Harb, G. (2021). Authentic project-based learning in times of crisis. *International Journal of Business and Applied Social Science, 7*, 1–11. https://doi.org/10.33642/ijbass.v7n12p1

Stoddart, T., Pinal, A., Latzke, M., & Canaday, D. (2002). Integrating inquiry science and language development for English language learners. *Journal of Research in Science Teaching, 39*(8), 664–687. https://doi.org/10.1002/tea.10040

Vu, L. C., & Nguyen, T. H. (2022). Tổ chức dạy học dự án trong dạy học kiến thức ứng dụng của chủ đề "Sinh học vi sinh vật và virus" (Sinh học 10) [Organizing project teaching in teaching applied knowledge of the topic "Biology of microorganisms and viruses" (Biology grade 10)]. *Vietnam Journal of Education, 22*(15), 18–23. [In Vietnamese]

Wurdinger, S., Haar, J., Hugg, R., & Bezon, J. (2007). A qualitative study using project-based learning in a mainstream middle school. *Improving Schools, 10*(2), 150–161. https://doi.org/10.1177/1365480207078048

Yamashita, K., Fujioka, R., Kogure, S., Noguchi, Y., Konishi, T., & Itoh, Y. (2016). Practices of algorithm education based on discovery learning using a program visualization system. *Research and Practice in Technology Enhanced Learning, 11*, 1–19. https://doi.org/10.1186/s41039-016-0041-5

Yavuz, G., Günhan, B. C., Ersoy, E., & Narli, S. (2013). Self-efficacy beliefs of prospective primary mathematics teachers about mathematical literacy. *Journal of College Teaching & Learning, 10*(4), 279–287. https://doi.org/10.19030/tlc.v10i4.8124

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The development implications for social networks in working with domestic violence in rural Thailand through embedded mixed methods research

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Abstract

Domestic violence is a pervasive issue that plagues societies worldwide. It affects all members of society, including children, youth, women, men, and the elderly. Social networks play an integral role in addressing this challenge from the local to the global level. This study aims to develop guidelines for improving social networks' efficacy in responding to domestic violence using embedded mixed-methods research. Qualitative research was used as the primary approach with interviews and focus group discussions conducted in two rural communities located in Udon Thani and Nong Khai Province in northeastern Thailand. Additionally, quantitative methods were employed through questionnaires distributed among 449 samples (n = 449) selected from four provinces representing social network representatives such as village chiefs, village health volunteers, social developers, local nurses, local police, and teachers among others. The analysis involved thematic analysis along with descriptive and inferential statistics to synthesize development implications for elevating mechanisms aimed at coping effectively with family abuse issues. The research identified eight key pathways that could be instrumental in enhancing social networks' ability to address domestic abuse: adjusting people's attitudes; creating awareness through projects or activities; developing databases based on stakeholder participation; expanding ideas into other areas; addressing complexities related to legal aspects of violence including mental health and drug abuse; rehearsing emergency plans with relevant staff; providing support tools and rewards for actors while designing models suitable for situational events unique to different regions. These points are crucial towards reducing cases of domestic violence during uncertain times.

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Introduction

Amidst global economic progress, rapid urbanization, and the implementation of neoliberal development policies, there are implications for individuals, particularly with regard to poverty and inequality. These circumstances can result in people living in stressful environments and resorting to violence as a solution. Several studies have demonstrated the relationship between poverty, inequality, unemployment, and unbalanced development between urban and rural areas leading to violence (Atkinson, 2006; Muggah & Savage, 2012).

In addition to poverty's impact on violence levels, there is a correlation between poverty and development concepts (Moser & McIlwaine, 2006). A free-market economy that promotes economic growth has limitations in addressing inequality and can even contribute to widening the gap between rich and poor, which results in increased structural violence. Despite this fact, the World Bank reports that employment opportunities due to market-based economies' expansion help reduce overall violence levels (World Bank, 2011). However, globalization has exacerbated some areas of violent behavior such as women being victims of violent acts within Ciudad Juárez, which borders Mexico with America where they work at American-owned factories (Wright, 2004). It appears that while violence plays a significant role in hindering development efforts itself, it is often used as a mechanism promoting new forms of aggression, especially within developing countries' urban settings.

Although domestic abuse is not directly linked to economic growth or gross domestic product (GDP), social norms and women's access to resources like land are important factors when studying the social-ecological factors that contribute to community-level incidents of domestic abuse (Heise & Kotsadam, 2015). Institutional factors such as laws and victim knowledge about them also play crucial roles, particularly in rural areas where women lack information about legislation designed to prevent attacks against them (Kovacs, 2018). This highlights how resistance-related knowledge is closely linked with an individual's ability to respond effectively toward their attacker(s), while religious beliefs and differing societal norms across regions add further complexity when trying to understand these issues.

In Thailand specifically, the Thai family strength index published in 2020 revealed that families were weakening due to threads fraying relationships, self-reliance, social capital risk avoidance/adaptation during difficult situations - all contributing towards lower family cohesion (Department Women Affairs and Family Institution, 2018; 2016). Household-based data gathered during this period showed there were a total of 21.58 million households present throughout Thailand each consisting of an average of 3.14 members per household. Furthermore, single-parent families accounted for 45.5 percent of these households while extended families made up 34.9 percent. Only 19.2 percent consisted of one-person households whilst non-relatives were included in just a mere fraction at only 4 percent, reflecting highly individualistic society structures changing over time toward more "children live with elderly" families ultimately increasing risks associated with breakdowns within familial relationships.

Amidst the COVID-19 pandemic that commenced in late 2019, individuals have been compelled to remain confined within their households due to lockdown measures. Within families, issues such as violence against children, women, and older adults have become increasingly intricated and concealed. These problems pose a threat to people's lives and present challenges for local communities that are closest in proximity to families with varying contextual circumstances. Notably, statistics of violent incidents indicate an increase from 2020 to 2021 compared to the previous year.

Preliminary assessments reveal that local communities continue facing limitations when addressing domestic violence due to personnel and the public lacking relevant knowledge. Additionally, participation from various professions and members of the public remains challenging when building, maintaining or developing social networks without support from government agencies, or external funding sources. The Domestic Violence Victims Protection Act B.E. 2550 (Royal Gazette, 2007) does not directly define the role of local communities in management despite being directly affected by it at a social unit level.

The policy and strategy for family institution development B.E.2560–2564 emphasizes promoting social networks as crucial in developing families at all levels while conducting research on attitudes and roles of multidisciplinary professionals towards domestic violence resolution is necessary.

Research carried out globally including Thailand has underscored the urgent need for community-based solutions where social networks emerge as valuable assets in resolving domestic violence cases through network-based operations seen across both urban and rural areas under different conditions depending on problems faced by each actor during this disruptive time.

A mixed-methods approach was employed involving qualitative inquiry into how network actors mutually construct mechanisms guiding their work towards addressing domestic violence issues followed by quantitative confirmation fulfilling data acquired during qualitative inquiry phases aimed at synthesizing guidelines for developing social networks targeting rural Thai communities specifically while supporting policymakers' efforts towards effective interventions amid these uncertain times.

Objective

To synthesize development guidelines for social networks working with domestic violence issues, especially for rural Thai communities.

Methodology

Embedded mixed methods research was employed using phenomenological perspectives interpreting perceptions of network actors working together towards constructing mechanisms guiding their work tackling domestic violence issues via qualitative approaches followed later selectively fulfilled confirming data acquired during earlier phases through quantitative means.

Sampling Techniques

The research was divided into 2 phases: Qualitative and Quantitative. Different sampling methods were used for each.

1. Huay Sam Pard and Pha Tang communities were purposively selected as case studies. 31 informants were interviewed and selected for focus group discussions on development guidelines for family and community-based violence issues. Informants included community leaders, health volunteers, nurses, teachers, police officers, psychologists, public health officers, and those affected by in-house violence via s*nowball technique.*

These two areas were chosen because they are distinct community-based pilot projects on violence. Huay Sam Pard in Udon Thani province is one of several pilot areas running similar networking projects focused on resolving domestic violence issues according to the Women's Gender Justice Health Plan (apart from Tak and Nakhon Sawan provinces) respectively identified by Thai Health Promotion Foundation, the Ministry of Social Development and Human Security. The latter area of Pha Tang in Nong Khai province is one of many community-based interventions run by non-governmental organizations coordinating with local informal leaders. These two purposively selected communities will not be chosen in the quantitative phase to avoid duplicating in the research process. Moreover, in terms of the network operation, Hauy Sam Pard of Udon Thani province is one example of a strong hierarchical relationship in violence working between provincial and local agencies. Nonetheless, Pha Tang area of Nong Khai province is an example of informal ties in local-based abuse management driven collaboratively between local heads, a non-governmental organization and the Pha Tang sub-district administrative office.

2. Stratified random sampling was used to select social network actors from an unspecified population (Roscoe, 1969) across twenty northeastern provinces; at least 385 samples were chosen representing total populations working towards family violence issues in this region of Thailand (in case of not knowing the exact number of the population). The researcher chose samples from provincial levels down to sub-district level after consulting with staff members from The Ministry of Social Development and Human Security (MSDHS). Four prioritized provinces that had a high prevalence rate concerning domestic violence incidents between October 2021-May 2023 (before conducting the quantitative phase) compared with household numbers data obtained from these provinces. The data acquired from May 2023 through The Ministry of Interior were identified as having a higher proportionality rate regarding household incidents at that time- Mukdahan, Nong Khai, Mahasarakham, and Amnat Charoen-with twenty-four local communities surveyed figuring out pathways for implementing networks tackling domestic violence. 449 sample network actors were then selected to meet at least the number of actors who represented northeastern Thailand because each sub-district area (Tam Bon) has different numbers of the network (some have 15, some has 25, apart from actors who had moved and passed away). Hence, the researchers had to spare more actors in each area to meet the sample frame. Individual is the unit of analysis to represent the perspective of network actors in working on family violence management.

Data Collection Methods

Three data collection methods were applied inclusively

1. Interviews conducted over key informants numbering thirty-one hailing exclusively from Huay Sam Pard or Pha Tang accessed via snowball basis encompassing various professionals including but

not limited to community leaders, village health volunteers, local nurses, community development officers, teachers, community police officers, psychologists, public health officers, etc. spending roughly an hour per participant each time.

2. Focus group discussions lasting two hours arranged randomly during sub-district administration visits carried out within social networks operating around Huay Sam Pard or Pha Tang. The objective was to learn about operation mechanisms addressing domestic Violence issues aimed at promoting family welfare. Semi-structured interview guidelines employed both interviews and focus group discussions, but flexible probing questions also utilized pursuing effective information gathering.

3. A survey conducted after the qualitative phase inclusive of four provinces or twenty-four communities where four hundred forty-nine sample sizes (n = 449) were collected representing social network actors residing in the northeastern region of Thailand.

Research instruments

Two Research instruments employed are;

A semi-structured interview guideline: This was used flexibly during both interviews and focus group discussions held within two chosen areas. Many questions were asked regarding improving and developing networking mechanisms more sustainably and effectively. Probing questions further pursued informant's experiences and perceptions, for instance; was did the network being formulated? Evolution? Which actors were working together? Were there any challenges in driving network working with violence? How could network mechanisms be improved?, etc.

Questionnaire: This was distributed among community actors operating at the sub-district level. Questions included demographic information, perception of the building, operating network, and any additional comments or observations made. For example; Patterns of family violence that you face? Skills and Methods that you use to cope with violence? Violence management models should be improved? Social institutions should be responsible to household abuse issues? etc.

Credibility and reliability

1. Triangulation: This technique is generally used in qualitative research checking result files formally and informally communicating through online channels. If any misinformation is found, the researcher revises and improves it.

2. Consulting with Three Experts: Prior to implementing questionnaires, a preliminary draft was distributed to three specialists in relevant fields encompassing family violence, social work, and criminal justice. The feedback provided by these experts was thoroughly examined and refined before proceeding with the questionnaire administration process.

3. Trying Out Process: The methodology entailed the selection of two violence prevention centers within local communities, with formal quantitative data collection being excluded. A total of 49 samples were collected from both communities and efforts were made to adjust and improve each item on the questionnaire. Prior to actual data collection, a thorough examination was conducted to verify that each item achieved a Cronbach's Alpha Coefficient benchmark value exceeding 0.70; any items failing to meet this criterion or any duplicated items were subsequently deleted or revised.

4. Comparing and Confirming Matching Data, Both Qualitative and Quantitative: This embedded mixed-method study can identify and match some findings fruitfully.

Data Analysis

Thematic analysis utilizing an interpretive approach was used to analyze raw data and identify patterns aligned with research objectives, exploring sub-themes related to guidelines developed for network mechanisms in the qualitative phase. Additionally, descriptive and inferential statistics were utilized to confirm encodings, decoding, and synthesizing integrative topics involved. Quantitatively, the SPSS program for windows was utilized for processing analysis.

Ethical Approval

The study received ethical clearance from Khon Kaen University's Research Ethics Committee on July 17th, 2022 with No. HE653132. In each data collection process, inform-consent forms officially authorized the researcher to collect data from selected participants and samples.

Results

Based on the results of qualitative research, social networks in two areas- Huay Sam Pard Sub-district (Udon Thani Province) and Pha Tang Sub-district (Nong Khai Province)- have reflected perspectives on how to improve and develop social networks for violence prevention and response including:

Adjusting the Attitudes of Working Groups

This issue is consistent with the working process of social networks. In fact, it may even be the first step before taking any other action. Otherwise, it will be difficult to proceed with the next steps of the operational processes.

It is the responsibility of all citizens to be vigilant together. The families of children and at-risk groups must also have this attitude. This attitude includes the viewpoint of gender and power equality, which affects many aspects of the life of the violence victim, and being not tolerant about household abuse, which is a public affair, because working as a volunteer with a passion is not enough to prevent and solve problems effectively. However, the finding from the quantitative phase has implied that the cultural aspect or the network's working attitude is not primarily significant ($p > .05$ *with significance level =.05)*. It was tested with the dependent variables (general profiles of the 449 samples) according to the ANOVA statistics examination. Most of the social network actors think that any family abuse issue is a public affair, not a private matter.

Creating Awareness and Knowledge through Projects, Activities, and Funding from Multiple Sectors

This point emphasizes the importance of building awareness and knowledge about violence prevention and response among all members of the community. This can be done through a variety of channels, including specified projects and activities, training as well as information sharing including violence law enforcement by officials, violence working process, detecting and screening mechanisms on family and community abuses, etc.

This issue also stresses the significance of creating an opportunity for young people to work voluntarily in this field of violence prevention and coping. This is because the population of older adults is growing rapidly, and there is a risk that the knowledge and experience of these individuals will be lost. Social networks cannot participate or rely on the few activities annually relating to family development and violence according to the opinion of 449 samples who said that the violence prevention area-based activities have been held not more than twice a year at 44.1 percent.

Developing a Database Based on the Cooperation between Social, Public Health, and Education Sectors

To establish a prompt collaboration system and build a shared understanding of the local situation regarding violence, all stakeholders (specifically the social, public health and education sectors) and the social network require a database for tracking and coordinating efforts, facilitating work, and accessing basic information about perpetrators, victims, and referral systems. The existence of committees or operational centers in the area alone is insufficient for effective working. In addition, a database and relevant knowledge set can eliminate the issue of discontinuity in operations when agency heads or personnel change, as access to information or database can be maintained. This point was also identified by the sample group that used the database relatively less than other methods in violence work, with an average (M) = 2.96, SD=1.00. It can be illustrated that despite the violence database being significant, the network samples still seldom employ it beneficially.

Therefore, a system database is crucial and must be kept up-to-date. However, those granted access to this information must prioritize ethical principles and the code of conduct for protecting the rights of both victims and perpetrators of violence.

Expanding to Other Areas, Not Only in the Pilot Communities

This perspective emphasizes the importance of focusing on quality rather than quantity when expanding violence prevention and response efforts to other areas. This means that efforts should be focused on creating sustainable and effective relationships, rather than simply establishing new centers or programs. The implication also stresses the importance of informal networks, which can be more flexible and responsive than formal networks. These networks can be built gradually, starting with nearby areas that are willing to collaborate.

Additionally, the point is supported by the findings of the quantitative study that different provinces have different levels of experience working on violence prevention ($p = .001$, *significance level* $< .05$). This suggests that the strength of violence prevention efforts varies from area to area. The relationship between provincial-level, district-level, and community-level organizations also diversifies. This can lead to disparities in the effectiveness of violence prevention efforts, since some areas may have stronger networks, more consistent processes, or more social capital than others that have not.

Hence, the factors that influence the strength of violence prevention efforts in a given area are such as the social capital, the nature of the violence problem, the network relationship, and the power dynamic among different stakeholders.

Addressing the Complexity of Laws on Violence, Mental Health, and Drugs to Reduce Recidivism, Including Cross-Border, Cross-District, and Cross-Responsibility Operations

Accordingly, the issue will be more specifically clarified to calls for: (1) Clarifying the roles and responsibilities of different stakeholders. This will help to ensure that everyone is on the same page and that efforts are coordinated effectively; (2) Developing a comprehensive approach that addresses the underlying root causes of violence. This approach should include not only treatment for substance abuse and mental health problems, but also the economic and social support to help people avoid re-entering the cycle of violence; and (3) Establishing strong partnerships between government, local communities, and businesses. This will ensure that everyone is working together to address this challenge.

Nevertheless, the complexity of laws on violence, mental health, and drugs can also make it difficult to provide effective treatment for perpetrators of violence. This is because perpetrators of violence are often also struggling with substance abuse, mental health problems, or both. These problems can make it difficult for perpetrators to access treatment, and they can also make treatment less effective. The research found that treatment for substance abuse, mental health, and alcohol abuse is one of the most important priorities for violence prevention. The difficulty of legal aspects can make it hard to enforce laws or mechanisms to provide effective treatment.

The point of the formal regulations can as well be supported by the results from the percentage of the 449 network actor samples who describe that they thought relevant laws are the first obstacle to run on the network at the mean (M) = 3.60, SD =.94. Most importantly, they usually agree (M = 4.00, SD=.96) that the laws should be revised to make a structural change in Thai society.

Rehearsal and Simulation of Emergency Plans with All Relevant Parties

This matter emphasizes on the importance of rehearsing and simulating emergency plans with stakeholders involved in violence prevention. This is because violence prevention efforts are often reactive, meaning that they are focused on responding to incidents that have already occurred. This can lead to delays in providing assistance to victims and perpetrators, and it can also make it more difficult to prevent any future violence.

This research implication can be illustrated by the recent mass shooting at a kindergarten in Nong Bua Lam Phoo province in October 2022, which has raised awareness of the need for violence prevention efforts. Regular rehearsals and simulations of emergency plans are an important part of violence prevention policies and practices. This is reflected in the feedback from the social developer, volunteers, preschool teachers, and community police. Training in simulation learning is also important. In addition, the quantitative research has shown that most network staff do not have the opportunity to learn about violence prevention or to prepare for it. They also do not have a protocol of action (*M=2.92, SD=.99, which is the lowest compared to the use of other skills*). Absolutely, violence of any form or impact on anyone is something that we do not want to happen in both families and communities. However, if those involved or the network have learned, planned, rehearsed, and simulated emergency response and prevention, they will be able to manage the problem, reduce the severity of the situation, and be prepared for the unproductive incident.

Supporting Tools and Rewards to Enhance the Motivation of Social Networks

The brief of this point specifically calls for: (1) Providing social networks with access to a variety of tools and resources, such as training, consultation, and legal assistance. This will help them to develop the skills and knowledge they need to effectively address violence; (2) Providing them with recognition and rewards for their work. This will help motivate them and encourage them to continue their work; (3) Developing online platforms, databases, and applications to support social networks. This will make it easier for them to communicate and collaborate, and it will also make it easier for them to reach victims of violence because the social network actors are increasingly using social media to learn about violence and to communicate with each other according to the methods they have been employing to perceive and cope with violence (*with M= 3.54, SD=1.01, which is the highest compared to the use of other methods*). This finding implication calls for social networks to be trained in the use of technologies for violence prevention, and for them to develop ethical guidelines for the use of technologies in this area.

Designing the Forms and Characteristics of Social Networks Appropriate to the Situational Problems and Social Capitals of Each Area

This last inquiry implication emphasizes the importance of designing social networks that are suitable to the specific needs of each community. There is no one-size-fits-all approach to social network design. The most effective form and characteristics of a social network will adapt depending on the specific situational problems and social capital of the community context.

Two schools of thought on designing social networks for violence prevention: formal networks with strong hierarchical relationships are effective in managing violence, while informal networks with more flexible relationships are productive in coping with in-house abuse. For examples, Hauy Sam Pard community is an example of a formal network with strong hierarchical relationships in terms of violence management between provincial and local bodies. On the other hand, Pha Tang area is an example of an informal network with weak ties for abuse coping run parallelly between local chiefs, a non-governmental organization and the sub-district administrative office.

Discussion and Conclusion

After analyzing case studies and surveying various perspectives on social networks, it became apparent that implementing them poses numerous challenges and obstacles. However, other related research has also uncovered findings that are both consistent with and divergent from this study's results, which cannot be disregarded. Therefore, comprehending the actual challenges and obstacles that arise during implementation is crucial before synthesizing a design for social networks in violence management.

Like the Suriyanyon et al. (2014) research, the implementation of policies is hindered by social and cultural factors such as inadequate communication with the public and insufficient personnel development. However, our quantitative study on social networks in northeastern Thailand reveals that law enforcement, ineffective treatment of mental illness, substance and alcohol abuse, as well as shortages in human resources, knowledge, and budget are crucial issues that need to be addressed. While the interpretation of events or situations of violence that influence the perception of social networks in the area is still facing subjective conditions which are uncertain, it is necessary to rely on in-depth analysis and mutual assessment of the working group.

In the assessment of the risk of households with high risk (red flagship), medium risk (orange flagship), low risk (yellow flagship), and normal households (green flagship), village health volunteers (VHWs) have non-constant criteria. The assessment for conviction is that it is domestic violence that will be presented to the community agenda depending on the interpretation and communication of each network member. Therefore, interpretation and communication are important to the network's perception mechanism that will be effectively implemented. This is in line with the research of Lam et al. (2020) that found communication skills and continuous care are important factors in addressing violence. Training on family therapy requires a screening policy and a training plan in violence management of the area, with an emphasis on the cooperation between the medical and social sectors to facilitate effective protection and screening mechanisms. It can be seen that in the reality of the social networks tackling violence in Thailand, there is a lack of effective screening mechanism to prevent or monitor thoroughly. There are only some areas of the pilot violence management protective communities.

Moreover, the recognition of violent incidents is dependent on individual characteristics and personal experiences in handling such situations. The mean difference test outcomes reveal that various provinces have diverse perceptions of violence compared to direct victims ($p = .000$) at a statistically significant degree ($p < .05$). Furthermore, the test results demonstrate that different provinces perceive occurrences of violence differently from neighbors and individuals within the community ($p = .006$) at a statistically significant level ($p < .05$). This indicates that social networks' perception of violence in each locality is not universal or consistent. Even during the COVID-19 pandemic, social network members do not share similar views regarding to domestic violence.

Additionally, there are concerns related to leaders', volunteers', and people's relationships in each village or sub-district as well as differences among sample members' roles or positions within various social networks concerning their interpretation of domestic violence events from direct victims, Taiban networks, neighbors, and the general public ($p = .004$ and $p = .000$), respectively at a statistically significant level ($p < .05$). This inconsistency may be attributed to varying exchange meetings as well as training on information or knowledge about domestic abuse across different areas. It is noteworthy that most social network members

participate in activities or projects related to this issue only up to twice a year out of a total sample size of 449 actors, which accounts for 44.1 percent. Thus, this factor influences understanding and perception concerning violent incidents. Therefore, it is essential to adopt a multi-professional approach to mitigate errors and dilemmas arising among network members (Miranda & Lange, 2020) during interpretation/assessment/planning/designing approaches aimed towards managing acts of abuse effectively.

Campbell (2020) also indicated that domestic violence management is hindered by budget and workload limitations, especially in the public sector. The bureaucratic system restricts effective network mobilization in each area, which is an issue in northeastern Thailand where social networks rely on volunteer work and members have multiple roles. It was found that 71 actors of social networks in northeastern Thailand, out of a total sample of 449 samples, or 15.81 percent, reflect that they have more than one position or role in the community, which may be a challenging factor for one of the operations to deal with violence. Although some village health volunteers and village heads reflected that having a variety of roles or positions has opened up their opportunities, channels, or forums for exchanging learning with others both within and outside the community, and it can create a wider range of partners, it is a double-edged sword when they come to work on projects, activities, and events or situations of domestic violence in the area.

The quantitative research results reflect the desired models of domestic violence management according to the northeastern Thailand network actor samples, which agree that the preventive model should be the most important, with M = 3.84, SD = .88, and the screening and surveillance model, with M =3.81, SD = .95, as the top two ideological goals of the network work. However, from the perspective of the northeastern social network samples, they directly admit that they still seldom use laws, community-based surveys, and standard manuals in dealing with violence because the operation of a multidisciplinary network, especially domestic violence management in rural areas, requires standardized operations, coupled with the principles of a common philosophy of working together and information exchange between each other (Rhodes, 2012). The latter two principles are evident through the thinking and operations in the projects and activities of social networks that manage domestic violence.

Amid the changing problem of domestic violence and the dynamics of Thai families since the COVID-19 pandemic, there have been a number of studies that have attempted to shed light on the issue of household violence. Kim & Royle (2024) have systematically synthesized the literature on domestic violence in the context of the COVID-19 pandemic since 2020, using the socio-ecological framework, starting from the individual level, the microsystem level, which concerns the family and family relationships, the external level (Exosystem), which refers to the community in which they live, and finally the macrosystem, which discusses the relevance on the culture and laws. In the past, a variety of approaches have been applied to address this problem, including risk reduction policies, face-to-face assistance, and online assistance. However, when synthesizing the tackling approaches, many other approaches were found, such as providing basic and intensive social services, creating digital equality, conducting community development, using multi-sectoral collaboration with vulnerable groups, training and campaigning for those involved, including teachers, professionals, and the public, as well as seeking cooperation between organizations and between professions.

The study in rural northeastern Thailand suggests seeking interprofessional cooperation and conducting long-term studies on violence related to COVID-19. The study proposes solutions from various stakeholders despite the need for further research. It is also difficult to predict future risks of violence due to diverse and uncertain causes, despite attempts to highlight pandemic-related dynamics. Hence, domestic violence management needs cooperation between social, medical, and safety professionals (police). This requires training, patience, and flexibility to overcome obstacles. Responsible communication is crucial for success.

Another challenge is the language barrier. Without understanding the diverse causes and effects of violence, it is difficult to work together between different agencies. Cooperation can be understood not only at the professional and institutional levels, but also through the human processes, the cultural exchange, and the application of new professional values, which means being elastic. (Notko et al., 2022). This point is reflected through the mechanisms of construction and operation of the two qualitative areas, which are necessary to overcome communication barriers and structural challenges of institutions or organizations that hinder network development. It also corresponds to the study of Poleshuck et al. (2021), which studied the interprofessional methods through a biopsychosocial framework for the treatment of families experiencing violence. They used the HEAL System, which was developed by the medical, social, and legal

sectors, based on the belief that a single profession cannot address violence completely. Each profession must have a common goal and adapt to the work, particularly during the COVID-19 pandemic. To effectively address the diverse needs of those affected by violence, a multidisciplinary team must establish a common space. Qualitative findings indicate the sensitivity of working with real cases of violence in households. Successive factors include actors and committees, information flow, knowledge sharing, quick response to incidents, strong community leadership, comprehensive coordination, fundraising from alternative resources, weak ties, and informal networks. These factors serve as a starting point for constructing social networks to operate more effectively.

Moreover, the design of network construction guidelines for violence working needs to be in line with the technological advancement and the human nature of using communication tools and applications as a crucial part of everyday life. This is reflected in the views of the sample of social networks in northeastern Thailand, which use online media and applications as a part of violence coordination, with M =3.54, SD =1.01. They also perceive family and community violence events via online channels most often, with M = 3.41, SD =1.05. These points suggest that relevant stakeholders, which may refer to both internal and external community networks or nodes of violence operations, need online toolkits that the public can access (Goodman et al, 2018). At the same time, they need to use communication tools and applications ethically to protect the rights of victims and perpetrators of violence sensitively. This toolkit creates a virtual operational process in parallel with face-to-face operations, which results in a reliable violence database that can be retrieved to trace the intervention process of violence management. This will also contribute to more effective violence mechanisms, which can mitigate the impact and risk of violent events occurring in families, communities, and society.

Policy Implication Recommendations

First, promoting economic empowerment, one of significant contributing factors to in-house abuse. Consequently, social networks should actively work towards promoting economic opportunities for all people. This includes advocating for equal rights and access to resources, promoting income generation initiatives, and tackling underlying power-gender biases and discrimination.

Second, Expediting the implementation of the new law, the "Family Institution Development and Protection Promotion Act B.E.2562," which has been delayed for 7 years, is imperative to enhance the efficiency of social networks because the new law is expected to enhance community social networks by allowing any private organization with objectives or activities related to family promotion, development, or welfare protection to seek registration as a "Community Family Development Center (Sor Por Kor)". Therefore, this designation will serve as a crucial social network within the community.

Third, Enhancing coordination and collaboration among volunteer networks with diverse and specialized skills is crucial. This includes integrating social development and human security volunteers, as well as volunteer probation officers (skilled in community justice and mediation), alongside public health volunteers.

Finally, Developing the potential of the Ministry of Social Development and Human Security's 1300 hotline notification system at the community level should be prioritized. Utilizing technology to enable swift response and assistance, similar to the emergency notification system of the National Institute for Emergency Medicine (1669), will enable real-time protection of victims.

Conflict of Interest

The authors declare no potential conflicts of interest about the research, authorship and/or publication of the article. This has been confirmed by Khon Kaen University's institutional review board (IRB).

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References

Atkinson, R. (2006). Padding the bunker: Strategies of middle-class disaffiliation and colonisation in the city. *Urban Studies, 43*(4), 819–832. https://doi.org/10.1080/00420980600597806

Campbell, A. M. (2020). An increasing risk of family violence during the COVID-19 pandemic: Strengthening community collaborations to save lives. *Forensic Science International: Reports, 2*, 100089. https://doi.org/10.1016/j.fsir.2020.100089

Department of Women and Family Affairs, Ministry of Social Development and Human Security. (2018). *Report on the situation of domestic violence according to Section 17 of the Victims of Domestic Violence Protection Act B.E. 2550 (2007) for the year 2018*.

Department of Women and Family Affairs, Ministry of Social Development and Human Security. (2016). *Policies and development strategies on family institution B.E. 2560– 2564*.

Goodman, L. A., Thomas, K. A., Nnawulezi, N., Lippy, C., Serrata, J. V., Ghanbarpour, S., & Bair-Merritt, M. H. (2018). Bringing community-based participatory research to domestic violence scholarship: An online toolkit. *Journal of Family Violence, 33*(2), 103–107.

Heise, L. L., & Kotsadam, A. (2015). Cross-national and multilevel correlates of partner violence: An analysis of data from population-based surveys. *The Lancet Global Health, 3*(6), e332–e340. https://doi.org/10.1016/S2214-109X(15)00013

Kim, B., & Royle, M. (2024). Domestic violence in the context of the COVID-19 pandemic: A synthesis of systematic reviews. *Trauma, Violence, & Abuse, 25*(1), 476–493.

Kovacs, R. J. (2018). The macro-level drivers of intimate partner violence: New evidence from a multilevel dataset. *Global Public Health, 13*(7), 944–956. https://doi.org/10.1080/17441692.2017.1420427

Lam, T. P., Chan, H. Y., Piterman, L., Wong, M. W., Sun, K. S., Lam, K. F., & Tiwari, A. (2020). Factors that facilitate recognition and management of domestic violence by primary care physicians in a Chinese context: A mixed methods study in Hong Kong. *BMC Family Practice, 21*, Article 1. https://doi.org/10.1186/s12875-020-01174-2

Miranda, R. B., & Lange, S. (2020). Domestic violence and social norms in Norway and Brazil: A preliminary qualitative study of attitudes and practices of health workers and criminal justice professionals. *PLOS ONE, 15*(12), e0243352. https://doi.org/10.1371/journal.pone.0243352

Moser, C. O. N., & McIlwaine, C. (2006). Latin American urban violence as a development concern: Towards a framework for violence reduction. *World Development, 34*(1), 89–112. https://doi.org/10.1016/j.worlddev.2005.07.015

Muggah, R., & Savage, K. (2012). Urban violence and humanitarian action: Engaging the fragile city. *Journal of Humanitarian Assistance, 19*(1).

Notko, M., Husso, M., Piippo, S., Fagerlund, M., & Houtsonen, J. (2022). Intervening in domestic violence: Interprofessional collaboration among social and health care professionals and the police. *Journal of Interprofessional Care, 36*(1), 15–23. https://doi.org/10.1080/13561820.2021.1952546

Poleshuck, E., Wittink, M. N., Crean, H., Juskiewicz, I., ReQua, M. A., & Cerulli, C. (2021). A biopsychosocial and interprofessional approach to the treatment of family and intimate partner violence: It takes a village. *Frontiers in Psychiatry, 12*, 738840. https://doi.org/10.3389/fpsyt.2021.738840

Rhodes, B. E. (2012). Rural domestic violence: An interdisciplinary model for rural practice. *Contemporary Rural Social Work Journal, 4*(1), 8.

Roscoe, J. T. (1969). *Fundamental research statistics for the behavioral sciences*. Holt, Rinehart & Winston.

Royal Gazette. (2007). *Victims of Domestic Violence Protection Act B.E. 2550 (2007)*.

Suriyanyon, D., Werathammo, A., & Athiwithayaphorn, J. (2014). Factors in the implementation of human and social security policy on the protection for intrafamily violence-affected women: A case study of Songkhla Province officers. *Inthaninthaksin Journal, 9*(2), 135–156.

World Bank. (2011). *Violence in the city: Understanding and supporting community responses*.

Wright, M. W. (2004). From protests to politics: Sex work, women's worth, and Ciudad Juárez modernity. *Annals of the Association of American Geographers, 94*(2), 369–386. https://doi.org/10.1111/j.1467-8306.2004.09402007.x

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The mediating role of organizational citizenship behavior in the relationship between organizational transparency and school effectiveness

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Abstract

This study examines the effect of organizational transparency on school effectiveness and the mediating role of organizational citizenship behavior in this relationship. The study, designed as a correlational survey model, utilized Structural Equation Modeling (SEM) to analyze the data. The research sample consists of 327 teachers working in public schools. The findings reveal that teachers' perceptions of organizational transparency significantly impact organizational citizenship behavior and school effectiveness. The results indicate that in schools with high levels of organizational transparency, teachers' voluntary organizational citizenship behaviors increase, positively influencing the school's effectiveness. Correlation analyses confirm significant positive relationships between organizational transparency, organizational citizenship behavior, and school effectiveness. Structural Equation Modeling further shows that organizational citizenship behavior partially mediates the relationship between organizational transparency and school effectiveness. In other words, organizational transparency enhances school effectiveness directly and through organizational citizenship behaviors. As a result, adopting a transparent management approach in schools is crucial for establishing effective schools.

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Introduction

School effectiveness is considered a fundamental measure of educational systems, focusing on its impact on students' academic achievement and social and emotional development. Today, educators and researchers employ various methods to identify the key factors that enable schools to maximize students' potential and to establish effective educational strategies. In this context, research on school effectiveness plays a crucial role in shaping educational policies and improving school management practices.

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School effectiveness is a multifaceted concept that encompasses maintaining a safe and orderly environment, implementing effective instructional frameworks, enhancing student learning, and ensuring increased student achievement through competency-based systems (Akram et al., 2021). Empirical research has demonstrated that the factors contributing to effective schools enhance student achievement (Zamir, 2020; Zheng et al., 2024). Therefore, identifying the antecedents that influence the development of effective schools is crucial for educational organizations to achieve one of their most important goals—producing qualified graduates.

Edmonds (1979) emphasizes that effective schools prioritize a strong leadership structure, a school climate conducive to learning, high expectations for student achievement, clear instructional goals, the monitoring of student progress, and a focus on the necessary instruction to develop student's basic skills. Additionally, positive school culture, climate, and effective leadership significantly contribute to a school's effectiveness (Manaf & Omar, 2017). Another study found that instructional leadership is critical in enhancing school effectiveness (Kilag et al., 2024). In summary, for a school to be effective, it must be efficient and education-focused in all aspects (Baştepe, 2009). The concept of effectiveness is central throughout the development of organizational theories because all theories claim that their chosen courses of action make the organization most effective. As all relationships among organizational elements aim to achieve organizational effectiveness, the concept of effectiveness is positioned as the ultimate dependent variable in organizational studies (Cameron, 2015).

Literature Review

School Effectiveness

Over the past fifty years, there has been a significant shift in understanding the impact of schools on student development. While early studies on school effectiveness suggested that schools made little difference in children's development, more recent research highlights schools as "value-adding" structures that meaningfully contribute to students' growth. In this context, the primary mission of educational policies is seen as improving all schools in general and making this improvement sustainable (Reynolds et al., 2000). Indeed, the power of educational policies to transform schools is crucial for ensuring that children have a better experience during their education.

Katz and Kahn (1977) argue that the effectiveness of organizations is directly related to the efficiency they achieve. In the same vein, Başaran (1994) asserts that a school is considered effective depending on the extent to which it can achieve its planned organizational goals. Schools are not only institutions that provide students with basic literacy and numeracy skills but also social institutions designed to equip students with the knowledge and skills needed to understand complex and abstract concepts (Tatar, 2001). Given the broad societal reach of such an institution, it is evident that the responsibilities of teachers and other staff members are heightened. Therefore, school accountability emerges as a critical requirement for enhancing the quality of education.

Organizational effectiveness is a multidimensional concept that researchers emphasize. Hoy and Ferguson (1985) suggest that effectiveness is not a one-dimensional construct but rather a multidimensional structure formed by the combination of various factors. School effectiveness extends beyond student achievement; it also includes factors such as the alignment of teachers with the educational organization, school-parent relations, and collaboration between the educational organization and stakeholders (Çetin & Koçak, 2024). In this context, the effective leadership behaviors of school administrators and teachers have a substantial impact on the overall success of schools. Özdemir (2024) also highlights that the effectiveness of schools is closely related to the management skills of school leaders. Şişman (2013) points out that the competence of school administrators in demonstrating effective leadership behaviors is a determining factor in the effectiveness of schools.

Organizational Transparency

A review of the organizational literature reveals that early references to the concept of transparency date back to the mid-20th century. This period includes discursive explanations of organizational roles and social appropriateness (Coser, 1961). In the 1990s, transparency was considered a complex and marginal concept (Meijer, 2013), but by the early 21st century, it began to be used predominantly in economic contexts (Rawlins, 2008). However, limiting transparency solely to the visibility of financial information neglects ethical values and the needs of stakeholders. Focusing exclusively on financial transparency creates the assumption that external transparency towards stakeholders can be achieved without ensuring internal transparency towards employees. Yet, if an organization is not transparent

internally, it cannot be transparent externally. Therefore, transparency should be defined as the free flow of information between managers and employees (O'Toole & Bennis, 2009).

The primary objective of transparency is to communicate the truth accurately, as it is (Martinson, 1996). In organizations, transparency is almost always considered a desirable characteristic (Grimmelikhuijsen, 2012). It encompasses multiple components, including the availability of information about an institution's internal operations or performance. This allows external individuals and groups to monitor the activities and decisions made within the organization, thereby enhancing internal observability (Grimmelikhuijsen & Meijer, 2014). According to Rawlins (2009), organizational transparency involves a deliberate effort to present all legally releasable information accurately, promptly, and accessibly. In other words, as Moser (2001) suggests, transparency refers to making visible the operations within an organization that are not immediately apparent to outsiders to demonstrate its proper functioning.

Gower (2006) emphasizes that for an organization to be truly transparent, stakeholders must believe that everything they need to know is clearly expressed by the organization. Similarly, Rawlins (2009) argues that for organizations to achieve transparency, it is essential to understand what stakeholders want to know. Meijer (2013) posits that transparency is a source of power, and this power should be harnessed to create even more transparency. Transparency can be defined as the degree to which information is visible and accessible (Gower, 2006; Zhu, 2002). When organizations ensure transparency, they have the opportunity to review and adjust employee behaviors (Kaptein, 2008). Consequently, employee productivity increases (Su et al., 2011), and their organizational commitment strengthens (Rawlins, 2009). In this context, transparency can be considered a prerequisite for fostering organizational commitment and becoming a more effective organization.

Organizational Citizenship Behavior (OCB)

Organizational Citizenship Behavior (OCB) was first introduced in the 1930s by Barnard, who referred to it as "extra-role behaviors" that go beyond formal job duties. This concept reflects the voluntary actions employees undertake in organizational settings, extending beyond their formal job descriptions. Since the 1980s, OCB has gained prominence as an independent concept in academic studies, highlighting the need for a sense of responsibility beyond formal job duties (Karaaslan et al., 2009; Karaman & Aylan, 2012). Research from this period demonstrates that OCB involves a commitment that goes beyond formal job descriptions.

OCB is a process that values voluntary contributions outside the scope of official job roles. In different studies, this behavior has been referred to as "extra-role behaviors," "social organizational behaviors," and "civic organizational behaviors" (Sezgin, 2005). The actions employees take outside their formal roles positively contribute to the organization's functioning and social structure. OCB plays a critical role in organizational success and efficiency while strengthening the social fabric of the work environment. These voluntary behaviors increase employees' commitment to the organization, thereby enhancing job performance and organizational effectiveness (Çinar, 2001). Through OCB, deficiencies in schools are quickly addressed, collaboration is encouraged, and overall quality is enhanced (Akkoç et al., 2023).

In conclusion, OCB is of great importance for the success, efficiency, and sustainability of organizations. The voluntary behaviors exhibited by employees contribute to both individual and organizational performance, helping the organization achieve its objectives. In essence, OCB reflects employees' willingness not only to fulfill their formal duties but also to contribute to the overall success of the organization (Tutar, 2016).

In school effectiveness research, it is important to make significant methodological choices to determine the effectiveness differences between schools. One such choice involves the criteria researchers use to compare schools. For the concept of "school effectiveness" to gain solid structural validity, such research should include multiple effectiveness criteria. In this context, multivariate approaches, which model various variables simultaneously, should be preferred. Multivariate modeling allows for a more comprehensive and in-depth analysis of school effectiveness (De Maeyer et al., 2010). Understanding and improving school effectiveness thus requires a holistic approach that takes into account numerous factors affecting educational outcomes.

This study tests whether the concepts of organizational transparency and OCB are necessary antecedents for school effectiveness. In this regard, the research examines how transparency—encompassing accountability, openness, and participation—and OCB, which includes employees' voluntary positive behaviors towards their organizations beyond their formal job descriptions, influence school effectiveness. Based on the theoretical framework and empirical studies in the literature, the following research questions have been addressed.

1. What is the level of teachers' perceptions of organizational transparency, organizational citizenship behavior, and school effectiveness?

2. Is there a significant relationship between teachers' perceptions of organizational transparency and organizational citizenship behavior and school effectiveness?

3. Does organizational citizenship behavior play a mediating role in the effect of teachers' perceptions of organizational transparency on school effectiveness?

Methodology

Research Model

This study is relational research aimed at determining the relationship between organizational transparency, school effectiveness, and organizational citizenship behavior based on teacher perceptions. To test the proposed model regarding the relationship between organizational transparency, school effectiveness, and organizational citizenship in schools from the perspective of teachers, Structural Equation Modeling (SEM) was employed. SEM is defined as a comprehensive method that combines various types of analyses, such as multiple regression analysis, path analysis, and factor analysis, which describe and validate the causality among different variables (Fraenkel et al., 2012). To test the proposed model in Figure 1, the following steps were taken: examining the validity and reliability of the measurement model, testing the structural model, and investigating indirect effects.

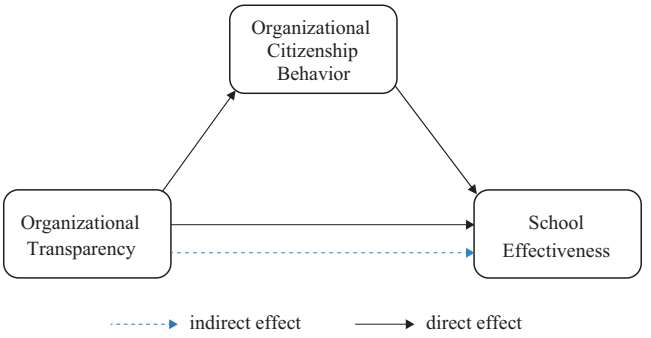


Figure 1 Proposed model within the scope of the research

Sample

The sample of the study consists of teachers working in public schools in Uşak province. Participation in the study is based on voluntary principles. Teachers from different school levels were selected using a convenience sampling method. Data collection tools were applied by providing information about the study through an online form on social media, reaching a total of 335 teachers. Out of the collected data, 8 data points were considered outliers and were removed from the analysis. As a result, a total of 327 teachers were included in the analyses. The demographic characteristics of the participants are presented in Table 1.

When Table 1 is examined, it is observed that 61.5 percent of the participants are female (N = 201), while 38.5 percent are male (N = 126). This indicates that the majority of the study participants are women. Regarding the participants' educational backgrounds, a significant portion holds a bachelor's degree (82%, N = 268). The proportion of participants with postgraduate education is 18 percent (N = 59). This finding reveals that the educational level of the group is predominantly at the undergraduate level. When the school levels where participants work are analyzed, it is notable that the majority are employed at the primary school level (68.2%, N = 223). The proportions of those working at middle school and high school levels are equal, with both groups represented at 15.9 percent (N = 52). In terms of participants' professional tenure, the highest proportion consists of those with 11–20 years of experience (44%, N = 144). Participants with 21 years or more of experience represent 42.2 percent (N = 138), while those with 1–10 years of experience constitute 13.8 percent (N = 45). These findings suggest that a significant portion of the participants are highly experienced in their profession.

Table 1 Participant information related to the sample

Variable	Group	*N*	%
Gender	Woman	201	61.5
	Man	126	38.5
Educational Status	Undergraduate	268	82.0
	Postgraduate	59	18.0
School Level	Elementary School	223	68.2
	Middle School	52	15.9
	High School	52	15.9
Seniority	1-10 Years	45	13.8
	11-20 Years	144	44.0
	Over 21 Years	138	42.2

Measurement Instruments

In this study, a personal information form was developed by the researchers, and three different measurement instruments were used. The personal information form included questions about participants' gender, education level, academic qualifications, school levels worked in, and years of experience.

Organizational Transparency Scale: This scale was developed by Tosun and Çelik (2022). It consists of 3 sub-dimensions and 16 items. These sub-dimensions are participation in decision-making, information flow, and accountability. The items in the five-point Likert scale are ranked from 1: "Strongly Disagree" to 5: "Strongly Agree." Upon examining the obtained Confirmatory Factor Analysis (CFA) fit index values (χ^2/df<2.77; RMSEA<0.07; SRMR<0.04; CFI>0.96; TLI<0.95; IFI>0.96), it is understood that the measurement tool was validated in the research sample (Karagöz, 2016).

Organizational Citizenship Behavior Scale: This scale was developed by DiPaola, and Hoy (2005). Taşdan and Yilmaz (2008) conducted the Turkish adaptation of the scale. The scale consists of a unidimensional and 12 items. The items in the five-point Likert scale are varie from 1: "Strongly Disagree" to 5: "Strongly Agree." Upon examining the obtained CFA fit index values (χ^2/df<2.68; RMSEA<0.07; SRMR<0.04; CFI>0.96; TLI>0.94; IFI>0.96), it is understood that the measurement tool was validated in the research sample (Karagöz, 2016).

School Effectiveness Scale: This measurement tool was developed by Hoy (2009). The scale was adapted into Turkish by Demirkasımoğlu and Taşkın (2015). The scale consists of a unidimensional and 8 items. The scale is a five-point Likert type. Upon examining the obtained CFA fit index values (χ^2/df<2.17; RMSEA<0.06; SRMR<0.03; CFI>0.98; TLI>0.97; IFI>0.98), it is understood that the measurement tool was validated in the research sample (Karagöz, 2016).

Data Analysis

In the study, descriptive analysis, correlation analysis, confirmatory factor analysis, and structural equation modeling were conducted. The correlation coefficient, which is expressed as a data analysis method revealing the relationship between two or more variables and ranges from +1 to -1 (Taşpınar, 2017), was considered to have a high level of relationship when the absolute value was between 1.00 and .70, a moderate relationship between .70 and .30, and a low level of relationship between .30 and .00 (Büyüköztürk, 2012). Chi-square model fit criteria (χ^2/df), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Incremental Fit Index (IFI) were used to evaluate the fit indices for CFA and SEM.

Results

The mean scores, standard deviations, and correlation analysis results reflecting the participants' views regarding the independent variable of Organizational Transparency and the dependent variables of Organizational Citizenship and School Effectiveness are presented in Table 2.

When examining Table 2, it can be seen that the levels of organizational transparency perception (M = 3.84), organizational citizenship perception (M = 3.61), and school effectiveness perception (M = 3.39) among the participating teachers are at a very high level. Furthermore, as indicated in the correlation analysis results presented in Table 2, there is a moderate positive relationship between organizational transparency and organizational citizenship, between organizational transparency and school effectiveness, and between organizational citizenship and school effectiveness.

Table 2 Descriptive statistics results for research variables

Variables	*M*	*SD*	Organizational Transparency	Organizational Citizenship Behavior	School Effectiveness
Organizational Transparency	3.84	.65	1		
Organizational Citizenship Behavior	3.61	.47	.376**	1	
School Effectiveness	3.39	.69	.454**	.657**	1

**p < .01; N = 327

In the conceptual model, organizational transparency is expected to impact organizational citizenship, which in turn is predicted to influence school effectiveness. Here, organizational transparency functions as the independent variable, organizational citizenship as the mediating variable, and school effectiveness as the dependent variable. The model posits that organizational transparency directly affects organizational citizenship and influences school effectiveness both directly and indirectly. The research model, aligned with the theoretical framework, explores the mediating role of organizational citizenship in the relationship between organizational transparency and school effectiveness through structural equation modeling analyses. (Figure 2)

Table 3 shows the fit indices for the model examining the multiple mediating role of organizational citizenship in the effect of organizational transparency on school effectiveness, as presented in Figure 2.

Table 3 Fit index values for the model

Fit Indices	Model Values	Criterion Values (Karagöz, 2016)	Conformity to Criterion Values
χ2/sd	2.322	0-5	Acceptable
RMSEA	.064	≤ .08	Acceptable
SRMR	.062	≤ .08	Acceptable
CFI	.909	≥ .90	Acceptable
TLI	.902	Between .90 and 1	Acceptable
IFI	.910	Between .90 and 1	Acceptable

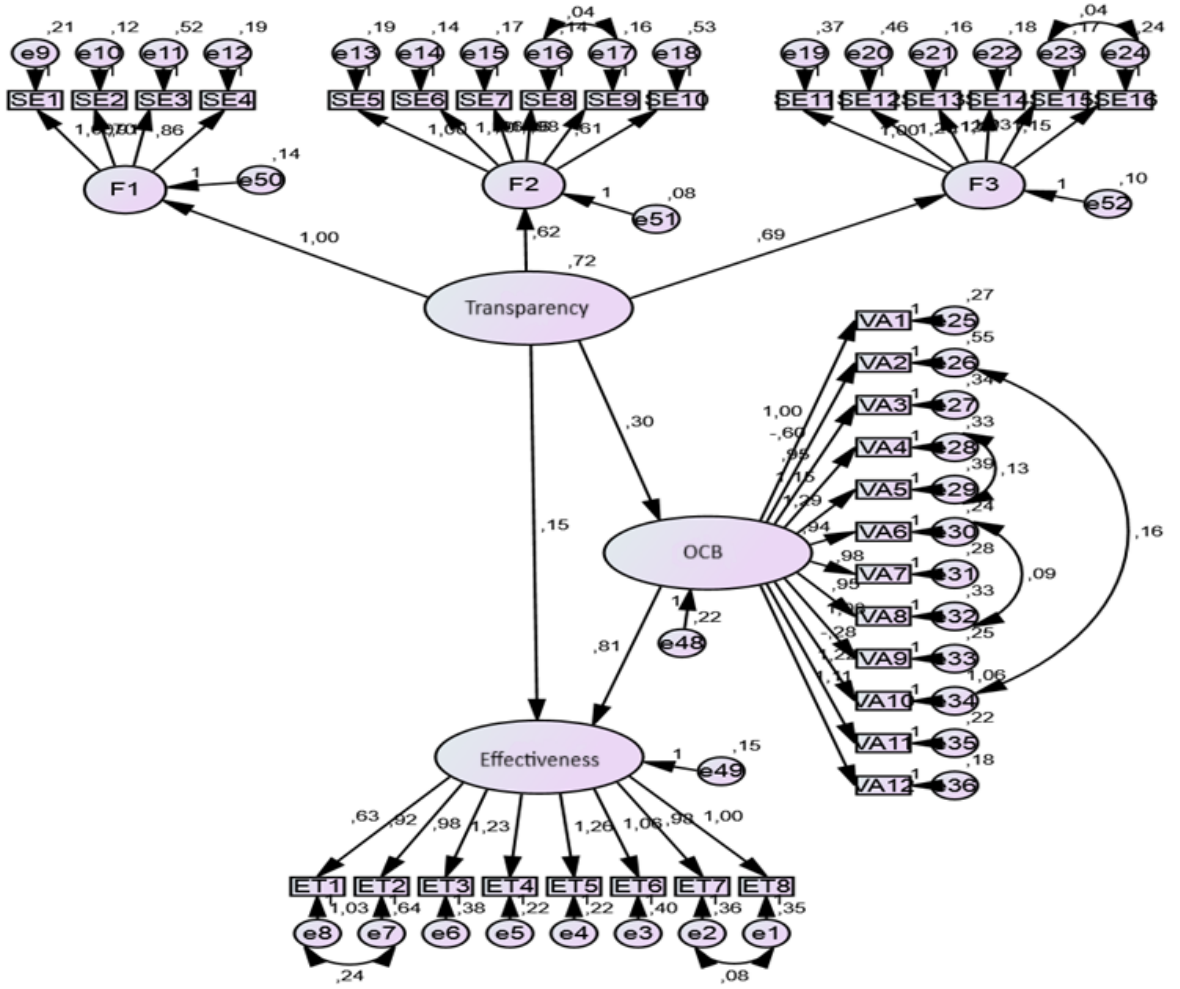


Figure 2 The conceptual model of the mediating role of organizational citizenship in the impact of organizational transparency on school effectiveness

The fit index values presented in Table 3 indicate that the model fit is acceptable when compared to the acceptable fit index values (χ2/sd<5; RMSEA<.08; SRMR<.08; CFI>.90; TLI>.90; IFI>.90). As the fit index values for the model fall within acceptable ranges, it can be stated that the model is validated by the data obtained from the sample group. The significance levels of the paths among the variables in the research model are presented in Table 4.

In Table 4, it is observed that the path between organizational transparency and organizational citizenship behavior, as well as the path between organizational citizenship behavior and school effectiveness, is significant (p = .000). Additionally, the path between organizational transparency and school effectiveness is also found to be significant. Accordingly, it appears that organizational citizenship behavior partially mediates organizational transparency and school effectiveness. To present these findings in a more concrete and comparable manner, the standardized coefficients and effect sizes for the supported model are reported in Table 5.

When examining Table 5, it is observed that a one-unit increase in the standard deviation of organizational transparency directly increases the standard deviation of organizational citizenship by .47 points; a one-unit increase in the standard deviation of organizational citizenship directly increases the standard deviation of school effectiveness by .68 points. According to Table 5, the positive direct relationship between organizational transparency and organizational citizenship (.47, p < .05) is at a "medium" effect level; the positive direct relationship between organizational citizenship and school effectiveness (.68, p< .05) is understood to have a "large" effect level. It is seen that organizational transparency has an indirect effect of .32 on school effectiveness (526*.206). Based on these effect values, it can be said that organizational citizenship plays a partial mediating role in the effect of organizational transparency on school effectiveness. This finding suggests that organizational citizenship contributes significantly to the model as a mediating variable. Organizational transparency positively affects school effectiveness both directly and indirectly. In other words, organizational transparency influences organizational citizenship, and this influence on organizational citizenship can predict school effectiveness. When examining the explained variance values between the variables, it is found that organizational transparency accounts for 22 percent of the variance in organizational citizenship; organizational citizenship, along with organizational transparency, accounts for 88 percent of the variance in school effectiveness.

Discussion

According to the findings obtained from the research, it has been determined that teachers' perceptions of organizational transparency, organizational citizenship behavior (OCB), and school effectiveness are very high. These three variables are generally considered elements that produce positive outcomes in the literature and are encouraged for the success of organizations. The high levels of perception among teachers in these fields indicate that the organizational atmosphere is shaped positively and contributes to the overall effectiveness of the school. Various studies support that teachers' perceptions of organizational transparency are very high (Tosun, 2022) or at high levels (Ayral, 2020; Babayiğit, 2024; Büyük, 2021; Elekoğlu, 2021; Ergün, 2020; Gökçe, 2020). Similarly, studies conducted on perceptions of

Table 4 Results related to the proposed model on the mediating role of organizational citizenship behavior in the effect of organizational transparency on school effectiveness

Relationships between Variables			β	*SE*	CR	*p*
Organizational Transparency	⟹	Organizational Citizenship Behavior	.15	.040	7.45	***
Organizational Transparency	⟹	School Effectiveness	.30	.038	4.09	***
Organizational Citizenship Behavior	⟹	School Effectiveness	81	.083	9.69	***

Note: ***p < .01; **p < .05

Table 5 Standardized coefficients and effect sizes for the supported model

Relationships between Variables			Direct Effect	Indirect Effect	Total Effect	Explained Variance
Organizational Transparency	⟹	Organizational Citizenship Behavior	.47	.00	.47	.22
Organizational Transparency	⟹	School Effectiveness	.21	.32	.53	.63
Organizational Citizenship Behavior	⟹	School Effectiveness	.68	.00	.68	

**p < .01;

school effectiveness show that teachers have very high (Aksu, 2021) and high levels of perception (Atcıoğlu & Köse, 2018; Çetin & Koçak, 2024; Çevrik, 2022; Çiftçi, 2019; Dalbudak & Özgenel, 2022; Elekoğlu, 2021; Ermeydan, 2019; Tepe, 2018; Yalçin, 2019; Yüner & Özdemir, 2020). In addition, medium levels of perception have also been encountered (Karagöz et al., 2024). Regarding OCB, the literature indicates that teachers' perceptions on this issue are high (Gürbüz & Dede, 2017; Kara & Avcı, 2022; Yücesan & Zincirli, 2022) and in some studies at a medium level (Akpınar & Tuna, 2024). It can be said that teachers' positive perceptions regarding these variables lead to schools becoming more efficient and effective.

The research findings indicate that there are positive and significant relationships between organizational transparency, OCB, and school effectiveness. Organizational transparency positively affects both organizational citizenship behaviors and school effectiveness. Additionally, it has been determined that OCB is effective in increasing school effectiveness. Gökmen (2011) revealed that teachers evaluate organizational citizenship behaviors as "important" in terms of school effectiveness. Similarly, Alanoğlu and Demirtaş (2016) emphasized that OCB predicts effective school characteristics. Karabatak, Alanoğlu, and Şengür (2018) also found a significant and positive relationship between OCB and school effectiveness. Tosun (2022) identified a positive and moderate relationship between organizational transparency and school effectiveness. In the literature, it is stated that transparency strengthens the collaboration between the organization and stakeholders and contributes to the establishment of mutual support mechanisms (Jahansoozi, 2006). In this context, transparency is considered an important factor in increasing the effectiveness of schools. Furthermore, it has been noted that transparency plays a motivating role in encouraging teachers to exhibit more OCB and provides a work environment where educational personnel feel secure (Klein, 2012). In conclusion, organizational transparency constitutes an important building block for the effective functioning of the school and encourages better performance from both teachers and other staff.

Another finding from the research is that OCB partially mediates the effect of organizational transparency on school effectiveness. This finding shows that organizational transparency directly increases school effectiveness; however, OCB plays an important role in making this effect stronger or more pronounced. Accordingly, transparent management practices in schools can not only enhance the capacity of teachers and other staff to achieve the school's goals but can also be associated with the citizenship behaviors they voluntarily exhibit. This positively contributes to the organizational effectiveness of the school.

Conclusion and Recommendation

Based on the research findings, researchers can conduct longitudinal studies to examine in more detail the relationships between organizational transparency, organizational citizenship behavior (OCB), and school effectiveness. Such studies would allow for a deeper understanding of the dynamic effects of these variables over time and their long-term implications in the school environment. Additionally, future studies could explore the effects of organizational transparency and OCB on school effectiveness within the context of different types of schools, education levels, or socio-economic conditions, which could enhance the generalizability of the obtained results. This situation would contribute to policymakers designing more specialized interventions for different school types. When developing policies aimed at increasing school effectiveness, it is also important to organize training programs that promote organizational transparency and OCB. These arrangements can strengthen collaboration in the school environment, improve the quality of education, and ensure the active participation of all stakeholders in the process.

References

Akkoç, N., Özakca, A., Yılmaz, E. & Uçan, G. (2023). Teachers' organizational citizenship behaviors, *International Academic Social Resources Journal, 8*(52), 3231–44. DOI: http://dx.doi.org/10.29228/ASRJOU RNAL.70727

Akram, M., Munir, F., & Bilal, A. R. (2021). Effect of teacher performance evaluation on school effectiveness. *SJESR, 4*(1), 431–39. https://doi.org/10.36902/sjesr-vol4-iss1-2021(431-439)

Akpınar, Z., & Tuna, C. (2024). Examination of the relationship between organizational democracy perceptions and organizational citizenship behaviors of teachers working in primary and secondary schools (Trabzon Example)*Kosovo Educational Research Journal, 5*(1), 76–100. https://doi.org/10.29228/kerjournal.74534

Aksu, T. (2021). *The level of predicting school effectiveness of teachers' occupational commitment and emotional labor.* [Unpublished master's thesis]. İstanbul Sabahattin Zaim University.

Alanoğlu, M., & Demirtaş, Z. (2016). The relationships between organizational learning level, school effectiveness and organizational citizenship behavior. *Journal of Education and Training Studies, 4*(4), 35–44. http://dx.doi.org/10.11114/jets.v4i4.1262

Atcıoğlu, E. & Köse, A. (2018). The relationship between the levels of teachers' and administrators' work engagement and the effectiveness of the schools. *International Journal of Eurasia Social Sciences, 9*(32), 915–47. https://www.researchgate.net/profile/Akif-Koese/publication/327246654_the_relationship_between_the_levels_of_teachers'_and_administrators'_work_engagement_and_the_effectiveness_of_the_schools/links/5b83f526299bf1d5a72b4d46/the-relationship-between-the-levels-of-teachers-and-administrators-work-engagement-and-the-effectiveness-of-the-schools.pdf

Ayral, T. (2020). *The relationship between school principals' management philosophies and school transparency levels* [Unpublished master's thesis]. Pamukkale University.

Babayiğit, N. (2024). *The role of organizational transparency and organizational inconvenience on organizational stress*. [Unpublished master's thesis]. Recep Tayyip Erdoğan University.

Başaran, İ.E. (1994). *Eğitim yönetimi*. Kadıoğlu Matbaası.

Baştepe, İ. (2009). The qualities of education process and medium dimensions of effective school *Electronic Journal of Social Sciences, 8*(29), 76–83. https://dergipark.org.tr/en/pub/esosder/article/82446

Büyük, E. (2021). *The relationship between the transparency pratices of school administrators' and the perceptions of organizational commitment* [Unpublished master's thesis]. İstanbul Sabahattin Zaim University.

Büyüköztürk, Ş. (2012). *Sosyal bilimler için veri analizi el kitabı*. Akademi.

Cameron, K. (2015). Organizational effectiveness. *Wiley Encyclopedia of Management, 11,* 1–4. https://doi.org/10.1002/9781118785317.weom110202

Coser, R. L. (1961). Insulation from observability and types of social conformity. *American Sociological Review, 26*(1), 28–39. https://doi.org/10.2307/2090510

Çetin, K., & Koçak, S. (2024). An investigation of the relationships between four frame leadership orientations and school effectiveness. *Balkan and Near Eastern Journal of Social Sciences, 10*(2), 112–23. https://doi.org/10.48070/ibaness.1481710

Çevrik, M. (2022). *The role of charismatic leadership and collective teacher qualification in school effectiveness*[Unpublished master's thesis]. Uşak University.

Çinar, F. (2001). A new approach in the field of organizational behavior: The concept of organizational citizenship. *ISGUC The Journal of Industrial Relations and Human Resources, 3*(1). https://www.isguc.org/?p=article&id=105&cilt=3&sayi=1&yil=2001

Çiftçi, K. (2019). *The relationship between positive psychological capital levels and school effectiveness levels of secondary school teachers (Erzurum province)* [Unpublished master's thesis]. Sakarya University.

Dalbudak, K., & Özgenel, M. (2022). The Pattern of Relations Between School Efficiency, School Image, Teacher Performance and Academic Success. *Journal of Contemporary Administrative Science*, *9*(1), 1–15. https://dergipark.org.tr/en/pub/cybd/article/1088692

De Maeyer, S., Bergh, H. V. D., Rymenans, R., Petegem, P. V., & Rijlaarsdam, G. (2010). Effectiveness criteria in school effectiveness studies: Further research on the choice for a multivariate model. *Educational Research Review, 5*(1), 81–96. https://doi.org/10.1016/j.edurev.2009.09.001

Demirkasımoğlu, N., & Taşkın, P. (2015). Relationship between talent management and organizational effectiveness: The case of private schools *Journal of Research in Education and Teaching*, *4(*4), 268–85. https://jret.elapublishing.net/makale/7232

DiPaola, M. F., & Hoy, W. K. (2005). Organizational citizenship of faculty and achievement of high school students. *The High School Journal, 88*, 35–44.

Edmonds, R. (1979). Effective schools for the urban poor. *Educational Leadership*, *37*(1), 15–24. http://www.brjonesphd.com/uploads/1/6/9/4/16946150/effective_schools_-_ron_edmunds.pdf

Elekoğlu, F. (2021). *Investigation of the relationship between leadership styles, effective school and transparency in school according to the teacher percepitons: Sample of Zonguldak province* [Unpublished master's thesis]. Zonguldak Bülent Ecevit University.

Ergün, H. (2020). The effect of school transparency on attitude towards supervision. *International Journal of Contemporary Educational Research, 7*(1), 114–26. https://doi.org/10.33200/ijcer.652497

Ermeydan, M. (2019). *The relationship between leadership styles of school administrators and perceived school effectiveness based on teachers' views*[Unpublished master's thesis]. Kahramanmaraş Sütçü İmam University.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education*. McGraw Hall.

Gower, K. K. (2006). Truth and transparency. In K. Fitzpatrick & C. Bronstein (Eds.), *Ethics in Public Relations* (pp. 89–105). Sage.

Grimmelikhuijsen, S. (2012). A good man but a bad wizard. About the limits and future of transparency of democratic governments. *Information Polity*, *17*(3, 4), 293–302. https://doi.org/10.3233/IP-2012-000288

Grimmelikhuijsen, S. G., & Meijer, A. J. (2014). The effects of transparency on the perceived trustworthiness of a government organization: evidence from an online experiment. *Journal of Public Administration Theory and Research, 24*(1), 137–57. https://doi.org/10.1093/jopart/mus048

Gökçe, (2020). *The relationship between transparency and organizational synchemic levels in schools*[Unpublished master's thesis]. İstanbul Sabahattin Zaim University.

Gökmen, A. (2011). The perceptions of teachers working for Niğde primary schools toward organizational citizenship behaviors and its importances[Unpublished master's thesis]. Pamukkale University.

Gürbüz, F. G., & Dede, E. (2017). The effects of organizational trust on organizational citizenship behavior: a survey of middle school teachers *The Journal of International Education Science*, (12), 106–25. https://dergipark.org.tr/tr/pub/inesj/article/476469

Hoy, W. K. (2009). *School effectiveness index*. http://www.waynekhoy.com/pdfs/School_Effectiveness_Index.pdf

Hoy, W. K., & Ferguson, J. (1985). A theoretical framework and exploration of organizational effectiveness of schools. *Educational Administration Quarterly, 21*(2), 117–34. https://doi.org/10.1177/0013161X85021002006

Jahansoozi, J. (2006). Organization-stakeholder relationships: exploring trust and transparency. *Journal of Management Development, 25*(10), 942–55. https://doi.org/10.1108/02621710610708577

Kaptein, M. (2008). Developing and testing a measure for the ethical culture of organizations: The corporate ethical virtues model. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, *29*(7), 923–47. https://doi.org/10.1002/job.520

Kara, B., & Avcı, A. (2022). The effect of organizational commitment levels of teachers working in primary schools on organizational citizenship behaviors. *International Social Sciences Studies Journal, 8*(100), 2432–43. http://dx.doi.org/10.29228/ sssj.63570

Karaaslan, A., Özler, D. E. & Kulaklıoğlu, A. S. (2009). A research on the relation between organizational citizenship behavior and knowledge sharing. *Afyon Kocatepe University Journal of Economics and Administrative Sciences, 1*(2), 135–60. https://dergipark.org.tr/en/download/article-file/18950

Karabatak, S., Alanoğlu, M., & Şengür, D. (2018). The effect of teachers' organizational citizenship behaviors and stress levels on school effectiveness. *European Journal of Education Studies, 5*(4), 67–82. https://doi.org/10.5281/zenodo.1464115

Karagöz, Y. (2016). *SPSS ve AMOS 23 uygulamali istatistiksel analizler*. Nobel Yayıncılık.

Karagöz, K., Yalçın, S., & Köroğlu, M. (2024). Examining the relationship between toxic leadership, organisational cynicism and school effectiveness. *The Journal of Academic Social Science, 148*(148), 304–19. http://dx.doi.org/10.29228/ASOS.74436

Karaman, A., & Aylan, S. (2012). Organizational citizenship. *Journal of Kahramanmaraş Sütçü İmam University Faculty of Economics and Administrative Sciences, 2*(1). https://dergipark.org.tr/tr/download/article-file/107640

Katz, D., & Kahn, R. L. (1977). *The social psychology of organizations*. (H. Can & Y. Bayar, Trans.). Doğan Basımevi. (Original work published 1966).

Kilag, O. K., Uy, F., Calledo, M. F., Diano, Jr., F., Morales, Jr., N., & Abendan, C. F. (2024). Assessing the impact of principal's instructional leadership, school level, and effectiveness in educational institutions. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence (IMJRISE), 1*(1), 73–82. http://eprints.iab.edu.my/v2/1561/

Klein, J. (2012). The open-door policy: Transparency minimizes conflicts between school principals and staff. *International Journal of Educational Management, 26* (6), 550–64. https://doi.org/10.1108/09513541211251389

Manaf, A., & Omar, M. Z. (2017). Improvement school effectiveness through culture and school climate. *The International Journal of Social Sciences and Humanities Invention, 4*(2), 3289–98. https://doi.org/10.18535/ijsshi/v4i2.06

Martinson, D. L. (1996). 'Truthfulness' in communication is both a reasonable and achievable goal for public relations practitioners. *Public Relations Quarterly, 41*(1), 42–5. https://www.proquest.com/openview/9dc95c6529ffb637bac665e2d4739426/1?pq-origsite=gscholar&cbl=49209

Meijer, A. (2013). Understanding the complex dynamics of transparency. *Public Administration Review, 73*(3), 429–39. https://doi.org/10.1111/puar.12032

Moser, C. (2001). *How open is "open as possible?" three different approaches to transparency and openness in regulating access to eu documents*. https://www.ssoar.info/ssoar/bitstream/handle/document/24631/ssoar-2001-moser-how_open_is_open_as.pdf?sequence=1

O'Toole, J., & Bennis, W. (2009). A culture of candor. *Harvard Business Review, 87*(6), 54–61. https://www.academia.edu/download/56497229/Whats_needed_Next_a_Culture_of_Candor.pdf

Özdemir, G. (2024). School administrators' administrative behaviors as a determinant of school effectiveness. *EKEV Academy Journal*, (98), 124–35. https://doi.org/10.17753/sosekev.1439137

Rawlins, B.L. (2008). Measuring the relationship between organizational transparency and employee trust. *Public Relations Journal, 2*(2), 1–21. https://scholarsarchive.byu.edu/facpub/885/

Rawlins, B. L. (2009). Give the emperor a mirror: Toward developing a stakeholder measurement of organizational transparency. *Journal of Public Relations Research, 21,* 71–99. https://doi.org/10.1080/10627260802153421

Reynolds, D., Teddlie, C., Creemers, B., Scheerens, J. & Townsend, T. (2000). An introduction to school effectiveness research. In C. Teddlie and D. Reynolds (Ed.), *The International Handbook of School Effectiveness Research* (1st ed., pp. 3–25). Falmer Press.

Sezgin, F. (2005). Organizational citizenship behaviors: a conceptual analysis and some inferences for the schools. *Journal of Gazi Faculty of Education, 25*(1), 317–39. https://dergipark.org.tr/en/pub/gefad/article/90884

Su, H. Y., Fang, S. C., & Young, C. S. (2011). Relationship transparency for partnership enhancement: an intellectual capital perspective. *Journal of Business & Industrial Marketing*, *26*(6), 456–68. https://doi.org/10.1108/08858621111156449

Şişman, M. (2013). *Eğitimde mükemmellik arayışı etkili okullar*. Pegem Akademi.

Taşdan, M., & Yılmaz, K. (2008). Organizational citizenship and organizational justice scales' adaptation to Turkish. *Education and Science, 33*(150), 87–96. https://educationandscience.ted.org.tr/article/view/787

Taşpınar, M. (2017). *Sosyal bilimlerde SPSS uygulamalı nicel veri analizi*. Pegem Akademi Yayıncılık.

Tatar, M. (2001). Effective teacher. *Journal of the Faculty of Electronic Education, Centennial University., 1*(11), 2–12. https://dergipark.org.tr/tr/pub/yyuefd/article/166079

Tepe, N. (2018). *An analysis of the relationship between enabling school structure, academic optimism and school effectiviness* [Unpublished doctoral dissertation]. Gazi University.

Tosun, A., & Çelik, K. (2022). School transparency scale: validity and reliability study. *Mehmet Akif Ersoy University Journal of Education Faculty,* (64), 102–26. https://doi.org/10.21764/maeuefd.1058406

Tosun, A. (2022). *The effect of organizational transparency, organizational trust and organizational health on school effectiveness*. [Unpublished doctoral dissertation]. Pamukkale University.

Tutar, H. (2016). *Örgütsel davranış (Örgüt teorileri ve çağdaş yaklaşımlar açısından)* [Organizational behavior (In terms of organizational theories and contemporary approaches)]. Detay Yayıncılık.

Yalçın, A. (2019). *Impact of strategic planning in schools on school effectiveness* [Unpublished Master's thesis]. Necmettin Erbakan University.

Yücesan, B., & Zincirli, M (2022). The relationship between professional ethics of teachers and organizational citizenship behavior. *Journal of History School*, *61*, 3582–612. http://dx.doi.org/10.29228/joh.66210

Yüner, B., & Özdemir, M. (2020). Evaluation of collective teacher efficacy and school effectiveness based on teachers' views. *Journal of Uludag University Faculty of Education, 33 (2),* 389–409. https://doi.org/10.19171/uefad.605195

Zamir, N. A. (2020). A review of school effectiveness theory for school improvement. *International Journal of Academic Research in Business and Social Sciences, 10*(3). DOI:10.6007/IJARBSS/v10-i3/7028

Zheng, Y., Shen, J., Johnson, M. R., Krenn, H. Y., & Carter, K. (2024). School effectiveness factors and student achievement: a longitudinal study in an urban school district. *Education and Urban Society,* https://doi.org/10.1177/00131245241230086

Zhu, K. (2002). Information transparency in electronic marketplaces: Why data transparency may hinder the adoption of B2B exchanges [Special issue]. *Electronic Markets 12(2)*, 92–9. https://www.tandfonline.com/doi/abs/10.1080/10196780252844535

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Empowering students for success: Integrating Islamic competencies and industry needs into life skills curriculum at SMK Askhabul Kahfi

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Abstract

The purpose of this study is to explore the process of life skills curriculum management in SMK Askhabul Kahfi Semarang City and its impact on the development of comprehensive competencies of the students. The research was carried out qualitatively in nature basing on in-depth interviews, observations and document analysis with school managers, teachers and learners. The research results indicate that life skills curriculum management of the school displays adequate and commendable performance in achieving the stated objective of the integration of Islamic aspects and the industrial demand. New technologies of learning, constant assessment as well as blending formal and pesantren education enhance character and life skills of students. This research establishes a link between integrated education geared towards the development of all student life skills, proper defining and assessment of the curriculum strategies to achieve the intended goals. Finally, these results offer a real remedy to bridge the education and industry gap and present the school model of curriculum implementation for other schools to use.

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Introduction

This research delves into the application of life skills curriculum management at SMK Askhabul Kahfi Semarang City, with special attention to life skills and Islamic values fusion (Munajat, 2020). Even though life skills education is increasingly acknowledged as critical in preparing students for future life, more research is necessary on how Islamic values education can be infused in life skills education so that it promotes all-round student development.

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This study seeks to fill this gap by analyzing the factors which limit or promote the harmonization of life skills training and Islamic teachings in the curriculum and best practices on the application of this integrated approach in vocational studies institutions. This study seeks to assess the practical skills students' development perspective of life skills curriculum management at SMK Askhabul Kahfi Semarang City in terms of character development and towards their future work (Murphy-Graham & Cohen, 2021).

The purpose of this study is to analyze how the life skills curriculum is managed at SMK Askhabul Kahfi Semarang City with particular respect on the integration of Islamic values in the life skills education. Aiming at broadening the understanding on how life skills education and Islamic values integration can be incorporated, this study sets out to enhance the quality of education that aims at meeting the students' needs in all aspects such as social, economic, and moral standards. Employing a qualitative case study approach, this research explores the constraints and enablers of Islamic values and life skills integration in the curriculum, as well as the challenges and opportunities present in this context. The complexities of this integration will be examined with a view to providing guidance to educators, policymakers, and researchers interested in developing an education system that comprehensively addresses the cognitive, emotional, and spiritual aspects of students in this regard (Markey et al., 2023).

Research Gap

In the existing body of knowledge, there is a void when it was related to the effective incorporation of Islamic competencies and the industrial requirements in the context of vocational education. Despite the averred call to promote practical skills education and its curricular implementation across, few studies addressed the consequences of holistic approaches in the education of students in Islamic vocational schools with regard to practical skills as well as characters development (Arasomwan & Mashiya, 2021). Furthermore, the intricacies involved in life skills curriculum management with regard to the role of periodic assessment in its effectiveness and relevance kneels to be explored. Hence, this research endeavors to fill such gaps by evaluating the processes of life skills curriculum management at SMK Askhabul Kahfi Semarang City and its influence on the comprehensive aspects of students' competency.

Background of Study

Life skills are necessary for administration in a world that is rapidly advancing, and this has been recognized in a plethora of literature (Dina et al., 2023). Unfortunately, the Indonesian educational landscape has been critiqued for the lack of these skills within its students as such the traditional systems of education has been academically oriented. The Indonesian government has still appreciated this challenge as a consequence; they have decided to embrace change by fully embedding life skills education into the curriculum. In the case of the Islamic vocational educational curriculum frameworks, integration of Islamic competency and industry requirements comes as a very important aspect in preparing graduates for their absorption into the job market. To achieve this, the Islamic vocational school known as SMK Askhabul Kahfi Semarang city has adopted the life skills curriculum management to assist the students in attaining competence in many spheres of life. However, the efficacy of this application is still going untapped (Asmendri et al., 2023). In adding to the existing literature on skills based education and curriculum use in Islamic vocational schools, this research tries to map the schools way of incorporating Islamic competencies with industrial requirements (Azra, 2018).

The role of students, teachers and the institution itself is crucial to understanding the educational apparatus of the SMK Askhabul Kahf, which operates under the Nurul Ittifaq Foundation. The institution has had a leaning to improve and develop its students so that they become productive employees and thus fit into the broader goals of vocational education in Indonesia. This trend began to crystallize in the mid-2000s, when the Indonesian government began reforms aimed at incorporating the learning of life skills into the curriculum as part of preparing students to face real-world challenges.

From the perspective of the Nurul Ittifaq Foundation, SMK applied Askhabul Kahfi's holistic method of education, which included the Islamization of technical education. Its goal is not only to produce graduates with technical competence, but also to have a good attitude and character that prepares them for work and society. The desire of this foundation to help students acquire productive skills is well demonstrated in the development of the curriculum, where it addresses market needs, technical skills, and life skills. In addition, the school seeks to work with local industries to provide training that meets the needs of the labor market. This partnership has helped to further improve the employability of graduates and has instilled in teachers and students a desire for

continuous improvement. In this way, the concern of turning students into labor has been the strategic focus of the institution to address the mismatch between education and industry while increasing the region's economic growth.

Curriculum Design

The institution has formulated a life skills programme that incorporates Islamic competencies and meets the requirements of the industry as well as other basic socio skills. Thus the curriculum focuses on three aspects: Islamic competencies which comprises Quranic studies, Hadith studies, morality and ethical values as well as nurturing beliefs; needs of the industry which include but are not limited to technical skills acquisition, soft skills, entrepreneurship and innovation; Aida life curriculum should also encompass such as critical thinking, problem solving, time management, self-awareness and interpersonal skills. The curriculum has been envisaged as being transversal through shores and activities to respond to the totality of the development of the students. Under the premises of integration, relevance, flexibility and student-centeredness, the curriculum intends to produce graduates who are intellectually sound, spiritually founded, adequately skilled, and sufficiently prepared for the world of practice (Pak et al., 2020).

Teacher Training

To increase the chances of incorporating the life skills curriculum, it is worth noting that the teachers at SMK Askhabul Kahfi Semarang City have undergone comprehensive training (Pak et al., 2020). This program consisted of orientation of the teachers about the curriculum, enhancement of pedagogical skills of the teachers, Islamization, occupation linkages, and evaluation of student performance. Teachers receive skills and confidence to execute this curriculum via workshops, coaching and mentoring sessions. For this reason, they can promote learning and thereby improving student achievement. The structure of the training program permits it to be pronounced such that it is updated without finishing any role. In regard to teacher in-service training, this is how the school tries to ensure that the learners get a good high-quality education which makes them competent in the world (Kalinowski et al., 2019).

Lesson Planning

Educators at SMK Askhabul Kahfi Semarang City come up with applicable and innovative lesson plans that encompass life skills within the subjects and promote learning by doing. These lesson plans are developed with minimum supervision so as to emphasize skills such as critical thinking, problem-solving, as well as creativity while meeting the requirements set forth by the school's teaching philosophy. Learning by doing is enhanced through the use of practical work, team work assignments, and case analysis so that students quite easily engage in the process of looking, finding and learning by doing. This not only increase the students' scope of academic knowledge, but also broadens their necessary life skills which are important for their future careers and life, in general.

Student Assessment

Regular evaluation in this context allows them to assess the level of commitment and development of important life skills by students and where they may be at risk of requiring more support or improvement. Such assessments have diverse forms composed of quizzes, group work presentations, and journals of reflections on self, thus providing a holistic account of strengths and weaknesses of the students. Based on the assessment results, teachers evaluate their instruction, the level of support provided, and the feedback given to the learners to empower them to be responsible for their learning and individual growth. This also helps in ascertaining that the students are indeed progressing well towards the goals of the school and the acquisition of life skills which they will need to realize their future aspirations (Harris et al., 2022).

Industry Partnerships

SMK Askhabul Kahfi Semarang City maintains tight relations with local industries and organizations which enables students to gain firsthand experiences that would prepare them for a career in the future. Under such arrangements, students are able to engage and be involved in internships, apprenticeships, and project-based learning where they are able to transfer theories into practice and gain necessary professional exposure. Use of practitioners also assists the students to be in touch with the real world through practice and mentorship which in turn complements their learning and preparedness for employment. The institution emphasizes the need

of integrating theory and practice to enable the students to acquire the expertise, competencies and contacts that would help them practice in a dynamic global economy.

Islamic Values Integration

The school integrates Islamic values into the learning process, thus enhancing students‘ spirituality and character. It allows students to develop a sense of sympathy and morality by embedding Islamism and ethical notions in many topics. This method affects students’ perceptions and practices of their religion in their daily lives, and thus gives them perspective and empowerment. With this integration, the school visions its graduates as not only knowledgeable but also religiously, morally, and socially responsible persons whose ultimate aim is the development of their society and the world at large (Alfian et al., 2021).

Parental Involvement

SMK Askhabul Kahfi Semarang appreciates that parents are indispensable in the process of life skills education, and parents are actively brought in to this effort. By means of attending the workshops, seminars, and meetings regular parents are educated on how they can be supportive of their children’s learning thereby functioning as a partner with the school. The school encourages parents to communicate freely with the school and also be active in the activities of the school so that they are well informed about what occurs within the school setting and in particular their children’s activities. As such they assist the school in the inculcation of those social values and skills that ought to be developed. In this mutual relationship, there is always contact between parents and teachers in regard to the overall development of the children. This contact allows parents to supplement education at home and all this brings overall change to the education process (De Oliveira Lima & Kuusisto, 2020).

Continuous Evaluation

SMK Askhabul Kahfi Semarang City strives hard for the improvement and the expansion of its life skills curriculum in order to ensure its relevance to the needs of their students. With periodic book evaluation, feedback sessions and consulting stakeholders, the school develops an improvement plan which provides for the use of evidence based changes in the existing curriculum. This systematic evaluation process allows the institution to keep up with the trends in life skills education, new technologies and changes in society. In a review culture, the institutions of this kind keep the life skills curriculum as effective, appropriate and consistent with a vision of developing intellectually balanced graduates who are competitive internationally (Kirchhoff & Keller, 2021). With the active implementation of the Life Skills Curriculum Management, SMK Askhabul Kahfi emphasizes producing individuals who are balanced, equipped, and responsible, comprising the basic skills and knowledge needed for all areas of life such as, academic, personal, and professional life.

Contextual Understanding for Selecting SMK Askhabul Kahfi Semarang

The reason why SMK Askhabul Kahfi Semarang was chosen as the target of this study is related to the specifics of the vocational school, which combines Islamic education with skill-oriented training. This institution stands out for a number of reasons that make it an ideal case for studying the implementation of the life skills curriculum management.

1. Integration of Islamic Values: As both a Muslim and a vocational school, SMK Askhabul Kahfi is unique in integrating Islamic competencies into the curriculum. However, such involvement is rarely seen in many vocational schools, which tend to emphasize practical learning at the expense of cultivating ethical standards. Graduates are expected to be diverse people who combine vocational training with an education on values and ethics, who can provide a positive service to the community.

2. Holistic Education Approach: The school incorporates holistic education into its educational practice through the whole person as an individual model with many dimensions, namely, the head, the heart and the mind. This model is in line with the problems associated with teaching life skills, which are considered increasingly important in guiding students to real challenges. The purpose of the study is to understand how this holistic view of the child relates to the actual practice of the child, that is, such a model strengthened the development of practical skills in children and the formation of their character, which could be useful to other educational providers.

3. Strong community and industry ties: SMK Askhabul Kahfi is able to develop strong ties with the local industry, which in turn helps students secure internships and hands-on training. This link with the field of vocational training is important as it enables the integration of curricula into the labour market.

The school's integrative approach to teacher and employer questions illustrates the ideal way to best explore ideal curriculum management that includes education and employment.

4. Innovative Curriculum Management: Being a vocational school in Indonesia, including in the field of aviation and the Dutch Aviation Center, kindly notes the master's degree in knowledge and skills in curriculum management (III-45, III59). This awareness and willingness to make changes with students and communities in mind makes SMK Askhabul Kahf a different and therefore more suitable institution from other formal vocational schools to learn the best models of life skills education.

5. Diverse student body: SMK Askhabul Kahfi supports and enriches the life skills management curriculum. The problems and attractiveness of vocational education in Indonesia can find solutions to understand the processes of teaching and learning among different demographic groups of students.

In conclusion, SMK Askhabul Kahfi is a suitable case study due to its unique Islamic education curriculum, holistic approach to human education, strong industry partnerships, and diverse student body. This study will enhance our understanding of managing life skills curricula in vocational education and contribute to practical knowledge in the field.

Literature Review

Life skills education in the current era has become one of the core aspects of schooling, that is expected to equip students with tools necessary for the modern world and for everyday activities (Indraswari et al., 2024). This approach pays attention to time management, communication, financial management and critical problem-solving as key competencies (Management of Innovative Processes in the Educational Environment, 2023). The global spread of new technologies, globalization and the recent emergence of worldwide pandemics all accentuate the relevance of life skills education. Research points out the advantages of life skills education as enhancement of psychological wellbeing and employment opportunities, as well as the capacity to cope with changing environments. The OECD Skills Outlook 2023 stresses the importance of life skills for students in transitioning and dealing with stressors of life. Additionally, elements such as emotional maturity as well as critical and creative thinking act in developing a resilient personality.

Integrating theoretical scholarship and generic life skills is robustly the essence of effective life skills education. This seems to have been the case in Finland, Singapore, Canada, and Australia (Nasheeda et al., 2018). For example, in the case of Finland, the life skills education is placed within the framework of subjects and is included in the national curriculum. In Indonesia, among other initiatives to promote integration of character education in Indonesia's national curriculum is through vocational education. SMK Askhabul Kahfi develops and puts into practice life skills curriculum integrating Islamic and Islamic teaching on an industrial model in order to produce competent and noble graduates (Rindrayani, 2020). The studies carried out on life skills curriculum show various problems to be solved in the process of implementation as well as its development including teacher training, active community participation and reform in the curriculum. The process as an outcome always entails an effective atmosphere for learning, repository of teachers and teaching materials. The objective of the current study is to understand the implementation of life skills curriculum management at SMK Askhabul Kahfi Semarang City in the context of combining Islamic values and the industry. The approaches adopted in examining the curriculum planning, implementation and evaluation, limitations and supports of this research are of befitting nature and recommendations will greatly assist other schools (Table 1).

This study is important because it has the potential to enhance the development of education as a whole and make it adaptive by resolving the discrepancy existing between the skills imparted at school level and potential needs in the real-life scenario. As such, the research can help establish a methodology for combining life skills education with Islamic values and industrial needs, thus guiding social policy and practice and thereby preparing the students better for their future endeavors in their profession and personal lives. It lacks a succinct statement that sets forth the claim of the research, or more appropriately speaking, the literature gap that the investigation intends to fill in. Not only is students' due regard for the importance of life skills education growing, but also there is an alarming absence of original studies on management of the life skills curriculum in vocational education and training institutes, especially in Indonesia. This study intends to fill this gap by investigating life skills curriculum management at SMK Askhabul Kahfi Semarang City and the obstacles and supporting factors that affect the effectiveness of the curriculum (Nasheeda et al., 2018).

Table 1 Implementation of life skills curriculum management at SMK Askhabul Kahfi Semarang City, Indonesia

Stages	Description
Curriculum Planning	The vision, mission and objectives focus on Islamic competencies and industry needs. Integrated curriculum development (KTSP, Pesantren, 2013 Curriculum). Curriculum updates every year.
Curriculum Implementation	Stages: planning, implementation, assessment, evaluation. Model pembelajaran: project-based, problem-based, discovery learning. Extra mentoring for teachers and curriculum socialization.
Life Skills	Generic Skills: personal, rational thinking, social. Specific Skills: academic, vocational.
Learning Activities	Creative education and entrepreneurship: art from waste, batik, cooking. Online service techniques: memorizing and practicing the Internet network. Islamic Religious Education and Ethics: Structured Learning.
Curriculum Evaluation	Monitoring every stage of implementation. Annual evaluation based on previous evaluation results.

Expansion of Educational Institutions in Semarang City

The change in the structure of the population associated with the development of skills of students has contributed to an increase in the number of vocational schools in the city of Semarang. The reason for this increase can be considered population growth, urbanization and the demand for a population with sufficient skills that are essential for the current labor market. Studies show that the rapid growth of Semarang vocational schools is aimed at filling the skills gap and the employability of graduates, thereby boosting the economy (Dina et al., 2023).

Necessity for a Specialized Curriculum in the Industrial Sector

The transformation of the industrial sector in Semarang took place quickly, and thus the progress required a basic structure capable of teaching students current skills and knowledge. With the expansion of specific branches, there would always be a need for employees who not only understand technologies, but are also versatile in their application in new technologies. In the literature, it is confirmed that a curriculum that combines the curricular frameworks of life skills, technical skills and workplace skills is necessary to formally prepare students for work (Rindrayani, 2020).

Factors Contributing to the Need for Specialized Curriculum

In addition to education policy, several topics require a different approach to vocational education: (1) Work in the industry: Many industries are rapidly evolving in things like tools, software, and processes, and that's why educational institutions need to constantly review curricula and add such additions. This ensures that students are familiar with the practice of a particular industry and are able to work in it without much difficulty; (2) Increasing the universality of companies: As companies become global, there is always a need for a workforce that is well versed in international norms and systems. Thus, there would be a special curriculum with international competence, which would give them an opportunity in the wider labour market; (3) Growth in the region: Semarang's economy is greatly influenced by local industries that are more specific to their skills demand. If educational institutions cooperate with local enterprises, then such institutions can create courses that correspond more or less to the described job search, which thus means an increase in economic activity in the region; and (4) Contribution to politics: Community members such as parents, businesses, and government agencies should be more active in influencing curriculum-related policies. They have experience with the industry divide and community expectations to help develop the necessary programs.

Economic Dimensions and Professional Advancement

In vocational education, there is a strong link between economic aspects and career growth. Well-thought-out vocational training plans increase the employability of students and contribute to economic growth by producing qualified specialists who meet the needs of the industry: (1) Increased employability: Equipping students with the necessary skills to find job opportunities in the relevant employment sector, so that better incomes improve their livelihoods. Such in turn boosts the local economy, as more working people spend more than consumers, achieving higher economic growth; (2) Career Advancement: A dedicated curriculum that includes life skills and professional development training can

also help graduates improve their careers. Empowering students with both technical skills and soft skills allows educational institutions to guide them on the career path, resulting in high job satisfaction and career improvement; and (4) Economic resilience: A highly skilled workforce is crucial for the economic resilience of a region. By developing courses in accordance with the requirements of the Semarang industries, the city can adapt to the economy and international conditions.

In conclusion, the growth of Semarang's educational institutions and industry demands highlight the crucial role of vocational education in driving economic development and labor growth. Understanding this dynamic is important to inform about effective educational policies and practices that benefit both students and the regional economy.

Methodology

Study Design and Setting

This research adopts a case study with a qualitative approach specifically focusing on the implementation of life skills curriculum management at SMK Askhabul Kahfi Semarang City, which is a vocational high school in Indonesia. The time that the research will be carried out is 6 months and the methods for collecting data will include semi-structured interviews, focus group discussions, observations, and document analysis. The scope of this study covers the perspectives of students, teachers, partners, and administrators of the school so that the integration of Islamic and industrial aspects in the curriculum is broadly understood. Around 100 students, 20 teachers, 10 industry partners and 5 school administrators will take part giving information about the barriers and the supporting factors in the implementation of life skills curriculum and how effective this curriculum is in preparing students for the workplace and daily lives.

Data Collection

This qualitative case study uses a multi-hybrid approach for data collection and data analysis. There will be 20 teachers, 10 industry partners, and 5 school administrators in the target population where in-depth and focused interviews will be prepared and conducted to grasp their views and experiences on life skills curriculum implementation. Students' focus group discussions (FGDs) will include 100 students where they will explain their understanding and actual use of life skills in various real situations. Class observations as well as school activities will focus on teaching and learning activities. Perusal of curriculum documents, school policies, and industry reports would establish the context and provide background information. Moreover, collection of online data from social media platforms and online forums would provide an understanding of both interactions and engagements between students, teachers, and industry partners. A measure across various sources and methods will be used to enhance validity and reliability i.e. triangulation. In light of the evidence, Member checking will be made with participants to scrutinize the accuracy of the data. Thematic analysis will be used to code the data and make analysis as two coded and themed independent researches reviewed the ones made by the study team. There will be increased trustworthiness of the study as prolonged engagement with the research setting, and participants will enhance the understanding of the context and phenomena under investigation.

Sampling

In this regard, purposive sampling will be used to select 20 teachers, 10 industry partners and 5 school administrators who are directly involved in the implementation of the life skills curriculum at SMK Askhabul Kahfi Semarang City. In this study 100 students from various grades and programs who are to be trained under the life skills program, which is a portion of the integrated curriculum, will be chosen through convenience sampling. The sample will be selected according to their potential value in providing rich and in-depth information related to the implementation of the life skills curriculum and their consent to participate in the study. Thus, the sample size will be sufficient enough to guarantee data saturation and a clear picture of the research phenomenon.

Data Analysis

A thematic analysis method was used for data, which were derived from interviews, focus group discussions, observations, and document studies. Patterns and themes, which were identified, were approached through coding and categorization, from both inductive and deductive perspectives. Codes, which would serve as anchors, were created based on data collected, organized into main themes and sub points. There is validity and reliability due to triangulation across sources and methods. The analysis conducted aimed at understanding

the barriers and the supporting factors in the implementation of the life skills curriculum, as well as the achievements that were designed to equip students to be active members of society. The results will be presented through a narrative, interspersed with quotes and examples as themes and patterns emerge. This analysis follows the model proposed by Miles and Huberman that comprises data reduction, data presentation, and conclusion drawing (Hutahaean et al., 2024). Data reduction, in this case, is picking out and sifting the needed materials excluding the extraneous ones. Data presentation utilizes the use of matrices and tables, which are clearer and easier to analyze. Based on the discerned patterns and themes, conclusions were made. Triangulation of data sets also aids in ensuring that data remain valid during the process of analysis. This thorough analysis allows for a rich understanding of how to successfully implement the life skills curriculum at SMK Askhabul Kahfi Semarang City.

The main focus of this study was on a qualitative approach, which included interviews with teachers, school leaders and industry partners, as well as focus group discussions with students. Other methods of data collection included analyzing documents and monitoring classroom interactions in the implementation of the life skills curriculum under the leadership of SMK Askhabul Kahfi Semarang. A total of 3 teachers, 9 field representatives and 10 students were interviewed, and additional focus group sessions were also organized. The constructive research method provides many tools for data analysis, given the complexity of thematic analysis. The combination of triangulation and member verification complements each other in such a way as to maximize the validity of the collected data and their reliability. The study does not consider statistical analysis as such, which does not matter, because there is a dense qualitative analysis, which is obtained at a level that describes important points, for example, whether students were ready to work after completing the life skills curriculum.

Results

The result of life skills curriculum management development at SMK Askhabul Kahfi Semarang City is self-explanatory and gratifying. The method employed at the school consists of thorough planning, adequate activities with said plans and regular reviews to make sure that things are carried out as intended. The planners also established key outcomes in terms of vision, mission, and objectives that centered on Islam and employable skills (Munajat, 2020). The curriculum comprises of project work, problem solving and learning through discovery. It involves students as active participants in the learning process. This fosters the students' self-regulation of learning acquired through strategies, active utilization of concepts, and extension of theoretical knowledge. This consists of generic and specific skills such as self, cognitive, social, specialization and work skills essential for education in its completeness (Wijnia et al., 2024).

The purposeful formulation, orderly putting into action and constant supervision of the management of the life skills curriculum, was well upheld in the school's general operations. Relevant goal and objectives were set along with practical implementation plans or detailed roadmaps as the administrators and teachers engaged in planning (Schultes, 2021). The organized setup made sure that everybody involved clearly understood the message and the message was presented in an orderly manner. In addition, their active monitoring and evaluation enabled the school to establish the extent of achievement made, weaknesses faced and therefore identify appropriate action to take in order to enhance the curriculum and instructional practices. This interrelated continuous process or cycle of design, provision and assessment of curriculum content made sure the curriculum designed was up to date, able to meet the learning objectives and desirable to the target group, which, in this case, were the students, the teachers and the other members of the society. It was clear from this approach adopted by the school, an intentional ambition to improve the standards and the quality of services offered so as to achieve beneficial results for students was displayed.

For More Improvement Need to Focus on Some Points

1. Enhanced academic performance: The students have shown massive improvement regarding their academic performances especially in the subjects dealing with life skills curriculum. This more and more demonstrated their grades, test scores and general academic achievements. The inclusion of Islamic religion and practice, academic study as well as vocational skills reinforced the students' cultural effectiveness in their subjects leading to improved retention as well as application of learning across contexts.

2. Improvement in practical skills: Students also demonstrated an improvement in practical skills including effective communication, group dynamics, and conflict resolution. The aforementioned skills were acquired through engagement in project, problem, and discovery

based learning which necessitated action and practical work to be done by students. As such, the students' low self-efficacy and lack of self-efficacy waned and the students gained the ability and confidence to use their skills in real life situations.

3. Enhanced employability preparedness: The students displayed a high level of preparation for employment, armed with knowledge of Industry 4.0 skills and useful in network service techniques. This was because the emerging technologies and industry skills which formed part of the syllabus content prepared the students to the changing world of work.

4. Better character development: Among the improved character traits that the students displayed were responsibility, compassion, and spiritual intelligence, which fostered better and more active and enhanced learning. This goal was executed through the blend of Islamic values and ethics, which gave an understanding of the moral bearing in life and work. Consequently, students became more aware of themselves, more self-disciplined, and more socially responsible.

5. Beneficial effects in personal aspects: Students were able to observe changes in their relationships, such as better decision-making and greater emotional peace in their lives. Emphasis on life skills and character guidance in the curriculum enabled them to cope with personal problems and nurture good practices, which resulted in higher confidence and self- esteem.

6. Improved confidence of teachers: The teachers mentioned greater coverage of curriculum requirements to help them give quality instruction and mentor students because the curriculum came with adequate support and resources. This resulted in improved teaching practices, better student-teacher interactions, and a more friendly school environment.

7. Enhanced relevance of curriculum: The curriculum was considered more appropriate and efficient in grooming students towards achieving success in their private and work lives as it met the requirements of the 21st century and the changing employment requirements.

The inclusion of Islamic values within education, specifying academia and practical education, provided an all round education that catered for students' different needs. Enhanced student engagement: It was observed that there was an increase in the level of interest and motivation of students towards learning, especially in project work, problem solving and discovery learning situations. These methods fostered the collaboration of students contributing to their imagination, rationalism, enjoyment, and efficiency of the whole learning process. Better preparation for future challenges: Students appeared to have been in a better position to address various challenges in the future including those that would pertain to the Industry 4.0 and the changing labor market. There was an emphasis in the curriculum on new technologies, industry skills, and character building, which enabled the students to acquire knowledge, skills and flexibility that were requisite in a fast-paced world. Scalability and replicability: The model was found to be scalable and replicable with opportunities to use it in other schools and institutions. Given the responsive nature of the curriculum and its coverage and support as well as the component on teacher education, the model was appealing to those who wanted to pursue holistic education in their settings. In line with this approach, students are engaged in learning activities directed towards acquisition of practical skills, such as creative education, entrepreneurship, and network service techniques. This allows students to acquire the necessary skills that are in high demand in workplaces, which include interpersonal skills, team-working skills and problem thinking skills.

Regular assessments foster compliance of the targets set out to achieve the sought standards of the education necessary for the stakes of industry 4.0 relevance. The inclusion of pesantren education complements the character and life skills of the students reminding the need of complementation of academic and personal development. This unique combination of formal and Islamic education enables students to attain spiritual enhancement, moral integrity and, social accountability. The results highlight the importance of a comprehensive curriculum management system for educational attainment. Their focus on the continuous assessment and improvement of the curriculum ensures that it is effective and meets the requirements of the market. To sum up, the results indicate that the purpose of developing life skills curriculum management at SMK Askhabul Kahfi Semarang City has been achieved. The school's integrated educational approach encompasses the intellectual sphere and personal development of the students in a way that prepares them to be successful in both academic and career pursuits.

The implementation of life skills curriculum management at SMK Askhabul Kahfi Semarang City, Indonesia consists of several stages. The curriculum planning stage involves setting a vision, mission, and objectives that focus on Islamic competencies and industry needs. The school also develops an integrated curriculum (KTSP, Pesantren, 2013 Curriculum) and updates it annually. During the curriculum implementation

stage, the school follows a structured approach involving planning, implementation, assessment, and evaluation. The learning models used include project-based, problem-based, and discovery learning, and teachers receive extra mentoring and curriculum socialization. The life skills component of the curriculum includes both generic skills (personal, rational thinking, social) and specific skills (academic, vocational). Learning activities are designed to develop these skills, including creative education and entrepreneurship (art from waste, batik, cooking), network service techniques (memorization and practice of internet networking), and Islamic religious education and ethics (structured learning). Finally, the curriculum evaluation stage involves ongoing monitoring of every stage of implementation, with an annual evaluation based on previous evaluation results. This ensures that the curriculum remains effective and aligned with industry needs. At the Askhabul Kahfi vocational high school located in Semarang City, Indonesia, the management of life skills curriculum is experienced through a process that comprises five important stages. First of all, the curriculum planning stage combines both Islamic provisions and industrial requirements, and that the students are educated on an all-inclusive basis for both personal and occupational activities.

In the second instance, the three phases of curriculum integration development stage include KTSP, Pesantren and 2013 Integrasi curriculums, which adopts a holistic perspective of education that addresses the wide range of needs of student learners. Thirdly, the life skills development stage prepares learners with both general and specific skills, including: Personal capabilities, which comprise self-reliance and self-control, - Abstractive capabilities, which include problem, strategy and critical thinkers, Social capabilities, which include communicators and team players, Literacy and numeracy capabilities, which are academic in nature, and Vocational capabilities, which include technical and entrepreneurial capabilities.

In the creative and practical learning activities stage, the students are exposed to subjects such as Entrepreneurship, Network Service Techniques, Islamic Religious Education and Budi Pekerti, where they can improve their creative and practical skills. Finally, in the continuous monitoring and evaluation stage, the relevance and effectiveness of the curriculum is reviewed through a periodical monitoring and an evaluative session undertaken on a yearly basis so that areas requiring improvement and strengths can be identified. The findings of this research are consistent with some of the stated research objectives. The research was meant to analyse the processes of life skills curriculum management in terms of its implementation as well as barriers and supporting factors but the conclusions were put mostly on interviewee teachers and industry partners and students on the efficiency of the curriculum. To better suit the research goals, additional analysis and secondary findings to the implementation process, barriers and supporting factors must be undertaken. These findings should be elaborated in further research on life skill curriculum management in vocational schools and its effectiveness.

Discussion

The institution's methodology could be a blueprint for other schools in the implementing of a life skills integrated curriculum. This furthers reinforces the need of a steady education. By learning from each other and cooperating, SMK Askhabul Kahfi Semarang City is able to motivate and help other schools in achieving the goal of comprehensive education for children leading to the betterment of education. In Indonesia, one outstanding case of how a life skills program can be achieved in an Indonesian school is the program being implemented at SMK Askhabul Kahfi Semarang City, Indonesia. By incorporating Islamic beliefs, studies, and character building within the curriculum of the students, such enables the students to excel in both spheres of their life, personal and career related. These updates assist in the meeting of future trends and requirements of the economy. There is a combination of various methods to involve active student participation in learning ensuring effectiveness, mentoring and socialization of students who are employed to achieve this. The use of project work, problem-solving plus the discovery learning techniques also encourage active participation with learners and acquiring of key competencies. Development of practical skills emphasizes communication, teamwork and problem solving in the working environment. Besides checking periodically, the relevance of the curriculum is enhanced through continuous evaluation. This helps in providing appropriate choices for the learners and their experiences.

Teacher support is manifested through additional mentoring and curriculum socialization, providing teachers with the capacity to provide instructional services of superb quality. Specialization in Industrial 4.0 prepares students with skills such as network service techniques that will suit them in a dynamic job market (Rens & Louw, 2021). Islamic religious education and

ethics focus on character development, cultivating people who can take responsibility and be kind. Such a strategy is an example of an approach that can be adopted by any other institution, because the education process proves to be effective and nurtures education development. Formal school education and pesantren education combine to form a model that enhances students' character including life skills and spiritual intelligence as well as good morals. Continuous evaluation and feedback mechanisms guarantee the adequacy and effectiveness of the curriculum towards the challenges and barriers to its implementation requiring each of the stakeholders participating in action. Successful implementation requires adequate comprehensive planning, implementation of innovative leaning models and systematic evaluation mechanisms.

Utilizing this model, schools are capable of forecasting and tackling different problems for students to acquire a proper education which will ready them for several aspects (Shek et al., 2020). Religion can be integrated in character education infusion procedural in the school curriculum as one of the efforts to develop children's character. This strategy shows how transformation can be implemented in other schools set at enhancing students' personal development. Resources and management of entrepreneurship skill activities and programs during youth at school were implemented within the support center at the SMK Askhabul Kahfi Semarang boy Vocational High Scholl in the City of Indonesia (Suoranta et al., 2021).

This approach can serve as a model for other institutions, promoting education, integrating Islamic values, academic and professional skills, character formation, practical skills, and continuous assessment. By focusing on students' academic, personal, and spiritual development, education systems can adapt to a changing world and support students' overall success. The SMK Askhabul Kahfi Life Skills Curriculum Management Project is an excellent example of the importance of holistic education in promoting learners' independence and success.

SMK Askhabul Kahfi life skills curriculum leadership is an example of a holistic approach, integrating Islamic values with vocational training. This approach prepares students for both academic and industry success by teaching essential soft skills. The school's STEM-based education also fosters creativity, innovation, and critical thinking, providing students with the knowledge and skills to engage with technology and scientific ideas. By incorporating STEM principles, the school motivates students to take responsibility in areas important to the growth of the country by expanding their field of work and preparing them for the demands of the global economy.

SMK Askhabul Kahf's educational approach combines STEM disciplines with community-focused lessons and practices that promote local culture, social responsibility, and entrepreneurship. Its rules are integrated into the educational structure, so that all graduates can work as skilled workers or entrepreneurs, and at the same time as good citizens who can give back to their communities. It is important to incorporate local traditions and customs into education to preserve cultural values while preparing students to participate in the global economy. Taking into account these points will make it possible to better assess the economic and educational changes in which the school operates. The proposed syllabus focuses on both STEM education and local culture, which in turn encourages students at SMK Askhabul Kahf to be proud and take responsibility for their community in this globalized economy and society. This two-pronged strategy increases the importance of the education provided and helps to shape people who are healthy and able to meet the demands of a complex society.

On the one hand, such aimed at expanding the scope of education, expanding the management of the practices of the life skills curriculum of SMK Askhabul Kahfi Semarang City, but the moral force and state power that exist around the management of teaching in this institution remain unpacked in the analysis. The social dimension in which these forces are applied in the practice of educational activities should be understood in order to draw informed conclusions about the applicability of the curriculum. In addition, despite the fact that the study uses a qualitative approach, there is insufficient student data to help understand the interplay between Islamic values, content and professional components of the curriculum. Such a synthesis requires a more thorough explanation of the real context of these specific concepts. For example, it would be useful if the principles of Islam were to be integrated into vocational training or a broader curriculum so that it makes sense.

The study could be strengthened by incorporating scaffolding theories, such as the TPACK (Technological Pedagogical Content Knowledge) model, to show how teachers integrate content, pedagogy, and technology to improve learning outcomes. The analysis would also be enhanced by making practical recommendations and referring to specific manuals, textbooks and study arrangements. Future research should focus on in-depth case studies, examples of best practice, and a detailed examination of the moral and regulatory factors affecting

SMK Askhabul Kahfi education. This would provide valuable context for discussing the challenges and opportunities of curriculum management.

Implication of Study

The life skills program is nearing implementation, with objectives already in place. The evaluation of the program, combined with the knowledge gained, provides the basis for analysis and reasoning that can be widely applied in the field of education, with the ultimate goal of achieving success.

1. Curriculum Design and Development: It is not only important to teach curriculum implementation by adding Islamic competencies alongside industry requirements, but designing it is also crucial. Educational institutions need to reconsider their models and methods so that they lead to the admission of their graduates to the labor market.

2. New directions in teaching: The construction of learners' knowledge and thoughts can be ensured with newer teaching methods such as LSM (support for acquired learning strategies), problem solving, project-based and guided detection methods. There is a greater need for teachers to take on these roles in relation to classrooms, as classroom strategies have been made more holistic, which in turn improves students' academic performance and the acquisition of practical competence.

3. Continuous evaluation: The presentation of the research emphasizes the need for continuous reassessment in terms of self-expansion of the superstructure of the curriculum and its relative modification. Schools should establish feedback mechanisms so that they can regularly assess the performance of their programmes. All in all, these changes not only increase freedom, but also increase the effectiveness and efficiency of the newly created curriculum in relation to the target audience and society in general.

4. Cooperation with industry: The results show that cooperation with an industrial partner is an important component in solving the cooperation problems of the educational industry. In order to provide students with knowledge and expectations about the industry and to further increase job opportunities, schools should strive to build partnerships with the community in which they are located.

5. Holistic Education: As research shows, the formal education system is integrated with nesting education as a clear model that teachers begin to evaluate, which examines the development of recruitment outside of classroom activities. Education policy should seek to design and design curricula that are comprehensive enough to address multidimensional competencies, which are professional, social and other life skills, so that children can face different challenges in life.

The study is relevant not only in the context of SMK Askhabul Kahf, but also provides an opportunity to suggest further recommendations for educators, policy makers and even developers of VET intervention programmes to improve VET programmes.

Conclusion

This comprehensive study demonstrates the resounding success of the life skills curriculum management implementation at SMK Askhabul Kahfi Semarang City, Indonesia. By integrating Islamic values, academic, and vocational skills, the school has effectively prepared students for success in both personal and professional lives. The careful planning, structured implementation, and continuous evaluation have ensured effective execution, leading to numerous benefits, including improved academic performance, enhanced practical skills, increased industry readiness, better character development, and a positive impact on personal lives. The study's findings contribute significantly to the field of education management, both theoretically and practically. Theoretically, the findings reinforce the concept of holistic education, emphasizing the importance of integrating academic aspects, life skills, and spiritual values. Practically, this research offers a scalable and replicable curriculum implementation model that addresses the gap between education and industry needs. However, the study acknowledges limitations, such as limited resources and local context, which may impact implementation outcomes. Therefore, further research is recommended to explore contextual variations and long-term evaluation, providing a deeper and broader insight into the implementation of the life skills curriculum. this study showcases a successful model of holistic education that can be adopted by other schools and institutions, contributing to the advancement of education and the development of future generations.

The introduction part of this work would be a more in-depth study, which is already underway, with special attention to moral power structures, the integration of Islamic principles into academic and professional practice, and the synthesis of ideas. Accepting such changes and addressing their impact on practice touched on the manuscript's strong tendency to present itself

as a field report rather than a study of VET curriculum management. The explanation given would be quite appropriate, given the fact that they have touched on quite important issues and therefore tend to be more descriptive. The information obtained from this case study may be useful for other educational institutions that want to implement an integrated educational model, emphasizing the cultural and modern educational norms of the local population. Adhering to these recommendations, the revised version of the text will be much better, explaining the severity of the load that the person responsible for the actual management of the curriculum carries withthem, and the consequences that some of the reasons have for the achievements of students.

Recommendations

When structuring a manuscript for the first submission, it is crucial to change long paragraphs in which there are many points. By dividing these paragraphs into focused smaller paragraphs, writing would improve the organization of the discussion and the depth of analysis of each point. This avoids the impression that the manuscript only documents the existence of curricula and the management of teaching, without being seriously related to serious academic discourse. For each main question or reasoning, a separate paragraph should be drawn up that will ensure a thorough understanding of the topic. It may also consist of separate essays on the place of Islamic values, the technical level of training and the importance of the state mechanism in education. Thus, the work not only conveys information, but also analyzes the material, thereby strengthening the general statement and adding the scientific value of the paper.

Moreover, if new subtitles are added to classify parts of the main part of the work, it can help readers navigate the discussions and emphasize the most important points. This structural clarity of the manuscript improves its understanding and ensures that every dispute is adequately addressed. In conclusion, a revised version of the manuscript, in which topics are dealt with coherently, using a few paragraphs, can improve the way the argument is discussed, allowing for a better scientific approach to the topic. This, in turn, leads to a more convincing and scientific way of presenting the results.

Conflict of Interest

The author declares that there is no conflict of interest.

References

Alfian, A., Yusuf, M., & Nafiah, U. (2021). Integrating Islamic values in teaching English: Lessons learned from an integrated Islamic school. *ELSYA Journal of English Language Studies, 4*(1). https://doi.org/10.31849/elsya.v4i1.7322

Arasomwan, D. A., & Mashiya, N. (2021). Foundation phase pre-service teachers' experiences of teaching life skills during teaching practice. *South African Journal of Childhood Education, 11*(1). https://doi.org/10.4102/sajce.v11i1.700

Asmendri, A., Sari, M., Khairiah, K., Ibarra, F. P., Santos, M. R. H. M. D., & Quicho, R. F. (2023). The roles of principals in teacher competency development for students' morale improvement. *Journal of Higher Education Theory and Practice, 23*(11), 125–37. https://doi.org/10.33423/jhetp.v23i11.6223

Azra, H. (2018). Islamic education in Indonesia. In *International handbooks of religion and education* (pp. 763–80). Springer. https://doi.org/10.1007/978-3-319-64683-1_32

De Oliveira Lima, C. L., & Kuusisto, E. (2020). Parental engagement in children's learning: A holistic approach to teacher–parents' partnerships. In *IntechOpen eBooks*. https://doi.org/10.5772/intechopen.89841

Dina, S., Amani, I., & Anwar, K. (2023). Preparing students with 21st century skills for the future post-pandemic era. In *IntechOpen eBooks*. https://doi.org/10.5772/intechopen.1001993

Harris, L. R., Adie, L., & Wyatt-Smith, C. (2022). Learning progression–based assessments: A systematic review of student and teacher uses. *Review of Educational Research, 92*(6), 996–1040. https://doi.org/10.3102/00346543221081552

Hutahaean, B., Telaumbanua, S., Tamba, L., Hutabarat, R. G. N., & Sumani, S. (2024). Analysis of innovative and adaptive higher education curriculum development to Education 5.0–based challenges in Indonesia. *International Journal of Learning, Teaching and Educational Research, 23*(4), 76–98. https://doi.org/10.26803/ijlter.23.4.5

Indraswari, R., Widjanarko, B., Kusumawati, A., & Handayani, N. (2024). Differences in cognitive life skills, knowledge, and attitudes between primary school students. *International Journal of Public Health Science, 13*(1), 126. https://doi.org/10.11591/ijphs.v13i1.23591

Kalinowski, E., Gronostaj, A., & Vock, M. (2019). Effective professional development for teachers to foster students' academic language proficiency across the curriculum: A systematic review. *AERA Open, 5*(1), 233285841982869. https://doi.org/10.1177/2332858419828691

Kirchhoff, E., & Keller, R. (2021). Age-specific life skills education in school: A systematic review. *Frontiers in Education, 6*. https://doi.org/10.3389/feduc.2021.660878

Markey, K., Graham, M. M., Tuohy, D., McCarthy, J., O'Donnell, C., Hennessy, T., Fahy, A., & O'Brien, B. (2023). Navigating learning and teaching in expanding culturally diverse higher education settings. *Higher Education Pedagogies, 8*(1). https://doi.org/10.1080/23752696.2023.2165527

Munajat, N. (2020). Study on curriculum management implementation life proficiency–based (life skills). In *Proceedings of the 5th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2020)*. https://doi.org/10.2991/assehr.k.201124.095

Murphy-Graham, E., & Cohen, A. K. (2021). Life skills education for youth in developing countries: What are they and why do they matter? In *Young people and learning processes in school and everyday life* (pp. 13–41). Springer. https://doi.org/10.1007/978-3-030-85214-6_2

Nasheeda, A., Abdullah, H. B., Krauss, S. E., & Ahmed, N. B. (2019). A narrative systematic review of life skills education: Effectiveness, research gaps and priorities. *International Journal of Adolescence and Youth, 24*(3), 362–379. https://doi.org/10.1080/02673843.2018.1479278

Pak, K., Polikoff, M. S., Desimone, L. M., & García, E. S. (2020). The adaptive challenges of curriculum implementation: Insights for educational leaders driving standards-based reform. *AERA Open, 6*(2), 233285842093282. https://doi.org/10.1177/2332858420932828

Rens, J., & Louw, H. (2021). Teachers' experiences in the implementation of the life skills CAPS for learners with severe intellectual disability. *Educational Research for Social Change, 10*(2), 1–19. https://doi.org/10.17159/2221-4070/2021/v10i2a7

Rindrayani, S. R. (2020). The implementation of character education in Indonesian high school curriculum program. *Universal Journal of Educational Research, 8*(1), 304–12. https://doi.org/10.13189/ujer.2020.080137

Schultes, M. (2023). An introduction to implementation evaluation of school-based interventions. *European Journal of Developmental Psychology, 20*(1), 189–201. https://doi.org/10.1080/17405629.2021.1976633

Shek, D. T. L., Lin, L., Ma, C. M. S., Yu, L., Leung, J. T. Y., Wu, F. K. Y., Leung, H., & Dou, D. (2021). Perceptions of adolescents, teachers and parents of life skills education and life skills in high school students in Hong Kong. *Applied Research in Quality of Life, 16*(5), 1847–60. https://doi.org/10.1007/s11482-020-09848-9

Suoranta, J., Hjelt, N., Tomperi, T., & Grant, A. (2022). Reinventing Paulo Freire's pedagogy in Finnish non-formal education: The case of Life Skills for All model. *Educational Philosophy and Theory, 54*(13), 2228–42. https://doi.org/10.1080/00131857.2021.1974839

Wijnia, L., Noordzij, G., Arends, L. R., Rikers, R. M. J. P., & Loyens, S. M. M. (2024). The effects of problem-based, project-based, and case-based learning on students' motivation: A meta-analysis. *Educational Psychology Review, 36*(1). https://doi.org/10.1007/s10648-024-09864-3

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Moving forward based on backward: Innovation in developing creative thinking assessments aligned with the curriculum

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Abstract

This research and development aims to: (1) develop an assessment instrument based on alignment with the curriculum to measure students' creative thinking, (2) validate the assessment instrument, and (3) calculate the level of reliability of the instrument when tested. The creative thinking assessment instrument was developed using the Research and Development (R&D) method design with a modified model from Zulkardi (2002). There are four stages in this design: the preliminary stage, prototyping stage, formative evaluation stage, and field test stage. The developed instruments were then analyzed qualitatively and quantitatively. Quantitative analysis was carried out to ensure the validity and reliability of the data. First, the method used by the researchers to determine the instrument's validity is the Content Validity Index (CVI). This method consists of two indications, namely, the Item-level Content Validity Index (I-CVI) and the Scale-level Content Validity Index (S-CVI). A total of eight experts in the field of Mathematics and Mathematics Education from Malaysia and Indonesia were involved as assessors. Second, the ANATES 4.00 software was used to analyze data related to reliability, discriminant index, difficulty index, and alpha coefficient. 34 twelfth grade students in East Java were involved in this study. Other data sources were the results of semi-structured interviews. The study results showed that each item of the instrument developed was valid with an I-CVI value in the range of .87−1 and an S-CVI/Average value of .97. The ANATES 4.00 showed that the item had a high level of reliability. These results are supported by an alpha coefficient value of .82, an item discriminant index ranging from .55−.70, and a difficulty index ranging from .60−.67. Based on the findings, specific strategies for teachers or other authorities are needed to develop assessments that can train and measure students' creative thinking considering that this skill is very much needed in the era of rapid development of science and technology.

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Introduction

Over the past few years, various countries have stepped up improvements in the educational assessment system, including Indonesia. Assessment is seen as a primary tool for measuring the skill standards targeted by the curriculum (Bray et al., 2020). Furthermore, assessment is desired and needed to measure institutional quality based on externally defined performance indicators (Klenowski, 2009). Only with assessment can teachers know whether learning instructions have provided learning outcomes following the curriculum. In other words, assessment is the main instrument in learning as a benchmark (outcome) of the curriculum instructional process used by teachers (input) (Grant & Gareis, 2013). In addition, the assessment also has other benefits that are no less important, that are: (1) obtaining information on the competence achievements from the curriculum during and after the learning process, (2) monitoring student learning progress, and (3) classifying student abilities and skills. (Brookhart & Nitko, 2019). Therefore, the role of assessment is very influential in evaluating the achievement of student learning outcomes and the achievement of learning objectives according to the curriculum.

The curriculum is a guideline for organizing learning and teaching activities so that in the process it requires involvement between teachers and students (Walker & Soltis, 2004). In Indonesia, the curriculum has undergone many changes for a better educational revolution. As the curriculum used changes, the assessments developed must also be in line with the desired targets of the curriculum (Clark, 2015). The curriculum itself is defined as a set of learning experiences containing subject formulations, objectives to be achieved in learning, teaching materials, methods, media, sources, and assessments both in written and oral form made by authorities given to students to achieve general skills and knowledge in various learning activities both inside and outside the classroom (Young, 2014). Then, the assessment must be able to accurately measure the skills desired by the curriculum (Letassy et al., 2015). The curriculum currently implemented in Indonesia is the "Kurikulum Merdeka" where the curriculum emphasizes "freedom of learning". In other words, the learning process in schools no longer limits students' creativity in thinking (Yuhastina et al., 2020).

Creativity is a skill resulting from creative thinking. One of the main focuses of the Kurikulum Merdeka is improving students' creative thinking (Syahida & Dewi, 2023). Creative thinking is believed to be important for students to develop innovative and new ideas in learning. In addition, creative thinking also allows students to see things from various perspectives, accelerate the decision-making process, and improve adaptability in line with global demands (Dilekçi & Karatay, 2023). Creativity also encourages innovation needed to improve students' quality of life. With this background, it is important to emphasize creative thinking in the learning and teaching process. With learning that emphasizes creativity, education focuses on mastering the material. Students can also play a more active role in the learning process so that the material is easier to understand. However, previous researchers found several obstacles that are often faced by both teachers and students in developing creative thinking skills (Purba et al., 2017). Assessing creativity and creative thinking is one of the most difficult aspects of classroom assessment for teachers to handle properly. Many teachers want their students to be creative but are unsure of what to do (Brookhart, 2010). Thus, a literature review was conducted by the researchers to examine the research gap related to creative thinking.

A comprehensive literature review was conducted by the researchers who examined the process of students' creative thinking, the importance of integrating creative thinking in learning to the obstacles encountered by teachers and students. There have been many studies that examine students' creative thinking processes where creative students are described as students who have many alternative solutions when solving problems (Zana & Susiswo, 2021). The results of the researcher's study also show obstacles experienced by teachers and students in improving creative thinking skills. For example, research by Fazal et al. (2023) highlighted that teachers lack time to design and implement learning that encourages creativity and teachers' lack of knowledge to use creative learning approaches effectively. On the other hand, students experience internal obstacles such as lack of motivation and low self-confidence when faced with problems that require creativity. Then, researchers who explore ways to train and improve students' creative thinking such as research by Hidajat (2023), who compared creative learning approaches with conventional approaches to solving problems, found that creative learning approaches often produce more efficient and unique solutions. The literature review has shown a research gap that needs to be explored further regarding effective and innovative assessments to evaluate students' creative thinking.

The aforementioned studies show that despite the recognition of the importance of creative thinking in the curriculum or assessment, the implementation and

approach to teaching these skills are still limited, with little effort to explore innovative ways to integrate creative thinking into the teaching and learning process. This gap is also seen in the process of evaluating and assessing students, where traditional methods often do not sufficiently cover aspects of creative thinking. Conventional assessments are considered less effective in evaluating student creativity, where the assessment only focuses on existing solutions. This hinders students from truly developing their creative potential and does not allow them to master skills that are very much needed in this ever-changing world. Therefore, innovation is needed in the development of assessment tools in the form of accurate assessment instruments to measure student creativity and of course in line with curriculum outcomes. By adopting innovative approaches such as open-ended problems, idea design, or problem formulation, assessments can be more meaningful in encouraging the development of original ideas from students. The preparation of the assessment in this study also involves the process of aligning the cognitive level between the assessment and the curriculum with the help of Anderson & Krathwohl's Taxonomy Table (2001). The assessment is developed by mapping two outputs in the form of knowledge and cognitive processes to be achieved according to the indicators in the curriculum.

Literature Review

Assessments

Assessments developed by teachers to assess and improve student skills are very important and at the heart of current education policy. Assessment is defined as a series of data collection processes to obtain, analyze, and interpret what students know and can do (Retnawati et al., 2016). Teachers are aware of the importance of encouraging and creating assessments that are appropriate for students (Broadfoot et al., 2002). The preparation of assessments is important because assessments function as a tool for teachers to place students into certain groups, improve teaching methods, measure students' attitudes, mentality, and material readiness, provide guidance in class, and provide information to teachers for improving education (Reynolds et al., 2010). Teachers should actively introduce and apply various forms of representation such as assessments in the form of problem-solving that help each student understand concepts and solve Mathematics problems effectively (Hidajat et al., 2019).

Creative Thinking

Creative thinking is the ability to create new ideas/concepts that can be applied in problem-solving, or the ability to see new relationships between previously existing elements. Furthermore, creativity is seen as a habit, meaning that this ability can be trained so that students are accustomed to thinking creatively (Zana & Susiswo, 2021). Creative thinking ability is not the ability to create something from nothing, but the ability to generate new ideas by combining, changing or combining existing ideas (Nadjafikhah et al., 2012).

The researchers will refer to Guilford (1942), so they use three indicators, which are fluency, flexibility, and originality to categorize students as having creative thinking skills or not. The researchers chose these indicators because, with the three indicators, a person's creative thinking ability can be significantly distinguished. A person is said to be creative if he/she meets all the indicators. Guilford (1942) explains the three indicators of creative thinking as follows: (1) fluency, when students are able to provide all the correct answers to the questions asked, (2) flexibility, when students are able to provide several alternative answers to questions from different perspectives, and (3) originality, when students are able to provide one or more answers that are unique and new.

Methodology

Research Participants

A total of 34 students majoring in Mathematics and Natural Sciences at the Senior High School level located in the province of East Java, Indonesia were involved as participants in this pilot study. The 34 students consisted of 19 male students and 15 female students with an age range of 16–18 years. The selection of the school was based on an assessment from the National Accreditation Board for Schools/Madrasah that the school has an accreditation of "A" or Very Good (Wahira & Hamid, 2023). The pilot study process was carried out for a period of 7 days starting from July 2nd, 2024, to July 8th, 2024.

Research Instruments

The instruments used by the researchers are divided into two types, namely, the main instrument and the supporting instrument. Both instruments are used to obtain valid and reliable data. The process of developing

this assessment instrument was carried out from December 2023 to June 2024. The main instruments in this study consist of: (1) learning achievement indicators, (2) creative thinking assessments, (3) assessment rubrics, and (4) answer keys for creative thinking assessments. First, the researchers determine the learning outcomes of the curriculum used. Learning achievement indicators are designed to measure the extent to which students achieve the predetermined learning objectives. Creative thinking assessments aim to measure students' ability to generate creative ideas and innovative solutions. The assessment rubric is used as an objective guide to evaluate the results of creative thinking assessments, providing structured and transparent criteria. The answer key serves as a reference to ensure consistency in the assessment of creative thinking tests.

Second, supporting instruments were also developed in this study to ensure product quality. The supporting instrument is the expert validation sheet. A total of eight experts in the field of Mathematics and Mathematics Education were involved in this validity evaluation process. The expert validation sheet was used to ensure the validity and reliability of the research instruments, which are the creative thinking assessment and semi-structured interview guidelines. The assessment instruments developed by the researchers were revised based on suggestions and comments from the experts. Additionally, a semi-structured interview guideline was prepared to explore qualitative data in depth, allowing flexibility in exploring relevant information from the research subjects. The interview process was carried out within 30–45 minutes. The combination of these main and supporting instruments complements each other to ensure comprehensive and meaningful research results.

Research Design

This study used a Research and Development (R&D) method design adapted from the modified model of Zulkardi (2002). This modified model presents four stages of research that are relevant to the objectives of this study. The four stages include (1) the Preliminary Investigation Stage, (2) the Prototype Development Stage, (3) the Formative Evaluation Stage, and (4) the Field Test Stage. In the first stage, the researchers conducted a literature review and preliminary study. The design of the assessment instrument begins by determining learning outcomes based on the curriculum, then the researcher formulates achievement indicators. After that, the researchers develop problems at the creating level based on the literature that has been collected by previous researchers. After all the main and supporting instruments have been developed, the most important step is evaluating the quality of the product (Zulkardi, 2002). The evaluation stage is very important in the development model because it is used to assess the quality of the model that has been created. The last stage is the Field Test where the assessment instrument that has been declared "valid" will be tested on students directly (face-to-face). The trial is carried out to see and measure the level of student creativity and to test whether the assessment instrument developed is reliable (Plomp & Nieveen, 2014).

Data Collection

The data collection technique used is a combination of quantitative and qualitative data collection techniques (Creswell, 2014). Quantitative data were obtained from the results of filling out the validation sheet by eight experts. The eight expert experts were given a validation sheet via email application. Then, the expert experts were given a deadline of around 3–4 weeks. Quantitative data were also obtained from the results of students' answers to the essay test developed by the researchers. In addition to quantitative data collection, qualitative data were also collected. First, qualitative were was obtained from the expert validation sheet. On the sheet, there is a suggestion/comment column for each problem. The results of suggestions or recommendations given by experts are qualitative data used to improve the assessment. Qualitative data were also obtained from semi-structured interviews. Interviews were conducted using Google Meet (G-meet) software. Interviews were conducted to strengthen answers and clarify and describe the results of students' work.

Data Analysis

The data analysis methods involved in this research and development are qualitative and quantitative. First, the data analysis method in the development of creative thinking assessment instruments that are aligned with curriculum outputs is carried out qualitatively to understand the suitability of content and objectives. Qualitative content analysis is applied to ensure alignment between the "creative thinking" indicators in the assessment rubric that has been prepared by the researcher with the curriculum outputs. This process involves: (1) a systematic review of curriculum documents, (2) a mapping of learning achievement indicators against creative thinking theories,

(3) a review of expert suggestions or comments, and 4) an in-depth analysis of interview data. At the qualitative data analysis stage in the development of creative thinking assessment instruments that are aligned with the curriculum, a thematic approach is used where data are categorized based on the main themes that are relevant to the creative thinking indicators: fluency, flexibility, and originality. Furthermore, data in the form of suggestions or comments obtained through the instrument validation sheet are analyzed carefully and systematically. The analysis process begins by reading and understanding all the suggestions or comments from expert experts. Furthermore, these suggestions and comments are categorized based on aspects of the instrument: content, construct, format, and language. Each category is re-evaluated to identify important points that need to be improved or adjusted. The results of this analysis are used as a basis for revising and refining the assessment instrument to meet the expected validity criteria. In addition, quantitative analysis, namely, validity and reliability tests, is used in this study to evaluate the effectiveness and consistency of the instrument. A series of processes are used to ensure that the assessment instrument developed is not only theoretically valid but also relevant and consistent in measuring students' creative thinking.

In quantitative data analysis, this study involves two types of data analysis, which are (1) validity data analysis, and (2) reliability data analysis. On the first occasion, the researchers ensured that the assessment instrument developed was "valid". For validity data analysis, the Content Validity Index (CVI) was applied. CVI refers to the extent to which a measuring instrument (here the assessment) accurately represents the skill domain to be measured (Masuwai et al., 2024). The researchers determined the method for calculating the Item-level Content Validity Index (I-CVI) and Scale-level Content Validity Index (S-CVI). After the I-CVI and S-CVI are obtained, the next step is for the researcher to determine the S-CVI/Universal Agreement (S-CVI/UA) and S-CVI/Average (S-CVI/Ave).

After all expert validation data are collected, the researchers determine the assessment instrument's validity level before being tested in the field. First, the researchers identify each item using I-CVI, then the next step is calculating S-CVI/Ave. This study involved eight experts so the minimum I-CVI value is 0.83 and the minimum S-CVI/Ave value is 0.80 (Polit & Beck, 2006). If it is found that all items are categorized as "valid", then the next step is reliability data analysis.

Data analysis assisted by ANATES 4.00 software was used in this study to determine the level of reliability of the developed instrument (Zulnaidi et al., 2020). The scores from all students were then inputted into the ANATES 4.00 software to conduct data analysis related to (1) discriminant index (DI), (2) difficulty index (p value), (3) reliability level (r_i), and (4) alpha coefficient. The interpretation of the item reliability category is then consulted on the large reliability coefficient at the ANATES 4.00 output with the benchmark for reliability criteria proposed by Hinton (2014) that an item is accepted if its reliability coefficient is $0.50 \leq r_i \leq 1.00$.

Results

Item Validity Result

In the analysis of validity data, content validity is applied to the expert validation process. The number of experts who assessed the validity was eight people with a minimum of a Doctorate from both Malaysia and Indonesia following the scope of the study. In the validity test, three aspects are highlighted, which are the importance aspect, the clarity aspect, and the relevance aspect. The results of the validity test with the I-CVI and S-CVI methods can be seen in Table 1 below.

Based on Table 1, content validity is determined by calculating the I-CVI and S-CVI values from expert ratings. In this study, the I-CVI calculation of three items obtained 100 percent results according to the details, namely: (1) one item with an I-CVI value of .87 and two items with an I-CVI value of 1 (relevance aspect), (2) three items with an I-CVI value of 1 (clarity aspect), and (3) three items with an I-CVI value of 1 (importance aspect). From the perspective of the I-CVI calculation, all assessment items have met the expected critical validity value because all items have an I-CVI value of ≥ .83. After obtaining the results of the I-CVI calculation to determine the content validity of the instrument items per item, the next step is to calculate the overall content validity of the items by calculating the S-CVI/Ave, S-CVI/UA, and CVI scores as shown in Table 2 below.

Table 1 The validity result test of the "Creative Thinking" items

Expert	The Relevance Aspects			The Clarity Aspects			The Importance Aspects			Mean
	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	
ExR1	5	5	5	5	4	5	5	4	5	1
ExR2	5	5	4	4	4	4	5	5	5	1
ExR3	3	4	4	4	3	3	4	4	4	0.67
ExR4	5	4	5	5	4	4	4	5	4	1
ExR5	5	4	4	4	4	4	4	4	4	1
ExR6	4	4	4	4	5	5	5	5	5	1
ExR7	4	5	5	4	5	4	5	4	4	1
ExR8	4	4	5	5	5	4	4	5	5	1
EA	7	8	8	8	8	8	8	8	8	$X_p = 0.958$
UA	0	1	1	1	1	1	1	1	1	
	S-CVI/UA=0.67			S-CVI/UA = 1			S-CVI/UA = 1			
I-CVI	.875	1	1	1	1	1	1	1	1	
	S-CVI/Ave=0.96			S-CVI/Ave = 1			S-CVI/Ave = 1			
Validity	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	
Interpretation	Used	Used	Used	Used	Used	Used	Used	Used	Used	

Note: Q(n) = Item Number, ExR(n) = Experts' Assessment, AE = number of assessors who agree, I-CVI = Item-Content Validity Index, X = Average proportion of items whose relevance is agreed upon by all experts, UA = Universal Agreement where relevance values 4 and 5 are given a point of "1" while relevance values 1,2, and 3 are given a point of "0"

Table 2 Results of calculating S-CVI and CVI for the "Creative Thinking" item

The Indices	Formulas	Calculation	Score	Validity Level
S-CVI/Ave	$S-CVI/Ave = \sum \frac{I-CVI}{n}$	$S-CVI/Ave = \frac{8.875}{9}$	.97	Very high
S-CVI/UA	$S-CVI/Ave = \sum \frac{UA}{n}$	$S-CVI/UA = \frac{8}{9}$	.88	High
CVI	$CVI = \sum \frac{UA - \frac{N_{expert}}{2}}{\frac{N_{expert}}{2}} / n$	$CVI = \frac{2.92}{3}$	.97	Very high

Based on previous researchers, the recommended S-CVI value if involving eight expert experts is .80 or more (Polit et al., 2007). Table 2 above shows that the average value of agreement of all experts on the problem items (S-CVI/Ave) based on the I-CVI value is .97 (more than .80). This illustrates that all experts stated that all instrument items developed by the researcher were valid. In addition, the S-CVI/UA is .88 so it can be said that 88 percent (all items) have been agreed upon by all experts. In Table 2, the CVI value shows a result of .97 where the level of validity of the assessment instrument is classified as very high.

Item Reliability Result

The next research result is the level of reliability of the item instrument. The data analysis process was carried out with the help of ANATES 4.00 software to see the consistency of the assessment instrument. The output of the reliability of the assessment in measuring the creative thinking of high school students is presented in Table 3 below.

Table 3 shows the results that the highest correlation coefficient is owned by item number 2 of .942 where the assessment measures students' "planning" skills. The lowest correlation coefficient is found in question item number 3 of .820, which is a problem that assesses students' "making" skills. However, overall, the problem items developed by the researchers has an alpha coefficient of .82. It can be concluded that all assessment items are categorized as "reliable" at a high level. Therefore, none of the assessment items were discarded.

Table 3 Reliability Results of "Creative Thinking" Items

Skill	Number of Item	Correlation Coefficient			Alpha Coefficient	Output	Criteria
		Q1	Q2	Q3			
Creative Thinking	3	.899	.942	.820	.82	Reliable	High

In addition to researchers looking at validity and reliability, factors that are no less important when developing a measuring instrument are discrimination power and difficulty power. The results of the calculation of the discrimination power and difficulty power of the "creative thinking" test items can be seen in the following diagram.

The researchers refer to the previous expert guidelines where the problem item has a good discriminant index if the empowerment value range is $.40 \leq DI \leq .70$ (Ebel & Frisbie, 1991). Based on the calculation results in Figure 1, the researchers obtained that the best discriminating power is possessed by problem item number 2 (planning). All items developed have $DI \geq .40$ or more than 40 percent, so it can be concluded that the discriminating power of each item is good.

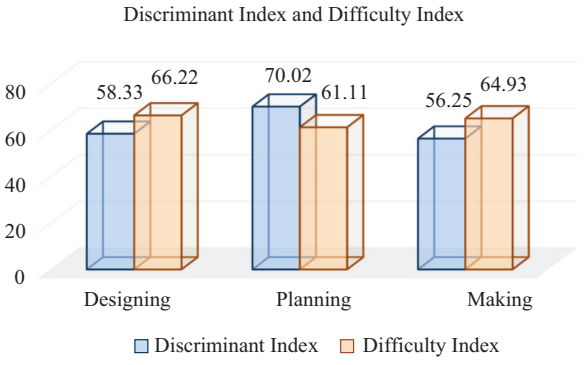


Figure 1 Item discriminant index and difficulty index

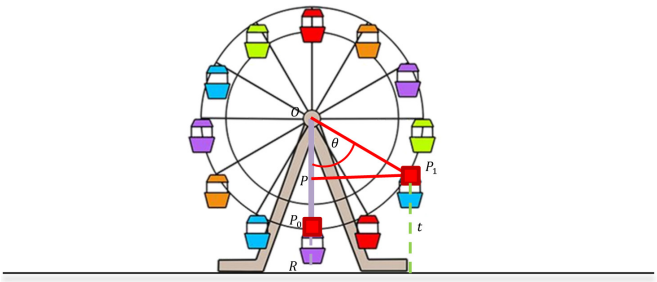
Besides that, Figure 1 also explains that items number 1 (designing), number 2 (planning), and number 3 (making) are in the "moderate" difficulty level category. This is in line with previous experts who stated that question items have a moderate difficulty index (p value) in the range of $.40 \leq p$ value $< .70$ (Karno, 1996). Therefore, all assessment items developed are accepted and can be used for research with broader subjects or used directly in classroom learning.

Result of Research Subject Work

The results of the assessment instrument development and student work will be presented in the following sub-chapters. The results of the students' work are then analyzed based on the "creative thinking" indicators in the assessment rubric. Finally, several students who meet the creative criteria are selected to undergo one-to-one semi-structured interviews. The following is one of the results of the assessment instrument development along with the results of the revision presented in Table 4.

Table 4 shows that there are revisions to the image illustration and problem context. The improvements were made based on suggestions and comments given by several experts. In the initial draft, the researchers revised the context of the problem. Expert-1 commented as follows.

Table 4 Instrument "Creative Thinking: Designing"

Theme: Solving contextual problems on trigonometric ratios of right triangles related to Ferris Wheel
Item Indicator: Students design something based on predetermined criteria
Revised: Malang City Square needs a new holiday ride, which is the Ferris wheel. If the Ferris wheel suddenly stops spinning and firefighters want to do the rescue process, it is important to know the height of the Ferris wheel passengers.    Design a Ferris wheel by first determining the diameter of the Ferris wheel and the height above ground level as in the sketch above! It is known that θ is the central angle formed when the gondola passenger on the Ferris wheel moves from position P_0 to position P_1. Calculate the height of the gondola passenger above the ground when $\theta = 30°$, 60° and 90°!

Expert-1

"The context of the question does not require the urgency to calculate the height of the passengers. Why do we have to calculate the height of the gondola passengers on the Ferris wheel above ground level? It would be better to add a story illustration to the question that triggers the urgency of the problem".

Expert-1 commented that there was no urgency to solve the "designing" problem. The expert thought that it was not important for students to answer or calculate the height of the gondola passengers, so the expert suggested that the researcher add a story illustration. Therefore, the researchers added an analogy. By being given the context of the analogy, students know the usefulness/ benefits of calculating the remaining gondola passengers at certain rotation angles (θ) if an accident occurs. After the assessment instrument was revised and its validity level was calculated, the next step was to analyze the students' answers. The following answers are categorized as creative students presented in Figure 2.

Figure 2 shows the results of S-7's work when answering problem number 1 (designing). Students are given the freedom to determine the height and diameter of the Ferris wheel themselves. S-7 is categorized as a student who is able to think creatively because S-7 has fulfilled the creative thinking assessment rubric which includes three aspects: originality, flexibility, and fluency. Originality is obtained when S-7 assumes the diameter and height of the Ferris wheel. On the worksheet, S-7 assumes that the diameter of the Ferris wheel is 300 meters and the height of the Ferris wheel is 70 meters. Then, flexibility is obtained when S-7 provides several views when the Ferris wheel rotates by 30° and 60°. Finally, S-7 fulfills the fluency aspect where all answers given by S-7 are considered correct and answer the problem.

Discussion

In research and development, validity and reliability tests are important to be applied to the instruments developed to ensure the quality of the product (Brinkman et al., 2017). Research should be preceded by a validity test followed by a reliability test. This is in line with the opinion of previous experts who stated that the key to development is product quality that can be guaranteed by validity and reliability testing (Plomp & Nieveen, 2014). In the first stage, the researchers conducted an analysis of the validity level of all instrument items. The CVI method was applied to measure the agreement on item relevance (Polit et al., 2007). The researchers refer to Polit & Beck (2006) where there are two different quantitative techniques for evaluating content validity, namely, I-CVI and S-CVI. Similar results were also found in previous studies, where How et al. (2024) produced a test instrument consisting of 17 problems to measure

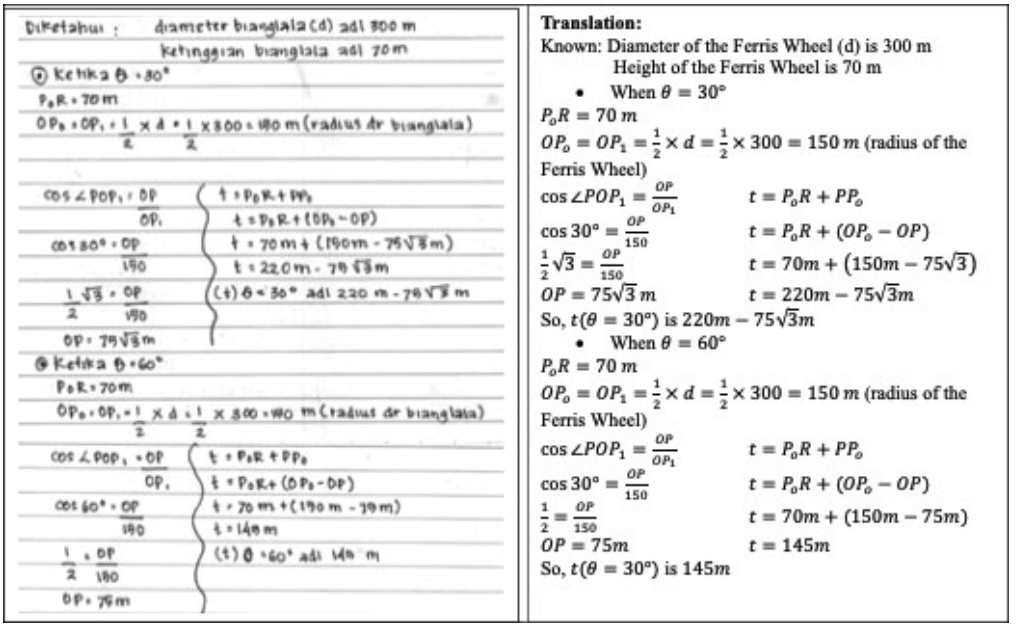


Figure 2 S-7's creative thinking work

students' HOTS. It was found that the S-CVI value was .98 and the I-CVI of each item was .70 so that all items were considered appropriate and acceptable. In addition to quantitative data, comments, and recommendations from all expert experts were also considered by the researchers. Although all items have been declared valid, the suggestions for improvement given by the experts are used by the researchers to revise the instruments to have better quality (Teferra et al., 2014). In line with (Adams & Wieman, 2011), an instrument that has been developed based on theory should be evaluated for its quality by a panel of experts. The assessment is qualitative and judgmental, where the instrument is assessed by someone who has expertise in the instrument being assessed, not by the author or designer of the instrument themselves (Baartman et al., 2007).

After the instrument is declared valid, the next step is to test the reliability of the items. The reliability test model is carried out using the ANATES 4.00 software. The use of ANATES 4.00 is suitable for descriptive instruments, in addition, the results of the analysis also include item reliability, difficulty level, and discriminant level (Rohmah, 2019). Based on quantitative analysis with the program, the results obtained are that the Alpha coefficient is .82 (reliable), the item difficulty level is in the range of .60−.65 (moderate), and the item discriminant level is in the range of .56−.70 (good). The higher the reliability coefficient value, the higher the accuracy or consistency of the instrument (Boone et al., 2014). Similar research was also conducted by Zulnaidi et al. (2020) where the reliability analysis also used the ANATES 4.00 program where the researchers developed a measuring instrument in the form of a summative test of 17 problems with a moderate level of reliability. Furthermore, the results of the analysis of the level of difficulty of all items are at a moderate level. Karno (1996) stated that a good question is a question that is classified as moderate with a level of difficulty in the range of .30−.70. Items with the "moderate" category mean that the item is classified as good where the item is not too easy and not too difficult. Previous experts said that questions that are too easy or difficult indicate that the question does not represent the material being taught (Loh et al., 2018). In addition, questions that are too easy will not encourage students to solve the problem and vice versa (Sharma, 2021). Finally, the results of the analysis related to the level of discrimination. The ANATES output of 4.00 shows that all assessment items developed have positive values and have good discrimination power. Previous experts said that good discrimination power means that test participants who have high scores have answered the question correctly or in other words, test participants with high scores cannot solve the problem (Marinac & Antonio, 2010). Items that have good discrimination power mean that the item can distinguish between students with high abilities and students with low abilities (Zulaiha et al., 2021).

The findings show that three assessment instruments based on alignment with the curriculum to measure creative thinking skills such as designing, planning, and making have been successfully developed. The assessment instruments developed reflect the desired learning achievement indicators in the curriculum, which are students' skills in generating new ideas and solving problems innovatively. This is in line with Wiliam et al. (2004) who emphasized the need for assessments that encourage the achievement of curriculum objectives, especially in the development of thinking skills. In the development process, it is important to ensure that the instruments developed are valid and reliable through a field trial process and a revision process based on feedback from experts as conveyed by (Zulnaidi & Zamri, 2017). Previous experts emphasized that student creativity can be measured using instruments that assess creative dimensions and are adjusted to the learning context in the nationally applicable curriculum (Cropley, 2000). This can be seen in the assessment instrument developed in this study, namely, the "Designing" assessment with the context of a Ferris Wheel (Table 4). Students are creatively able to design the Ferris Wheel ride by determining the height or diameter of the Ferris wheel so that it brings up aspects of creative thinking, which are fluency, flexibility, and originality. The results of similar studies support that students' creative thinking processes can be trained if students are given open-ended problems that provide space for students to be creative based on their abilities (Lin & Lien, 2013). Thus, the development of this instrument can be applied in various contexts of mathematics learning, especially for junior high school students, to facilitate a more meaningful assessment of students' creative potential.

The application of creative thinking assessment instruments in mathematics learning has been carried out in various educational contexts to measure and train students' creative thinking skills. The assessment instrument developed in this study was used to evaluate the dimensions of creative thinking, which are originality, flexibility, and fluency in solving problems related to life around students as in line with previous research that creative thinking assessments assess these dimensions (Syahrin et al., 2019). In a study by

Newton & Newton (2010) conducted in elementary schools, creative thinking assessments were used as a tool to identify students' creative potential through open-ended problems that produced various alternative solutions. In the context of education at the secondary school and college levels, creative thinking assessment instruments are applied to encourage non-routine problem-solving and the development of innovative ideas on more complex mathematical concepts (Park et al., 2021). In addition, the application of creative thinking assessments can also support curriculum development that focuses more on 21st-century skills, especially critical and creative thinking skills. Through the assessment instruments that have been developed in this study, educators, especially at the junior high school level, can better understand and measure students' creative thinking skills and then design similar types of assessments to encourage students' mathematical creativity.

Overall, the creative thinking assessment for problem-solving in "Trigonometric Comparisons in Right Triangles" requires appropriate and valid measuring tools or instruments. The purpose of this study is to develop a valid and reliable assessment to measure students' creative thinking skills in solving non-routine problems in everyday life. This is in line with the findings of Lampert (2006) who reported that tests in the form of problems at a high-level thinking level such as critical and creative can encourage students to think deeply. In addition, a similar study was also conducted by Yang (2013) who compared the use of traditional assessments such as in textbooks in schools with contextual assessments at a high level. The findings show that contextual assessments at a high level such as creative thinking are more able to emphasize students' skills in exploring ideas and producing various original and relevant solutions. For example, in the creative thinking assessment, students are asked to design a strategy for problems in the surrounding environment so that variations in answers can emerge based on their imagination and creativity. This will certainly be different from traditional assessments which tend to focus on the skills of remembering facts or applying certain logarithms to answer problems (Rovai, 2000).

Conclusion and Recommendation

There are three significant findings in this research and development. First, the assessment instrument used to measure students' creative thinking based on the alignment of cognitive levels with the curriculum was successfully developed. The second important finding in this study is the validity analysis. The assessment instrument was declared valid in the "very high" category. The last finding is that the assessment instrument is considered reliable and can be used in direct learning in the classroom. All assessment items have a "high" level of reliability. This is supported by the results of the analysis of the discriminant index and the difficulty index of each item. The results of the discriminant index show that each item developed has a "good" discriminant index. However, all items have a "moderate" level of difficulty.

The main limitations of this study lie in the small sample size of only 34 students involved and its limited geographical coverage (limited to East Java only). The limitations of using such samples reduce the generalizability of the findings because the data collected may not fully capture the diversity of perspectives and skills in the wider population. In addition, geographical constraints can create contextual biases that affect the development and application of creative thinking assessment instruments. In addition, another limitation is that the assessment instruments developed can only be applied to students if they are proficient or have mastered low-level skills such as remembering, understanding, and applying. If students do not master these basic skills, they will experience obstacles and difficulties in achieving creative thinking skills.

Furthermore, recommendations are made based on the findings and limitations in this study. The researchers provide several suggestions for future researchers of the same scope and also teachers or other parties who are authorized to develop assessments. First, the researchers suggest that each instrument can be validated by experts in their fields to ensure that the assessment developed is in accordance with the problems and objectives of the research. Second, for teachers or other parties who are authorized to develop assessments, the assessment products in this study can be used as a guideline when compiling assessments to measure students' creative thinking. However, the researchers suggest that teachers add or change the content of the problem so that the level of difficulty of the problem is at an easy, medium, and difficult level.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References

Adams, W. K., & Wieman, C. E. (2011). Development and validation of instruments to measure learning of expert-like thinking. *International Journal of Science Education*, *33*(9), 1289–1312. https://doi.org/10.1080/09500693.2010.512369

Anderson, L. W., Krathwohl, D. R. (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.

Baartman, L. K. J., Bastiaens, T. J., Kirschner, P. A., & van der Vleuten, C. P. M. (2007). Evaluating assessment quality in competence-based education: A qualitative comparison of two frameworks. *Educational Research Review*, *2*(2), 114–129. https://doi.org/10.1016/j.edurev.2007.06.001

Boone, W. J., Staver, J. R., & Yale, M. S. (2014). Person reliability, item reliability, and more. In W. J. Boone, J. R. Staver, & M. S. Yale (Eds.), *Rasch analysis in the human sciences* (pp. 197–212). Springer. https://doi.org/10.1007/978-94-007-6857-4_10

Bray, A., Byrne, P., & O'Kelly, M. (2020). A short instrument for measuring students' confidence with 'key skills' (SICKS): Development, validation and initial results. *Thinking Skills and Creativity*, *37*, 100700. https://doi.org/10.1016/j.tsc.2020.100700

Broadfoot, P., Weeden, P., & Winter, J. (2002). *Assessment: What's in it for schools?* Routledge.

Brookhart, S. M. (2010). *How to assess higher-order thinking skills in your classroom*. ASCD.

Brookhart, S. M., & Nitko, A. J. (2019). *Educational assessment of students* (8th ed.). Pearson Education.

Clark, I. (2015). Formative assessment: Translating high-level curriculum principles into classroom practice. *Curriculum Journal*, *26*(1), 91–114. https://doi.org/10.1080/09585176.2014.990911

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage.

Cropley, A. J. (2000). Defining and measuring creativity: Are creativity tests worth using? *Roeper Review*, *23*(2), 72–79. https://doi.org/10.1080/02783190009554069

Dilekçi, A., & Karatay, H. (2023). The effects of the 21st century skills curriculum on the development of students' creative thinking skills. *Thinking Skills and Creativity*, *47*, 101229. https://doi.org/10.1016/j.tsc.2022.101229

Ebel, R. L., & Frisbie, D. A. (1991). *Essentials of educational measurement* (5th ed.). Prentice Hall of India.

Fazal, K., Sarwar, U., Nargiza, N., Khan, B., & Qi, Z. (2023). Creative thinking in Pakistani public schools: A qualitative study of teachers' perspective and practices. *Creative Education*, *14*(4), 637–657. https://doi.org/10.4236/ce.2023.144042

Grant, L. W., & Gareis, C. R. (2013). *Teacher-made assessments: How to connect curriculum, instruction, and student learning*. Routledge. https://doi.org/10.4324/9781315855240

Guilford, J. P. (1942). *Fundamental statistics in psychology and education* (1st ed.). McGraw-Hill Book Company.

Hidajat, F. A. (2023). A comparison between problem-based conventional learning and creative problem-based learning on self-regulation skills: Experimental study. *Heliyon*, *9*(9), e19512. https://doi.org/10.1016/j.heliyon.2023.e19512

Hidajat, F. A., Sa'dijah, C., Sudirman, & Susiswo. (2019). Exploration of students' arguments to identify perplexity from reflective process on mathematical problems. *International Journal of Instruction*, *12*(2), 573–586. https://doi.org/10.29333/iji.2019.12236a

Hinton, P. R. (2014). *Statistics explained* (3rd ed.). Routledge. https://doi.org/10.4324/9781315797564

How, R. P. T. K., Zulnaidi, H., & Rahim, S. S. B. A. (2024). Development and validation of a teaching module based on the traditional approach of the Japanese bansho plan towards the mastery of quadratic equations. *International Journal of Information and Education Technology*, *14*(3), 411–425. https://doi.org/10.18178/ijiet.2024.14.3.2062

Karno T. (1996). *Mengenal analisis tes (Pengantar ke program komputer ANATES)* [Knowing the test analysis (Introduction to ANATES computer program)]. Bandung: Jurusan Psikologi Pendidikan dan Bimbingan Fakultas Ilmu Pendidikan IKIP Bandung. [in Indonesian]

Klenowski, V. (2009). Assessment for learning revisited: An Asia-Pacific perspective. *Assessment in Education: Principles, Policy and Practice*, *16*(3), 263–268. https://doi.org/10.1080/09695940903319646

Lampert, N. (2006). Enhancing critical thinking with aesthetic, critical, and creative inquiry. *Art Education*, *59*(5), 46–50. https://doi.org/10.1080/00043125.2005.11651611

Letassy, N. A., Medina, M. S., Britton, M. L., Dennis, V., & Draugalis, J. R. (2015). A progressive, collaborative process to improve a curriculum and define an assessment program. *American Journal of Pharmaceutical Education*, *79*(4), 55. https://doi.org/10.5688/ajpe79455

Lin, W. -L., & Lien, Y. -W. (2013). The different role of working memory in open-ended versus closed-ended creative problem solving: A dual-process theory account. *Creativity Research Journal*, *25*(1), 85–96. https://doi.org/10.1080/10400419.2013.752249

Loh, K. Y., Elsayed, I., Nurjahan, M. I., & Roland, G. S. (2018). Item difficulty and discrimination index in single best answer MCQ: End of semester examinations at Taylor's clinical school. In S. F. Tang & S. E. Cheah (Eds.), *Redesigning learning for greater social impact* (pp. 167–171). Springer. https://doi.org/10.1007/978-981-10-4223-2_15

Marinac, J., & Antonio, M. (2010). Discriminatory power analysis: An exemplar investigation. *Asia Pacific Journal of Speech, Language and Hearing*, *13*(2), 121–133. https://doi.org/10.1179/136132810805335128

Masuwai, A., Zulkifli, H., & Hamzah, M. I. (2024). Evaluation of content validity and face validity of secondary school Islamic education teacher self-assessment instrument. *Cogent Education*, *11*(1), 2308410. https://doi.org/10.1080/2331186X.2024.2308410

Nadjafikhah, M., Yaftian, N., & Bakhshalizadeh, S. (2012). Mathematical creativity: Some definitions and characteristics. *Procedia - Social and Behavioral Sciences*, *31*, 285–291. https://doi.org/10.1016/j.sbspro.2011.12.056

Newton, L., & Newton, D. (2010). Creative thinking and teaching for creativity in elementary school science. *Gifted and Talented International*, *25*(2), 111–124. https://doi.org/10.1080/15332276.2010.11673575

Park, J. H., Niu, W., Cheng, L., & Allen, H. (2021). Fostering creativity and critical thinking in college: A cross-cultural investigation. *Frontiers in Psychology*, *12*, 760351. https://doi.org/10.3389/fpsyg.2021.760351

Plomp, T., & Nieveen, N. (2014). *Educational design research: An introduction*. Netherlands Institute for Curriculum Development.

Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing and Health*, *29*(5), 489–497. https://doi.org/10.1002/nur.20147

Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Focus on research methods: Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing and Health*, *30*(4), 459–467. https://doi.org/10.1002/nur.20199

Purba, E., Sinaga, B., Mukhtar, M., & Surya, E. (2017). Analysis of the difficulties of the mathematical creative thinking process in the application of problem based learning model. In *Proceedings of the 2nd Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2017)* (pp. 265–268). Atlantis Press. https://doi.org/10.2991/aisteel-17.2017.55

Retnawati, H., Hadi, S., & Chandra Nugraha, A. (2016). Vocational high school teachers' difficulties in implementing the assessment in curriculum 2013 in Yogyakarta province of Indonesia. *International Journal of Instruction*, *9*(1), 33–48. https://doi.org/10.12973/iji.2016.914a

Reynolds, C. R., Livingston, R. B., & Willson, V. (2010). *Measurement and assessment in education* (2nd ed.). Pearson Education.

Rohmah, N. (2019). Validity and reliability study on teacher-made assessment for English mid-term examination. In *Proceedings of the Eleventh Conference on Applied Linguistics (CONAPLIN 2018)* (pp. 1222–1226). Atlantis Press. https://doi.org/10.2991/conaplin-18.2019.236

Rovai, A. P. (2000). Online and traditional assessments: What is the difference? *The Internet and Higher Education*, *3*(3), 141–151. https://doi.org/10.1016/S1096-7516(01)00028-8

Sharma, L. R. (2021). Analysis of difficulty index, discrimination index and distractor efficiency of multiple choice questions of speech sounds of English. *International Research Journal of MMC*, 2(1), 15–28. https://doi.org/10.3126/irjmmc.v2i1.35126

Syahida, H., & Dewi, L. (2023). Identifying 21st-century skills in the "Kurikulum Merdeka" at the elementary level numeracy aspect: A literature review. *International Conference on Elementary Education*, *5*(1), 308–314. https://proceedings2.upi.edu/index.php/icee/article/view/3119

Syahrin, A., Dawud, D., Suwignyo, H., & Priyatni, E. T. (2019). Creative thinking patterns in student's scientific works. *Eurasian Journal of Educational Research*, *19*(81), 21–36. https://dergipark.org.tr/en/pub/ejer/issue/45577/572905

Teferra, K., Shields, M. D., Hapij, A., & Daddazio, R. P. (2014). Mapping model validation metrics to subject matter expert scores for model adequacy assessment. *Reliability Engineering and System Safety*, *132*, 9–19. https://doi.org/10.1016/j.ress.2014.07.010

Wahira, W., & Hamid, A. (2023). The role of school accreditation in improving the quality of graduates. *Journal of Education Method and Learning Strategy*, *1*(2), 52–58. https://doi.org/10.59653/jemls.v1i02.54

Walker, D. F., & Soltis, J. F. (2004). *Curriculum and aims* (4th ed.). Teachers College Press.

Wiliam, D., Lee, C., Harrison, C., & Black, P. (2004). Teachers developing assessment for learning: Impact on student achievement. *Assessment in Education: Principles, Policy and Practice*, *11*(1), 49–65. https://doi.org/10.1080/0969594042000208994

Yang, D. (2013). Comparing assessments within junior geography textbooks used in mainland China. *Journal of Geography*, *112*(2), 58–67. https://doi.org/10.1080/00221341.2011.648211

Young, M. (2014). What is a curriculum and what can it do? *Curriculum Journal*, *25*(1), 7–13. https://doi.org/10.1080/09585176.2014.902526

Yuhastina, Y., Parahita, B. N., Astutik, D., Ghufronudin, G., & Purwanto, D. (2020). Sociology teachers' opportunities and challenges in facing "Merdeka Belajar" curriculum in the fourth industrial revolution (Industry 4.0). *Society*, *8*(2), 732–753. https://doi.org/10.33019/society.v8i2.234

Zana, F. M., & Susiswo, S. (2021). Creative thinking process of eighth graders in solving open-ended problems on triangles and quadrilaterals. *AIP Conference Proceedings*, *2330*(1), 040019. https://doi.org/10.1063/5.0043431

Zulaiha, R., Fahmi, Rahdiani, D., Rahman, A., & Al Anfal, M. F. (2021). Analysis of difficulty level and discriminating power between multiple choices and essay items on math test. In *Proceedings of the International Conference on Educational Assessment and Policy (ICEAP 2020)* (pp. 62–68). Atlantis Press. https://doi.org/10.2991/assehr.k.210423.065

Zulkardi, Z. (2002). *Developing a learning environment on realistic mathematics education for Indonesian student teachers* [Doctoral dissertation, University of Twente]. University of Twente. http://doc.utwente.nl/58718/1/thesis_Zulkardi.pdf

Zulnaidi, H., Oktavika, E., & Hidayat, R. (2020). Effect of use of GeoGebra on achievement of high school mathematics students. *Education and Information Technologies*, *25*(1), 51–72. https://doi.org/10.1007/s10639-019-09899-y

Zulnaidi, H., & Zamri, S. N. A. S. (2017). The effectiveness of the GeoGebra software: The intermediary role of procedural knowledge on students' conceptual knowledge and their achievement in mathematics. *EURASIA Journal of Mathematics, Science and Technology Education*, *13*(6), 2155–2180. https://doi.org/10.12973/eurasia.2017.01219a

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High school science teachers' self-efficacy and teaching practice on socio-scientific issue-based teaching

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Abstract

Self-efficacy has a tendency for teachers to adopt new instructional methodologies and affects good teaching practices. To enhance science teachers' self-efficacy and teaching practices using SSI-based teaching in a specific school context, this qualitative study aimed to investigate the following: (1) the level of self-efficacy of in-service science teachers in socio-scientific issue (SSI)-based teaching, (2) the current teaching practices of in-service science teachers in SSI-based teaching, and (3) the relationship between self-efficacy and teaching practices in SSI-based teaching. Fifteen science teachers were selected through purposive sampling at a high school in northeast Thailand. To achieve this, the study used the following instruments: questionnaires to assess the current situation of SSI-based teaching practices and self-efficacy levels and semi-structured interviews to evaluate the SSI-based teaching practices and self-efficacy levels of the study group. The data obtained from the study were analyzed using descriptive statistics and content analysis. The results indicated that the self-efficacy level of the study group in SSI-based teaching was moderate ($\bar{x}$ = 3.22, SD = 0.99). While five out of the 15 science teachers (33.33%) claimed to use SSI-based teaching in their science classrooms, their teaching practices failed to cover the entire SSI-based teaching framework. The study also found a relationship between self-efficacy and teaching practice in the study group in SSI-based teaching. The study concluded that it is critical to design a professional development program that focuses on enhancing self-efficacy and teaching practices in SSI-based teaching.

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Introduction

The current world is characterized by fragility, complexity, and incomprehensibility (BANI world) (Godoy & Ribas Filho, 2021), which is continuous with the VUCA world (Stein, 2021), which is a volatile world in the COVID-19 era society. Many complex issues that cannot be resolved through science alone have arisen. For instance, which vaccine is the best for COVID-19? These issues are often classified as having no definitive answer and an acceptable answer leads to a decision. Given that we live in a society full of such complex scientific issues, people require a wide range of comprehension and abilities to navigate them (Kay, 2010).

Thailand is committed to improving education to develop students' capabilities in a complex world. The National Strategy (2018–2037) mandates educational reforms aligned with 21st-century changes (National Strategy Secretariat Office, 2018). The National Education Act B.E. 2544 (1999) and its amendment emphasize authentic experiences and the integration of subjects to foster management, thinking, and facing real situation abilities (National Education Commission, 2002). Additionally, the revised benchmarks and core content strands for science (2017) set goals for effective science learning linked to real-world issues (Ministry of Education, 2017). Despite these efforts, Thailand's science literacy in the 2022 Programme for International Student Assessment (PISA) remains below the OECD average, consistent with the 2018 results (The Institute for the Promotion of Teaching Science and Technology [IPST], 2021, 2023). To improve scientific literacy, incorporating additional elements into science learning activities is recommended.

Based on literature reviews, Socio-Scientific Issue (SSI)-based teaching positively affects students' scientific literacy and scientific reasoning (Zeidler et al., 2019). It is the instruction using SSI, which is a real issue that actually occurs in society that is related to science, with no definitive answer, which has caused controversy in society. To find an issue solution, such cannot use only science, but requires considering information from many aspects, such as science, society, the economy, politics, morality, and ethics in the classroom (Ban & Mahmud, 2023; Sadler, 2011). Moreover, literature suggests that SSI-based teaching helps develop students' argumentation (Dawson & Carson, 2018), critical thinking (Solbes et al., 2018), responsible citizenship (Georgiou & Kyza, 2023), and nature of science (Khishfe, 2022). These skills are essential for life in the BANI world.

Although learning through SSI affects the development of students in various ways, according to the literature review, many science teachers are unaware of SSI and lack confidence in integrating SSI into their teaching because of insufficient professional development and resources. There is a need for science teachers to be encouraged in teaching practice and ensuring the implementation of SSI in the classroom (Bicaj et al., 2024; Chen & Xiao, 2021; Saunders & Rennie, 2011). Although there are some SSI-based teaching researches in Thailand, google scholar database, for the context of Udonthani Province, many teachers are unaware of such and not familiar with it.

Enhancing science teacher practice in new teaching method requires self-development to enhance self-efficacy (Barni et al., 2019). Researchers have found that to enhance self-efficacy in SSI-based teaching, a method course that emphasizes vicarious experiences and mastery experience was used to foster the level of self-efficacy (Kinskey & Callahan, 2021; Muğaloğlu et al., 2016). Therefore, it is necessary to promote both self-efficacy and teaching practices in the use of SSI-based teaching for science teachers.

Based on the background and significance mentioned above, the following research questions were investigated: (1) What is the status of SSI-based teaching?, (2) What is the current state of self-efficacy in SSI-based teaching?, and (3) What is the relationship between self-efficacy and SSI-based teaching practice? The results of this study will inform the critical components of the design and educational policy of professional development activities to enhance self-efficacy and teaching practices related to SSI-based instruction.

Literature Review

Socio-Scientific Issue-Based Teaching

Socio-Scientific Issues (SSI) are real issues that occur in society and are related to science, and no definitive answer has caused controversy in society. Such represents an open-ended question with no clear answers and diverse possible answers. These answers are derived from principles, theory, and science data. However, scientific knowledge alone cannot be used to comprehensively determine the answers to the question, which are influenced by various factors including social, economic, political, and ethical factors (Ban & Mahmud, 2023; Sadler, 2011).

SSI-based teaching is an instructional approach that uses SSI in the classroom. It was developed from the Science Technology Society Environment Education (STSE) approach, which enables students to make decisions based on moral and ethical principles (Pitiporntapin, 2015; Sadler, 2004). The theory related to SSI-based teaching is socio-constructivism, which is a learning theory that emphasizes the importance of social interactions and cultural context in the construction of knowledge. It posits that learning occurs through collaboration and dialogue among individuals (van Hover & Hicks, 2017).

SSI-Based Teaching Practices

There were several effective practices for achieving success in SSI-based teaching. Researchers have synthesized SSI-based teaching practices according to the framework of SSI-based teaching to consider SSI-based teaching practices in this research and utilize SSI-based teaching effectively in the classroom. Such consists of the following 10 key characteristics (Pitpiorntapin & Topcu, 2016; Presley et al., 2013; Sadler, 2011; Topçu et al., 2017): (1) Curriculum analysis and appropriate application of SSI to learning standards and indicators; (2) Designing learning activities to connect science with students' real lives through the SSI; (3) Presenting SSI in the early stages and using it to drive whole learning activities; (4) Using media and technology to connect SSI to the real world; (5) Organizing learning activities to encourage students' cooperative learning to find answers to the SSI; (6) Providing opportunities for students to search and gather information related to SSI; (7) Organizing learning activities by giving students and teachers opportunities to interact on the basis of mutual respect and safety to express opinions about the issues; (8) Organizing learning activities by providing opportunities for students to negotiate based on the social, moral, and ethical aspects of SSI; (9) Organizing learning activities encouraging students' advanced practices such as data collection, data analysis and interpretation, argumentation, reasoning, and decision-making; and (10) Designing the lesson consisting of formative and summative assessments.

Self-Efficacy on Socio-Scientific Issue-Based Teaching

Self-efficacy refers to a teacher's perception of their ability to plan, manage, and execute learning activities to achieve educational targets, which influences a person's decisions, motivations, and actions (Bandura, 1986; Skaalvik & Skaalvik, 2019). This was underpinned by Albert Bandura's Social Cognitive Theory, which emphasizes the role of observational learning, imitation, and modeling in behavior (Bandura, 1997). A number of educators in education determined self-efficacy. They found that having a high level of self-efficacy has positive effects on teaching practice and pupil learning outcomes, and instructors who possess a high degree of self-efficacy have a tendency to adopt new instructional methodologies and affect good teaching practices. New teaching methods were used (Barni et al., 2019; Ross & Bruce, 2007). However, previous research on self-efficacy in SSI-based teaching practices is limited. Researchers have found that to enhance self-efficacy in SSI-based teaching, a method course that emphasizes vicarious experiences and mastery experience was used to foster self-efficacy (Kinskey & Callahan, 2021; Muğaloğlu et al., 2016). However, verbal persuasion and emotional arousal, which are part of Bandura's original source of efficacy, are still necessary. To assess SSI-based teaching self-efficacy, three approaches were revealed: (1) using STEBI (Kinskey & Callahan, 2021); (2) using modified STEBI (Muğaloğlu et al., 2016); and (3) using instruments that created the item and scale based on the researchers' SSI-based teaching framework (Ozcan-Ermis & Hervé, 2024). Thus, the third approach was used to assess self-efficacy in this research, and the instrument was created based on 10 items SSI-based teaching practices created by the researchers to cover every practice in SSI-based teaching.

Dimensions of Self-Efficacy

To cover the dimension of self-efficacy, this study used self-efficacy dimensions based on Bandura (1997), in which the terms magnitude, strength, and generality refer to the different aspects of self-efficacy. Magnitude relates to the difficulty level of the task, and a person who believes that they can handle it is more likely to act on that belief. Strength refers to the level of conviction that a person has in their ability to complete a task. When a person is strongly convinced that they can accomplish a task, they will be more persistent in the face of obstacles. Generality refers to a person's ability to apply past experiences and skills to new situations, as shown in Figure 1.

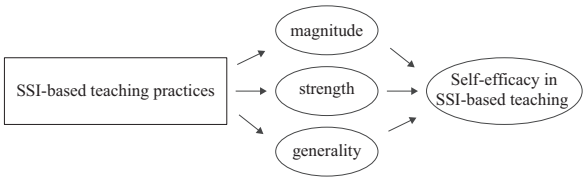


Figure 1 Self-efficacy in the SSI-based teaching framework

Methodology

An interpretive paradigm served as the foundation for this qualitative study. The researcher used an exploratory research process by collecting qualitative data on the status of SSI-based teaching practices and self-efficacy in using SSI-based teaching; the collected data were then analyzed, interpreted, and concluded.

School Context

The study group's school is a large secondary school that offers classes to students from grade seven to grade 12. It is a world-class standard school that has achieved the Office for National Education Standards and Quality Assessment (Public Organization) fourth round of external quality certification. Science classrooms are equipped with teaching and learning facilities, and there are enough teachers in the science department to organize learning activities according to the school curriculum.

Participants

The participants were 15 science teachers at a large secondary school under the Secondary Educational Service Area Office Udon Thani, the first large school that responded to participate in the research using a questionnaire after asking every large secondary school in Udon Thani province. The teachers were selected using purposive selection based on specific criteria: being a science teacher in the science and technology department at the selected school and voluntarily agreeing to participate in the research. They would choose to join the next stage, which is a study based on the school context. The group consisted of four males and 11 females with service ages ranging between two and 35 years. Details of the participants are presented in Table 1.

Data Collection

The researcher used open-ended questionnaires and semi-structured interviews to collect information on the status of SSI-based teaching practices and self-efficacy in SSI-based teaching, which were developed using an adapted version of Kallio et al. (2016) as following;

The researcher reviewed the literature, then the instruments to collect information on the status of SSI-based teaching practices (ITPs) were created based on SSI-based teaching practices synthesized by the researcher. The instruments to collect information on self-efficacy in SSI-based teaching (ISEs) were created based on SSI-based teaching practice and the three dimensions of self-efficacy (magnitude, strength, and generality). ITPs were then checked by three experts in SSI-based teaching. ISEs were checked by two experts in SSI-based teaching and one expert on self-efficacy. All the items were approved and revised according to their recommendations, for example, the suitability of language use and validity with an SSI-based teaching approach. Subsequently, it was tested with non-study group science teachers to improve the items that were difficult to understand and consider the time used in each instrument before data collection.

The questionnaires for the current situation of socio-scientific issue-based teaching practices consisted of three parts: first, gathering participants' general information, second, 16 open-ended items for collecting the teaching practice information, and third, the willingness to participate in professional development programs. The semi-structured interview form for socio-scientific issue-based teaching practices consisted of two parts: the first part was for collecting general information, and the second part consisted of nine items for teachers who have experienced SSI and seven items for teachers who have not experienced SSI.

The questionnaires for the current situation of self-efficacy in SSI-based teachings consisted of three parts: First part was) collecting general information, second part) 33 items, in which each item consisted of a question with five levels of self-efficacy checklist and the blank for giving the reason, and the third part was the willingness to participate in a professional development program.

Table 1 The participants' information

List	Number (persons)
Gender	
Male	4
Female	11
Age of service (Year)	
1–5	4
6–10	2
11–15	2
16–20	2
> 20	5
Teaching Area	
General Science	6
Physics	1
Chemistry	3
Biology	4
Earth Science and Astronomy	1

The semi-structured interview form for self-efficacy in SSI-based teachings consisted of two parts: the first part was for collecting general information, and the second part consisted of 33 items for collecting self-efficacy in using SSI-based teaching.

The researcher obtained permission from the school director before data collection. They distributed questionnaires and were allowed one month to complete such before manual collection. For the interviews, the researcher made appointments at convenient times for the study group. This research was conducted in compliance with the ethical standards set by the Research Ethics Committee.

Data Analysis

Each participant was assigned a code from T01–T15. To analyze self-efficacy in SSI-based teaching, the data collected by open-ended questionnaires and semi-structured interviews were interpreted to the perception level, converted into numbers, and Microsoft Excel was used to analyze the status of self-efficacy data on SSI-based teaching using descriptive statistics, such as mean and standard deviation, and then interpreting the level of self-efficacy. The criteria for interpretation were as follows (Srisa-ard, 2010):

4.51–5.00	The highest level of self-efficacy (TH)
3.51–4.50	High level of self-efficacy (H)
2.51–3.50	Moderate level of self-efficacy (M)
1.51–2.50	Low level of self-efficacy (L)
1.00–1.50	The least level of self-efficacy (TL)

Analysis of the current state of SSI-based teaching practices. Qualitative data were collected using an open-ended questionnaire, and semi-structured interviews were analyzed using deductive thematic analysis. (1) Defining themes in advance: The SSI-based teaching practice framework synthesized by the researcher was used; (2) Data Analysis: Apply predefined themes to the collected data to examine relationships and the degree of congruence with the data; (3) Synthesizing Results: summarize and present the findings related to the themes that have been established (Terry et al., 2017).

Results

1. The Current Status of Self-Efficacy in SSI-Based Teaching

The researcher then analyzed the status of self-efficacy in SSI-based teaching. The overall status of self-efficacy in SSI-based teaching of three dimensions was according to the list of SSI-based teaching practices, which is a framework for SSI-based teaching. It was found that "using media and technology to connect SSI to the real world" was the only item where the study group had a high level of self-efficacy. The other items had a moderate level of self-efficacy. The results are presented in Table 2.

Table 2 Self-awareness of one's ability to manage learning using science-based social issues

No	SSI-based teaching practices	Magnitude			Strength			Generality			Total		
		$\bar{x}$	*SD*	Level	$\bar{x}$	*SD*	Level	$\bar{x}$	*SD*	Level	$\bar{x}$	*SD*	Level
1	Curriculum analysis and appropriate application of SSI to learning standards and indicators.	3.07	0.96	M	3.20	1.01	M	3.20	1.01	M	3.16	0.99	M
2	Designing learning activities to connect science with students' real lives through the SSI.	3.27	0.96	M	3.20	1.08	M	3.40	0.98	M	3.29	1.01	M
3	Presenting SSI in the early stages and using it to drive whole learning activities.	2.93	1.03	M	3.06	0.96	M	3.00	1.00	M	3.00	1.00	M
4	Using media and technology to connect SSI to the real world.	3.67	0.90	H	3.53	0.92	H	3.53	0.99	H	3.58	0.94	H
5	Organizing learning activities to encourage students' cooperative learning to find answers to the SSI.	3.00	1.07	M	3.33	1.05	M	3.20	1.08	M	3.18	1.07	M
6	Providing opportunities for students to search and gather information related to SSI.	3.27	0.96	M	3.33	0.98	M	3.27	0.96	M	3.29	0.97	M
7	Organizing learning activities by giving students and teachers opportunities to interact on the basis of mutual respect and safety to express opinions about the issues.	3.20	1.01	M	3.40	1.06	M	3.27	0.96	M	3.29	1.01	M

Table 2 Continued

No	SSI-based teaching practices	Magnitude			Strength			Generality			Total		
		$\bar{x}$	*SD*	Level	$\bar{x}$	*SD*	Level	$\bar{x}$	*SD*	Level	$\bar{x}$	*SD*	Level
8	Organizing learning activities by providing opportunities for students to negotiate based on the social, moral, and ethical aspects of SSI.	3.27	0.96	M	3.40	1.06	M	3.00	1.00	M	3.22	1.01	M
9	Organizing learning activities encourages students' advanced practices such as data collection, data analysis and interpretation, argumentation, reasoning, and decision-making.	2.93	0.80	M	3.00	0.85	M	3.13	0.92	M	3.02	0.86	M
10	Designing the lesson consisted of formative and summative assessments.	3.07	1.10	M	3.20	1.01	M	3.20	1.01	M	3.16	1.04	M
Total		3.17	0.98	M	3.27	1.00	M	3.22	0.99	M	3.22	0.99	M

2. The In-Service Science Teacher's Status of Teaching Practices in SSI-Based Teaching

The researcher used the question "Have you ever used actual news or social issues in your context to organize your learning? How did you use it?" and "Have you ever used the real issues that have not yet been clearly answered or have not yet been resolved, related to science, morals and ethics, in your science classroom? How did you use it?" I found that five participants (33.33%) used SSI in their classrooms. The issue they used was the real issue, with no clear or unresolved answer related to science, morality, and ethics. Examples of the SSI content used by the study group were the acceptance of GMOs (T08), using antibiotics on a pig farm (T11). Ten participants (66.67%) used issues related only to the content subject in the classroom, for instance, grass removal using herbicides, chemicals used will return to the body (T09), treatment the various diseases with chemicals (T12).

When analyzing data from the questionnaires and the semi-structured interviews of five participants (T04, T07, T08, T11, and T12) who claimed to have used SSI in the science classroom with an SSI-based teaching practice framework, it was found that their practice did not cover the practice based on the SSI-based teaching practice framework. Two of them (T07 and T11) followed seven in ten items following the SSI-based teaching practice framework, two of them (T04 and T08) followed five practices, and one of them (T12) followed only three practices. The results are presented in Table 3.

Table 3 SSI-based teaching practices of teachers who used SSI in the classroom

No	SSI-based teaching practices	The practice of participants who used SSI				
		T04	T07	T08	T11	T12
1	Curriculum analysis and appropriate application of SSI to learning standards and indicators.	✓	✓	✓	✓	-
2	Designing learning activities to connect science with students' real lives through the SSI.	✓	✓	✓	✓	✓
3	Presenting SSI in the early stages and using it to drive whole learning activities.	✓	✓	-	✓	-
4	Using media and technology to connect SSI to the real world.	✓	✓	✓	✓	✓
5	Organizing learning activities to encourage students' cooperative learning to find answers to the SSI.	-	✓	-	✓	-
6	Providing opportunities for students to search and gather information related to SSI.	✓	✓	✓	✓	✓
7	Organizing learning activities by giving students and teachers opportunities to interact on the basis of mutual respect and safety to express opinions about the issues.	-	✓	✓	✓	-
8	Organizing learning activities by providing opportunities for students to negotiate based on the social, moral, and ethical aspects of SSI.	-	-	-	-	-
9	Organizing learning activities encourages students' advanced practices such as data collection, data analysis and interpretation, argumentation, reasoning, and decision-making.	-	-	-	-	-
10	Designing the lesson consisted of formative and summative assessments.	-	-	-	-	-
Total amount of practice		5	7	5	7	3
Percentage		50.00	70.00	50.00	70.00	30.00

Note: SSI = Socio-Scientific Issue. ✓ indicates the teaching practice was Present (used) by the teacher; - indicates the teaching practice was Absent (not used) by the teacher.

From Table 3, based on the list of SSI-based teaching practices, it can be summarized as follows:

1) Curriculum analysis and appropriate application of SSI to learning standards and indicators. Four of five participants (T04, T07, T08, and T11) who claimed to use SSI-based teaching in the classroom followed the SSI-based teaching practice, analyzed the curriculum, and applied SSI related to indicators in learning activities, such as "the UFO discovery that former U.S. officials claimed to have discovered. The issues used correlate with learning standards and indicators in the course (T04)." "Should antibiotics be used in pig farming? Why? which may be the cause of drug resistance through natural selective excision, which is consistent with the evolutionary topic in the subject curriculum (T11)."

2) Designing learning activities to connect science with students' real lives through SSI. All participants who claim to use SSI-based teaching in the classroom designed learning activities using SSI to connect science in the classroom with students' real lives, such as the expressed sentence from the participants, "The goal of using SSI is for organizing science learning for student real life, to connect to real life (T07).", "Students can connect science knowledge to their daily lives (T11)."

3) Presenting SSI in the early stages and using it to drive the entire learning activities. The table shows that three of the five participants who claimed to use SSI-based teaching presented the issue at the beginning, and then drove learning activities throughout the class, for instance, the issue "which planets can sustain humans?" The teacher started the class with the issue and then referred to the origin of the universe, the galaxy; students analyzed the planetary data in the solar system and the discovery of planets outside the solar system that are suitable for life, the news of the discovery of UFO (T04).

4) Using media and technology to connect SSI to the real world. As shown in Table 3, all five teachers who claimed to use SSI-based teaching used technology to connect classrooms to SSI in the real world. The media used are diverse, such as using VDO, simulating application in a NASA lab emulator to see a comparison of star distances (T04), using clips chosen from neutral content (T07), using star map, PowerPoint, and video clips (T08); examples of diverse media used are VDO, academic articles, computer programs, internet, worksheets by considering the correct and suitable content to the student, and interest in arousing student interest (T11).

5) Organizing learning activities to encourage students' cooperative learning to find answers to the SSI. From the table, two out of five science teachers who used SSI-based teaching in the classroom encouraged cooperative learning of students to find answers to SSI, such as genetic engineering issues, and the students in each group discussed the effects of genetic engineering based on prior knowledge. The procedure starts by forming a group of students; students consult with each other, then search for related data, and finally, students present the results. The other three science teachers did not focus on learning activities that relied on student cooperation to obtain answers.

6) Providing opportunities for students to search for and gather information related to SSI. Table 3 shows that the five science teachers who claimed to use SSI based teaching in the classroom designed the learning by giving the students opportunity to search and collect information related to such issues, such as "whether antibiotics should be used in pigs?" The learning activities started with a presentation on antibiotic use, and then students searched for information related to the issue, such as natural selection, drug resistance, antibiotic use in pigs, impact on people, the economy, and morality; then, the student was role-played as someone involved, and finally allowing students' decisions (T11).

7) Organizing learning activities by giving students and teachers the opportunity to interact on the basis of mutual respect and safety to express opinions about the issues. The table shows that three out of five science teachers who claimed to use SSI-based teaching in the classroom (T07, T08, and T11) conducted learning activities that allowed students and teachers to interact on the basis of mutual respect. It is safe to express opinions and exchange knowledge about issues. The rest of these teachers did not design activities that encouraged interaction, discussion, and exchange of learning, such as the issue of "which planets can sustain humans?" The teacher starts by referring to the origin of the universe and the galaxy; students analyzed the planetary data in the solar system and the discovery of planets outside the solar system that are suitable for life, and analyzed the news of the UFO discovery (T04).

When considering the list of practices that are practiced by everyone versus the list of practices that are not practiced at all, it was found that the list of SSI-based teaching practices that all five science teachers who claimed to use SSI-based teaching in the classroom performed consisted of three items: (1) Designing learning activities to connect science with students' real life through SSI; (2) Using media and technology for connecting the SSI to the real world; and (3) Providing opportunities for students to search and gather information related to SSI, while the list of practices that these

science teachers did not perform consisted of three items: (1) Organizing learning activities with opportunities for students to negotiate based on social, morals, and ethics to SSI; (2) Organizing learning activities encouraging students' advanced practices, such as data collection, data analysis and interpretation, argumentation, reasoning, decision-making, etc.; and (3) Designing the lesson which consisted of formative and summative assessments.

3. The Relationship between Self-Efficacy and SSI-Based Teaching Practices

The results of analyzing the status of self-efficacy and SSI-based teaching practices of the study group who claimed to use SSI in the classroom individually are shown in Table 4.

Table 4 Status of self-efficacy and SSI-based teaching practices of the study group who claimed to use SSI in the classroom individually

Teacher Code	Total self-efficacy			The number of practices followed SSI based teaching practices framework.
	$\bar{x}$	*SD*	Level	
T04	3.37	0.49	M	5 out of 10
T07	3.70	0.33	H	7 out of 10
T08	3.37	0.50	M	5 out of 10
T11	3.30	0.47	M	7 out of 10
T12	3.57	0.53	H	3 out of 10

Table 4 shows that the SSI-based teaching practice and self-efficacy in using SSI-based teaching of most teachers who claimed to use SSI in the classroom are in the same direction (T04, T07, and T08). This means that if SSI-based teaching practices are high, self-efficacy in using SSI-based teaching would be high. In other words, if SSI-based teaching practices are low, self-efficacy in using SSI-based teaching would be low. Meanwhile, SSI based teaching practices and self-efficacy in using SSI-based teaching of two teachers are in opposite directions (T11, and T12).

Discussion and Conclusion

According to the results, the level of self-efficacy in SSI-based teaching of the study group who claimed to use SSI in the classroom is at a moderate level, which is equal to that of the participants who are not experienced with SSI-based teaching. Although the average self-efficacy of the group who had experienced SSI-based teaching was higher than that of the group who had not experienced it, self-efficacy was not at a high level. This may be because the group who claimed to use SSI in the classroom had not studied SSI-based teaching and how to use it in the science classroom before, either by engaging in teacher development programs or self-education. This is the cause of the manifest incomprehension. As a result, there is a self-efficacy in SSI-based teaching at a not very high level. This is at the same level as the non-experience group with SSI-based teaching in their classrooms. This related to the study of Ross and Bruce (2007) and Barni et al. (2019), where it has been recommended that having a high level of self-efficacy affects good teaching practice. New teaching methods were used, which differed from those of teachers with low self-efficacy levels.

There are many variables affecting the teacher-adapted new teaching method: self-efficacy plays a role in encouraging teachers to try new methods, such as implementing SSI in their classrooms, because self-efficacy enhances their confidence in skills; teachers with high self-efficacy believe that they possess the skills necessary to implement new teaching methods effectively. (Bandura, 1997). Moreover, self-efficacy encourages teachers to experiment with SSI strategies, and studies have found that self-efficacy has positive resilience to challenges (Pillay et al., 2022), which supports ongoing attempts at new teaching rather than giving up when faced with challenges. Moreover, self-efficacy fosters a positive attitude toward change (Wijaya & Sutojo, 2024), and teachers with high self-efficacy can easily change and use new teaching methods. Providing teachers with opportunities to face mastery experiences, vicarious experiences, verbal persuasion, and emotional arousal could enhance their self-efficacy in teaching (Bandura, 1997; Pitkäniemi et al., 2024).

When considering SSI-based teaching practices. It was found that not all teachers who claimed to use SSI-based teaching in the classroom followed the SSI-based teaching framework synthesized by the researcher. When considering the item of SSI teaching practices, it was found that there was a lack of three practices: (1) organizing learning activities by providing opportunities for students to negotiate based on social, moral, and ethical aspects of SSI; (2) organizing learning activities encouraging students' advanced practices, such as data collection, data analysis and interpretation, argumentation, reasoning, and decision-making; and (3) designing the lesson consisting of formative assessment and summative assessment, which are the items based on the SSI-based teaching practice framework synthesized by the researcher (Pitpiorntapin & Topcu, 2016; Presley et al., 2013; Sadler, 2011; Topçu et al., 2017).

It shows that both groups that claimed to use SSI-based teaching in the classroom and the group who did not experience SSI-based teaching need to be developed and promoted to be teachers who use SSI-based teaching effectively based on an SSI-based teaching practice framework. This will promote the advanced practice for learners (Herman et al., 2018), scientific literacy and scientific reasoning (Zeidler et al., 2019), critical thinking (Solbes et al., 2018), argumentation (Dawson & Carson, 2018), responsible citizenship (Georgiou & Kyza, 2023), and the nature of science (Khishfe, 2022). These skills are essential for living in the BANI world.

SSI-based teaching practice frameworks help to develop student higher-order thinking skills (HOTs) because teachers who implement SSI-based teaching practice effectively would enhance the practices that directly foster students' HOTs, such as critical thinking and decision-making. The example practice is "organizing learning activities encourages students' advanced practices, such as data collection, data analysis and interpretation, argumentation, reasoning, decision-making." The indirect way to enhance HOTs consists of providing opportunities for students to search and gather information related to SSI, organizing learning activities by giving students and students, students, and teachers opportunities to interact on the basis of mutual respect and safety to express opinions about the issues, and organizing learning activities by giving students opportunities to negotiate based on social, moral, and ethical aspects of SSI (Pitpiorntapin & Topcu, 2016; Presley et al., 2013; Sadler, 2011; Topçu et al., 2017).

When considering the relationship between self-efficacy in SSI-based teaching and SSI-based teaching practices, it was found that the SSI-based teaching practice and self-efficacy in using SSI-based teaching of most teachers who claimed to use SSI in the classroom are in the same direction. If SSI-based teaching practices are high, self-efficacy in using SSI-based teaching will also be high. In other words, If SSI based teaching practices are low, self-efficacy in using SSI-based teaching will be low, and teachers with high self-efficacy tend to be better at using SSI frameworks which may be caused by self-efficacy playing a role in encouraging teachers to try SSI-based teaching, which is a new method for them, enhancing their confidence in the skills necessary to implement SSI-based teaching effectively (Bandura, 1997), and positive resilience to challenges (Pillay et al., 2022), which supports ongoing attempts at SSI teaching practices that are new teaching rather than giving up when faced with challenges.

The potential barriers to using SSI-based teaching by efficiency consist of lack of training, lack of appropriate resources, or time and resource constraints (Bicaj et al., 2024; Chen & Xiao, 2021; Saunders & Rennie, 2011). Therefore, the researcher should promote self-efficacy in SSI-based teaching and SSI-based teaching practice for both study groups in order to gain hands-on experience in efficiently promoting learners' learning according to the framework of the basic education curriculum.

Recommendation

According to the study, all of the study groups that claimed to use SSI-based teaching in the classroom lacked three practices, topics that should be used to develop and design teacher development programs that are conducive to promoting self-efficacy and teaching practices based on SSI-based teaching. In addition, the reader can also be used to adapt the SSI-based teaching framework to suit the teaching context of each school, such as simplifying some processes to make it easier for teachers to start and using the research results for policy purposes, by promoting self-efficacy to promote the practice of new teaching strategies or approaches that the teacher has not experienced before. However, this qualitative research aims to study the depth of variables in a specific context; its purpose is not to generalize the results or the uncertainty of the data. For further study, the outcomes of teacher development in SSI programs will increase self-efficacy and teaching.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

Ban, S., & Mahmud, S. N. D. (2023). Research and trends in socio-scientific issues education: A content analysis of journal publications from 2004 to 2022. *Sustainability*, *15*(15), 11841. https://doi.org/10.3390/su151511841

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman.

Barni, D., Danioni, F., & Benevene, P. (2019). Teachers' self-efficacy: The role of personal values and motivations for teaching. *Frontiers in Psychology*, *10*, 1645. https://doi.org/10.3389/fpsyg.2019.01645

Bicaj, A., Berisha, F., & Gisewhite, R. (2024). Exploring in-service science teachers' self-perceptions of competence and pedagogical approaches to socioscientific issues in education. *Education Sciences*, *14*(11), 1249. https://doi.org/10.3390/educsci14111249

Chen, L., & Xiao, S. (2021). Perceptions, challenges and coping strategies of science teachers in teaching socioscientific issues: A systematic review. *Educational Research Review*, *32*, 100377. https://doi.org/10.1016/j.edurev.2020.100377

Dawson, V., & Carson, K. (2018). Introducing argumentation about climate change socioscientific issues in a disadvantaged school. *Research in Science Education*, *50*(3), 863–883. https://doi.org/10.1007/s11165-018-9715-x

Georgiou, Y., & Kyza, E. A. (2023). Fostering chemistry students' scientific literacy for responsible citizenship through socio-scientific inquiry-based learning (SSIBL). *Sustainability*, *15*(8), 6442. https://doi.org/10.3390/su15086442

Godoy, M. F. de, & Ribas Filho, D. (2021). Facing the BANI world. *International Journal of Nutrology*, *14*(2), 33. https://doi.org/10.1055/s-0041-1735848

Herman, B. C., Zeidler, D. L., & Newton, M. (2018). Students' emotive reasoning through place-based environmental socioscientific issues. *Research in Science Education*, *50*(5), 2081–2109. https://doi.org/10.1007/s11165-018-9764-1

Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, *72*(12), 2954–2965. https://doi.org/10.1111/jan.13031

Kay, K. (2010). 21st century skills: Why they matter, what they are, and how we get there. In T. R. Davies & P. B. L. Schmidt (Eds.), *21st century skills: Rethinking how students learn* (pp. xiii–xxxi). Solution Tree Press.

Khishfe, R. (2022). Nature of science and argumentation instruction in socioscientific and scientific contexts. *International Journal of Science Education*, *44*(4), 647–673. https://doi.org/10.1080/09500693.2022.2050488

Kinskey, M., & Callahan, B. E. (2021). The influences of socioscientific issues on general science teaching self-efficacy. *Research in Science Education*, *52*(5), 1451–1465. https://doi.org/10.1007/s11165-021-09991-9

Ministry of Education. (2017). *ตัวชี้วัดและสาระการเรียนรู้แกนกลาง กลุ่มสาระวิทยาศาสตร์ (ฉบับปรับปรุง พ.ศ. 2560) ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551* [Benchmarks and core content strands, science subject areas (Revised version 2017) according to the Basic Education Core Curriculum 2008]. The Agricultural Cooperative Federation of Thailand Printing. [in Thai]

Muğaloğlu, E. Z., Küçük, Z. D., & Güven, D. (2016). Pre-service science teachers' self-efficacy beliefs to teach socio-scientific issues. *Uludağ Üniversitesi Eğitim Fakültesi Dergisi*, *29*(1), 95–110.

National Education Commission. (2002). *พระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2542 (1999) และที่แก้ไขเพิ่มเติม (ฉบับที่ 2) พ.ศ. 2542 (2002))* [National education act B.E. 2542 (1999) and amendments (Second National Education Act B.E. 2545 (2002))]. Prigwan Graphic. [in Thai]

National Strategy Secretariat Office. (2018). *ยุทธศาสตร์ชาติ พ.ศ. 2561–2580 (ฉบับย่อ)* [National strategy 2018–2037 (Summary)]. Office of the National Economic and Social Development Board. [in Thai]

Ozcan-Ermis, G., & Hervé, N. (2024). Identifying pre- and in-service teachers' stances on teaching socioscientific issues: A systematic review of empirical studies. *Canadian Journal of Science, Mathematics and Technology Education*, *23*(4), 741–764. https://doi.org/10.1007/s42330-023-00306-w

Pillay, D., Nel, P., & van Zyl, E. (2022). Positive affect and resilience: Exploring the role of self-efficacy and self-regulation. A serial mediation model. *SA Journal of Industrial Psychology*, *48*(1), 1–12. https://doi.org/10.4102/sajip.v48i0.1913

Pitiporntapin, S. (2015). *การจัดการเรียนรู้วิทยาศาสตร์กับสังคมแห่งศตวรรษที่ 21* [Science and social instruction for 21st century]. Neva Education.

Pitkäniemi, H., Hirvonen, R., Heikka, J., & Suhonen, K. (2024). Teacher efficacy, its sources, and implementation in early childhood education. *Early Childhood Education Journal*, *53*, 1705–1715. https://doi.org/10.1007/s10643-024-01713-w

Pitpiorntapin, S., & Topcu, M. S. (2016). Teaching based on socioscientific issues in science classrooms: A review study. *KKU International Journal of Humanities and Social Sciences*, *6*(1), 119–136. https://so04.tci-thaijo.org/index.php/kkuij/article/view/59481

Presley, M. L., Sickel, A. J., Muslu, N., Merle-Johnson, D., Witzig, S. B., Izci, K., & Sadler, T. D. (2013). A framework for socio-scientific issues based education. *Science Educator*, *22*(1), 26–32.

Ross, J., & Bruce, C. (2007). Professional development effects on teacher efficacy: Results of randomized field trial. *The Journal of Educational Research*, *101*(1), 50–60. https://doi.org/10.3200/joer.101.1.50-60

Sadler, T. D. (2004). Informal reasoning regarding socioscientific issues: A critical review of research. *Journal of Research in Science Teaching*, *41*(5), 513–536. https://doi.org/10.1002/tea.20009

Sadler, T. D. (2011). *Socio-scientific issues in the classroom: Teaching, learning and research* (Vol. 39). Springer Science & Business Media.

Saunders, K. J., & Rennie, L. J. (2013). A pedagogical model for ethical inquiry into socioscientific issues in science. *Research in Science Education*, *43*(1), 253–274. https://doi.org/10.1007/s11165-011-9248-z

Skaalvik, E. M., & Skaalvik, S. (2019). Teacher self-efficacy and collective teacher efficacy: Relations with perceived job resources and job demands, feeling of belonging, and teacher engagement. *Creative Education*, *10*(7), 1400–1424. https://doi.org/10.4236/ce.2019.107104

Solbes, J., Torres, N., & Traver, M. (2018). Use of socio-scientific issues in order to improve critical thinking competences. *Asia-Pacific Forum on Science Learning and Teaching*, *19*(1), Article 5. http://www.eduhk.hk/apfslt/v19_issue1/torres/index.htm

Srisa-ard, B. (2010). *การวิจัยเบื้องต้น* [Basic research]. Suweerivasarn. [in Thai]

Stein, S. (2021). Reimagining global citizenship education for a volatile, uncertain, complex, and ambiguous (VUCA) world. *Globalisation, Societies and Education*, *19*(4), 482–495. https://doi.org/ 10.1080/14767724.2021.1904212

Terry, G., Hayfield, N., Clarke, V., & Braun, V. (2017). Thematic analysis. In C. Willig & W. Stainton-Rogers (Eds.), *The SAGE handbook of qualitative research in psychology* (2nd ed., pp. 17–37). SAGE Publications.

The Institute for the Promotion of Teaching Science and Technology (IPST). (2021). *PISA 2018 results: Reading mathemetic and science*. In OECD. *PISA 2018 results (Volume I): What students know and can do*. https://doi.org/10.1787/5f07c754-en

The Institute for the Promotion of Teaching Science and Technology (IPST). (2023, December 1). *สสวท. แถลงข่าวผลการประเมิน PISA 2022* [IPST press conference on PISA 2022 assessment results] [Press release]. https://www.ipst.ac.th/news/54730/20231201-pisa2022.html [in Thai]

Topçu, M. S., Foulk, J. A., Sadler, T. D., Pitiporntapin, S., & Atabey, N. (2017). The classroom observation protocol for socioscientific issue-based instruction: Development and implementation of a new research tool. *Research in Science & Technological Education*, *36*(3), 302–323. https://doi.org/10.1080/02635143.2017.1399353

van Hover, S., & Hicks, D. (2017). Social constructivism and student learning in social studies. In P. C. VanSledright (Ed.), *The Wiley handbook of social studies research* (pp. 91–103). John Wiley & Sons.

Wijaya, A., & Sutojo, A. (2024). The role of readiness to change in fostering to change from transformational leadership, self-efficacy, behaviour on performance in digital industry. *Dinasti International Journal of Economics, Finance & Accounting (DIJEFA)*, *5*(3), 1350–1364. https://doi.org/10.38035/dijefa.v5i3

Zeidler, D. L., Herman, B. C., & Sadler, T. D. (2019). New directions in socioscientific issues research. *Disciplinary and Interdisciplinary Science Education Research*, *1*, Article 11. https://doi.org/10.1186/s43031-019-0008-7

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Effects of cognitive behavior therapy-based psychoeducation program on mental health among LGBTQ+ high school students

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Abstract

Despite the increasing prevalence of mental health issues among LGBTQ+ high school students, research on prevention interventions has remained limited. This quasi-experimental study aimed to develop and evaluate the effectiveness of Rainbow Psycho-care, a CBT-based psychoeducational group program to promote mental health in LGBTQ+ high school students. Thirty participants aged between 15 and 17 years were recruited and assigned to the experimental group (n = 15) and the control group (n = 15). Participants in the experimental group received a 12-session intervention, while those in the control group received no intervention. The Depression Anxiety Stress Scale (DASS-21) and protective factors on mental health problems for LGBTQ+ high school student questionnaire were administered at pre-intervention, post-intervention, and 1-month and 3-month follow-ups. The results indicated significant differences between the groups in stress, anxiety, and depression levels at the post-experiment, as well as at 1-month and 3-month follow-up periods ($p < .05$), with a large effect size ($\eta^2_p > 0.14$). Additionally, resilience and self-esteem differed significantly between groups across the assessment points ($p < .05$), with a large effect size ($\eta^2_p > 0.14$). However, positive psychology levels did not differ significantly ($p > .05$). These findings suggested that Rainbow Psycho-care effectively reduces stress, anxiety, and depression levels among LGBTQ+ high school students. Moreover, Rainbow Psycho-care demonstrated potential benefits in enhancing protective factors such as resilience, self-esteem, and positive psychology for LGBTQ+ high school students.

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Introduction

The LGBTQ+ community is currently gaining acceptance in a growing number of nations, but not enough for LGBTQ+ people to live happy lives (Payaksee, 2017). Moreover, Southeast Asia's mental health support programs for LGBTQ+ people aged 15 to 24 are inadequate in meeting their regional and national needs, despite the high prevalence of mental health issues among this demographic (Newman et al., 2022). This finding is consistent with research conducted in Thailand, which showed that more than fifty percent of LGBTQ+ Thai youths face problems arising from their sexual orientation, such as victimization, bullying, academic problems, suicidal behavior, social rejection, stigma, and discrimination (Mahidol University et al., 2014; Ojanen, 2009). These problems result in LGBTQ+ youths feeling guilty about their sexual orientation, having to hide, and being forced to change their sexual orientation, increasing their risk of suffering from mental health problems. In addition, LGBTQ+ face a high level of mental health problems, including stress, anxiety, and depression (Mahidol University et al., 2014; Rungruang et al., 2020). Moreover, LGBTQ+ youth in Thailand experience 16.3 percent more stress than cisgender youths (Lerdrat, 2022). Therefore, preventing mental health problems among LGBTQ+ youths in Thailand remains a priority.

The literature review on protective factors for mental health problems among LGBTQ+ youths indicated resilience, self-esteem, and positive psychology against mental health problems. LGBTQ+ youths with high resilience, self-esteem, and positive psychology have low mental health issues (Puckett et al., 2019; Toomey & Anhalt, 2016), protective factors for mental health problems assist LGBTQ+ youths in understanding and accepting themselves, recognizing their worth, and developing positive feelings and attitudes toward themselves. Therefore, building resilience, self-esteem, and positive psychology is crucial for improving positive emotions, optimism, and inner strength to help youth who face mental health problems caused by discrimination and stigma with sexual orientation (Baiocco et al., 2023; Toomey & Anhalt, 2016)

Cognitive Behavioral Therapy (CBT) is a psychotherapy strategy and is one of the most extensively researched treatments (David et al., 2018). CBT effectiveness in youths has been proven through meta-analysis research, particularly in addressing mental health issues in LGBTQ+ youths (Beck & Alford, 2009; Craig & Austin, 2016). CBT uses cognitive and behavioral strategies to assist individuals in better understanding themselves and developing self-awareness (Pityaratstian, 2022). Therefore, CBT protective factors were developed for mental health problems (Şahin & Türk, 2021). However, CBT has been recommended in combination with psychoeducation (Pinciotti et al., 2022; Sarkhel et al., 2020). Psychoeducation programs are a type of mental health support commonly used to aid people with mental health issues (Anderson et al., 1980), psychoeducation provides mental health knowledge and essential skills. That covers basic mental health problems, symptoms, expressions, and first aid, allowing participants to understand and apply this knowledge in their daily lives. Several academics altered and developed it to assist others suffering from mental health issues in different categories, such as stress, anxiety, and depression, and increase levels of protective factors against mental health problems (Ghanbari et al., 2021; Şahin & Türk, 2021).

However, limited research on preventing mental health issues among LGBTQ+ youths in Thailand and internationally highlights the need for empirical research to demonstrate the efficacy of CBT-based psychoeducation programs for LGBTQ+ youths. Therefore, this research aimed to develop the 'Rainbow Psycho-care', a CBT-based psychoeducational group program to promote mental health in LGBTQ+ high school students. This research has undertaken the first study to create a CBT-based psychoeducational group program called Rainbow Psycho-care in Thailand, aimed at promoting mental health in LGBTQ+ high school students. Before this study, LGBTQ+ youths in Thailand had not been the focus of group psychological activities using CBT-based psychoeducation to prevent mental health issues in those under the age of 18. The program aims to address the mental health needs of LGBTQ+ high school students by promoting and supporting their psychological well-being and filling gaps in mental health education.

Research Objective

To develop and evaluate the efficacy of a 12-session Rainbow Psycho-care program in promoting mental health among LGBTQ+ high school students

Hypothesis 1: Mean scores of mental health problems, including stress, anxiety, and depression in the experimental group at post-experiment, 1-month follow-up, and 3-month follow-up were different from the control group.

Hypothesis 2: The experimental group's mean scores of protective factors of mental health problems, including

resilience, self-esteem, and positive psychology at post-experiment, 1-month follow-up, and 3-month follow-up were different from those of the control group.

Literature Review

Mental Health Problems with LGBTQ+ Youths

LGBTQ+ youth may experience mental health issues as a result of factors related to their sexual orientation that they face in everyday life, such as not being accepted by those around them, discrimination, stigmatization, harassment, and bullying (Chavanduka et al., 2021). As a result, LGBTQ+ youth have difficulty living their lives, including working, studying, and caring for their health, which has an impact on their mental, physical, cognitive, and social well-being (Tinnam et al., 2020), that causes LGBTQ+ youth to be more likely than straight teenagers to suffer mental health issues such as stress, anxiety, and depression. Additionally, suppose LGBTQ+ youth suffer from mental health issues for an extended period without help, it may have an impact on their moods, cognitive processes, behavior, work or academic performance, and even lead to suicide (Hafeez et al., 2017).

Protective Factors on Mental Health Problems with LGBTQ+ Youths

The review literature found that resilience, self-esteem, and positive psychology effectively reduce the level of mental health problems in LGBTQ+ youth (Argyriou et al., 2021). However, LGBTQ+ youth have lower levels of protective factors against mental health problems than cisgender youth, owing to social issues such as stigma and discrimination based on sexual orientation (Hafeez et al., 2017). Nevertheless, LGBTQ+ youth may increase their protective factors against mental health problems by receiving emotional and social support from family, school, friends, or other LGBTQ+ youth (Puckett et al., 2019). Therefore, suppose LGBTQ+ teenagers have high levels of protective factors against mental health problems, this may improve their well-being, avoid mental health problems, and reduce risky behaviors among LGBTQ+ youth (Argyriou et al., 2021).

Cognitive Behavior Therapy (CBT)

Cognitive Behavioral Therapy (CBT) is a type of psychotherapy that involves changing thoughts and behaviors to reduce or modify problems with cognition, emotion, and behavior. The fundamental concept is that thoughts, feelings, behavior, and the body are interconnected. CBT is a clinically approved therapy for assisting people in dealing with mental health issues. It was discovered that CBT comprises 9 to 12 sessions of at least 20 minutes each and extends up to 2 hours, which effectively reduces the level of mental health problems, depending on the counselor's activity and attentiveness (Beck & Alford, 2009; Westbrook et al., 2007). CBT has been used to prevent mental health problems among LGBTQ+ youth and effectively increases the level of protective factors against mental health problems (Smith et al., 2017).

Psychoeducation

The psychoeducation program based on concepts of Anderson et al. (1980), is a model of care and assistance for schizophrenia patients and their families, consisting of four phases: (1) Connection with the family, (2) Teaching survival skills for living, (3) Reentry and application of survival skills to individual families, and (4) Maintenance. However, many academics have adapted and developed the format of psychoeducation programs to assist those experiencing mental health issues in different categories, such as stress, anxiety, and depression (Ghanbari et al., 2021) and increasing the level of protective factors for mental health issues (Şahin & Türk, 2021). Furthermore, a research review recommended the usage of psychoeducation to promote LGBTQ+ people's mental health and showed that combining psychoeducation with CBT increased the intervention's effectiveness (Pinciotti et al., 2022; Sarkhel et al., 2020).

Methodology

This study employed a quasi-experimental research design with four measurement periods (pre-intervention, post-intervention, one-month, and three-month follow-ups) with experimental and control groups.

Participants

Participants were recruited via purposive sampling from four Mueang District, Chiang Mai, Thailand secondary schools. Participants were eligible if: (1) being LGBTQ+ high school students; (2) their family members accepting and were aware of their gender identification; (3) aged between 15 and 18 years;

(4) completed the Depression Anxiety Stress Scale (DASS-21), with stress, anxiety, and depression levels ranging from normal to moderate; (5) had never been diagnosed with a stress disorder, anxiety disorder, or depression; (6) could attend the Rainbow Psycho-care on the dates and times specified by the researcher; (7) could communicate in Thai fluently; and (8) willingness to provide informed assent and have legal guardian willingly provide informed consent if aged under 18 years.

A priori analysis was calculated using the G*Power version 3.1 for sample size estimation, based on data from Pinto-Gouveia et al. (2016) ($N = 36$) by setting the statistical test to ANOVA: Repeated measure, within-between interaction. The power value was 80 percent of the recognized standard value, the statistical significance value $\alpha = .05$, and the partial eta squared (η^2_p) value was 0.06. Results showed that the necessary sample size with $f = 0.25$ was $N = 24$. To account for potential dropouts, the researcher increased the sample size to 32, representing a 30 percent increase. The 32 participants were randomly allocated to an experimental group ($n = 16$) and a control group ($n = 16$)

The matched-pair approach was used to select samples with comparable characteristics on a one-to-one basis in terms of age, grade, stress level, anxiety, depression, resilience, self-esteem, and positive psychology. Subsequently, the samples were divided into the experimental and control groups, one pair at a time, using simple random sampling determined by the lottery method. The experimental group received the intervention from June to July 2023, administered twice weekly for six weeks, totaling twelve sessions.

Measures

Depression anxiety stress scale (DASS-21)

The researcher used the Depression Anxiety Stress Scale (DASS-21), a 21-item self-report questionnaire used to assess stress, anxiety, and depression symptoms. The DASS-21 has been adapted and translated into Thai by Oei et al. (2013) and further improved by Pityaratstian and Buathong (n.d.). In this current study, the DASS-21 was tried out with 52 LGBTQ+ high school students for testing reliability. Results showed good internal consistency for stress, anxiety, and depression subscales ($\alpha = 0.76$, 0.73, and 0.75, respectively).

Protective factors for mental health problems questionnaire

The researcher developed resilience, self-esteem, and positive psychology scales for LGBTQ+ high school student questionnaire, which were evaluated for content validity using the Index of Item-Objective Congruence (IOC) by five psychology experts (two LGBTQ+ lecturers, two psychology lecturers, and one development psychology lecturer). The IOC value ranged between 0.60 and 1.00. The reliability was tested in groups similar to the sample. The resilience, self-esteem, and positive psychology questionnaires for LGBTQ+ high school students had reliability scores of 0.87, 0.90, and 0.91 respectively (Manee & Chupradit, 2024).

Intervention

The rainbow psycho-care

The researcher developed the Rainbow Psycho-care, a CBT-based psychoeducational group program to promote mental health in LGBTQ+ high school students by combining information from a literature review and the results of qualitative data that were obtained from information from in-depth interviews with eight experts on gender-diverse people and focus groups involving fifteen LGBTQ+ high school students (Manee & Chupradit, 2025).

Researchers developed Rainbow Psycho-care, a program that combines the concept of CBT with Anderson et al.'s psychoeducational approach (1980). It consists of implementing four parts of the mental health education method: (1) the develop relationship phase, (2) the phase of teaching basic mental health knowledge, (3) the phase of providing knowledge and skills in daily life, and (4) the follow-up phase.

Rainbow Psycho-care includes 12 sessions and two follow-up sessions at one and three months after interventions. All activities were sequenced according to Anderson et al.'s (1980) psychoeducational approach and were carried out using the CBT method. CBT emphasizes the relationship between thoughts, emotions, behaviors, and physical response. Each activity was divided into three parts: beginning, middle, and end. The discussion begins with a basic overview of the preceding activity and action plan, as well as the topics to be addressed together this time. The middle section includes a detailed description of mental health literacy or essential life skills knowledge, and collaborative activities focused on different topics each time. The final session is a feedback and action plan. Furthermore, all 12 activities are designed to focus on the psychological factors investigated in this study, including stress, anxiety, depression, resilience, self-esteem, and positive psychology, while remaining relevant to the setting of LGBTQ+ youths.

Additionally, five psychologists evaluated the program's content validity using IOC criteria (between 0.60 and 1.00). Details of the program are shown in Table 1.

Table 1 Activity details of rainbow psycho-care

Activity	Objectives
Framework	1. Cognitive Behavioral Therapy (CBT) 2. Psychoeducation 3. Mental health problem; Stress, Anxiety, Depression 4. Protective factors; Resilience, Self-esteem, Positive psychology
Period	12 sessions, organized 2 times/week, 90 minutes each, with follow-up at 1 month and 3 months after the end of the program.
1. Orientation and Who Am I activities	To inform participants about the details of the overall program, develop positive relationships, and encourage self-exploration and positive social support.
2. Sexuality education activities	To provide participants with knowledge and understanding of sexuality and gender diversity, sexual health care, and to recognize positive sources of support around them.
3. Five-part model and learning of stress activities	To understand the relationship between emotions, thoughts, behaviors, and physical responses. Moreover, they learned about stress and exercised basic stress-coping skills.
4. Learning of anxiety activities	To learn about anxiety and practice observing thoughts, emotions, behaviors, and physical responses, as well as to assess their abilities to regulate their emotions and social support resources.
5. Learning of depression activities	To understand depression, practice positive thinking and observe emotions, behavior, and physiological responses that change in response to thoughts.
6. Wheel of emotion activities	To learn about emotions according to the emotion wheel concept, practice expressing emotions appropriately, and develop skills in observing factors that affect emotions.
7. Emotional management activities	To learn emotion management skills and methods of managing emotions, and observing changes in their thoughts, emotions, behavior, and physiological responses after using the emotional management techniques.
8. Empathy and forgiveness activities	To learn and practice empathy and forgiveness skills, connecting their experiences to a deeper comprehension of these concepts.
9. Communication skills activities	To learn and practice positive communication skills, being able to communicate their emotions, thoughts, and needs appropriately and efficiently.
10. Problem-solving strategies activities	To learn and practice problem-solving skills to develop their problem-solving skills and apply them in their lives.
11. S.M.A.R.T. Goal activities	To learn and practice systematically setting goals, concrete implementation of goals, and reviewing positive resources to build confidence to make the goal successful.
12. Gratitude activities	To learn about gratitude for the things around them and to check their mental health status immediately after the program and ending group activities.
13. Follow up 1 month	To evaluate the effectiveness of the mental health education program after the end of group activities for 1 month.
14. Follow up 3 months	To evaluate the effectiveness of the mental health education program after the end of group activities for 3 months.

Ethics Approval and Consent to Participate

The Chiang Mai University Research Ethic Committee Thailand reviewed and approved this study (CMUREC No. 65/046). Based on the standards prescribed by the Chiang Mai University Research Ethics Committee, informed written consent was obtained from all participants and the parents of young people under 18 years of age.

Data Analysis

Descriptive statistics were used to analyze the samples' characteristics, including percentages, means, and standard deviations. Furthermore, the equality of the samples was studied. The differences in the means of the experimental and control groups at baseline, using Fisher's exact test in age testing, the Chi-square test in grade, and independent *t*-tests to compare mean scores for stress, anxiety, depression, resilience, self-esteem, and positive psychology. Moreover, repeated measures ANOVA was used to compare the mean scores of the experimental and control groups on the pre-test, post-test, 1-month, and 3-month follow-ups after the program was completed. Following that, they used the LSD method for a post-hoc test. The effect size was interpreted as less than 0.01, which is trivial; 0.01 is small; 0.06 is medium; and 0.14 is large effects (Gross-Sampson, 2022).

Results

General Characteristics of the Sample

The researchers tested the equality of the experimental and control groups in terms of age, education level, stress level, anxiety, depression, resilience, self-esteem, and positive psychology in the pre-intervention period, shown in Table 2.

According to Table 2, most of the experimental group were 16 years old (53.30 %), whereas the control group was 16 and 17 years old (40.00 %). The participants studied in grade 11, with the majority in the experimental and control groups constituting 73.00 and 60.00 percent, respectively. The results of the equality test showed that age ($\chi^2 = 1.26$, $p = .69$), grade ($\chi^2 = 0.60$, $p = .44$), stress ($t = -1.18$, $p = .25$), anxiety ($t = -0.46$, $p = .65$), depression ($t = -0.45$, $p = .66$), resilience ($t = 0.76$, $p = .45$), self-esteem ($t = 0.84$, $p = .41$), and positive psychology ($t = -0.22$, $p = .82$) of the experimental group and the control group in the pre-intervention period were not significant ($p > .05$).

Descriptive Results

The researchers measured stress, anxiety, depression, resilience, self-esteem, and positive psychology at four periods of time, including pre-intervention (pre-test), post-intervention (post-test), follow-up 1 month, and follow-up 3 months. The average scores obtained are detailed in Table 3

The comparative analysis of the variables in the experimental and control groups during the pre-intervention, post-intervention, 1-month follow-up, and 3-month follow-up periods using repeated measures ANOVA

The results of data analysis, including stress, anxiety, depression, resilience, self-esteem, and positive psychology, respectively, are presented in Table 4. Table 4 shows a significant interaction between time and group (Time*Group) for anxiety ($F = 5.70$, $p < .05$, $\eta^2_p = 0.17$) and resilience ($F = 3.33$, $p < .05$, $\eta^2_p = 0.11$), with a large effect size. The study found no significant interaction between time and group on stress ($F = 1.70$, $p = .18$, $\eta^2_p = 0.06$), depression ($F = 1.71$, $p = .17$, $\eta^2_p = 0.06$), self-esteem ($F = 1.40$, $p = .25$, $\eta^2_p = 0.05$), or positive psychology ($F = 1.63$, $p = .19$, $\eta^2_p = 0.06$), with a medium effect size.

Table 2 The equality testing of the experimental and control groups

Variables	Experimental Group ($n = 15$)	Control Group ($n = 15$)	t/χ^2	p-value
Age			1.26^F	.69
15 years old (n/%)	1 (6.70)	3 (20.00)		
16 years old (n/%)	8 (53.30)	6 (40.00)		
17 years old (n/%)	6 (40.00)	6 (40.00)		
All	15 (100.00)	15 (100.00)		
Class			0.60^C	.44
Grade 10 (n/%)	4 (26.70)	6 (40.00)		
Grade 11 (n/%)	11 (73.30)	9 (60.00)		
All	15 (100.00)	15 (100.00)		
Stress			-1.18^t	.25
Mean (*SD*)	5.07 (2.69)	6.07 (1.91)		
Anxiety			-0.46^t	.65
Mean (*SD*)	3.27 (1.94)	3.60 (2.03)		
Depression			-0.45^t	.66
Mean (*SD*)	4.00 (2.42)	4.40 (2.50)		
Resilience			0.76^t	.45
Mean (*SD*)	4.19 (0.39)	4.10 (0.27)		
Self-esteem			0.84^t	.41
Mean (*SD*)	4.19 (0.51)	4.05 (0.40)		
Positive psychology			-0.22^t	.82
Mean (*SD*)	4.27 (0.48)	4.30 (0.37)		

Note: F = Fisher's exact test, C = Chi-square test, *t* = Independent *t*-test

Table 3 Means and standard deviations of the experimental and control groups classified by time and variables

Variable	Group	Pre-test	Post-test	Follow up 1 month	Follow up 3 months
		MEAN (*SD*)			
Stress	Experimental	5.07 (2.69)	3.67 (2.56)	5.00 (2.67)	3.53 (2.36)
	Control	6.07 (1.91)	6.93 (2.63)	7.27 (4.56)	6.60 (4.73)
Anxiety	Experimental	3.27 (1.94)	1.87 (1.69)	2.47 (1.64)	1.27 (1.71)
	Control	3.60 (2.03)	5.40 (2.41)	4.73 (4.27)	4.53 (3.89)
Depression	Experimental	4.00 (2.42)	2.00 (1.46)	3.20 (2.62)	1.73 (1.79)
	Control	4.40 (2.50)	3.73 (2.34)	5.00 (4.11)	4.40 (3.96)
Resilience	Experimental	4.19 (0.39)	4.45 (0.28)	4.50 (0.28)	4.58 (0.38)
	Control	4.10 (0.27)	4.13 (0.36)	4.12 (0.40)	4.15 (0.38)
Self-esteem	Experimental	4.19 (0.51)	4.38 (0.31)	4.43 (0.30)	4.48 (0.38)
	Control	4.05 (0.40)	4.08 (0.33)	4.20 (0.36)	4.12 (0.37)
Positive psychology	Experimental	4.27 (0.48)	4.53 (0.32)	4.56 (0.29)	4.63 (0.29)
	Control	4.30 (0.37)	4.48 (0.40)	4.47 (0.42)	4.41 (0.27)

Table 4 Result of repeated measure ANOVA

Variables	Sources of variation	SS	*df*	MS	*F*	*p*	η^2_p
Stress	Between-group						
	Group	172.80	1	172.80	6.63^{H}	.02*	0.19
	Error	729.67	28	26.06			
	Within-group						
	Time	18.97	2.72	6.97	1.35^{H}	.27	0.05
	Time*Group	23.80	2.72	8.75	1.70^{H}	.18	0.06
	Error	392.73	76.16	5.16			
Anxiety	Between-group						
	Group	165.68	1	165.68	8.46^{S}	.01*	0.23
	Error	548.17	28	19.58			
	Within-group						
	Time	10.36	3	3.45	1.27^{S}	.29	0.04
	Time*Group	47.36	3	15.79	5.70^{S}	.00*	0.17
	Error	229.03	84	2.73			
Depression	Between-group						
	Group	81.68	1	81.68	4.15^{S}	.05*	0.13
	Error	551.17	28	19.69			
	Within-group						
	Time	42.76	3	14.25	3.72^{S}	.02*	0.12
	Time*Group	19.69	3	6.56	1.71^{S}	.17	0.06
	Error	322.30	84	3.84			
Resilience	Between-group						
	Group	2.78	1	2.78	8.31^{S}	.01*	0.23
	Error	9.35	28	0.33			
	Within-group						
	Time	0.81	3	0.27	5.57^{S}	.00*	0.17
	Time*Group	0.48	3	0.16	3.33^{S}	.02*	0.11
	Error	4.05	84	0.05			
Self-esteem	Between-group						
	Group	1.99	1	1.99	4.74^{H}	.04*	0.15
	Error	11.75	28	0.42			
	Within-group						
	Time	0.76	2.59	0.29	5.38^{H}	.00*	0.16
	Time*Group	0.20	2.59	0.08	1.40^{H}	.25	0.05
	Error	3.96	72.62	0.06			
Positive Psychology	Between-group						
	Group	0.21	1	0.21	0.57^{S}	.46	0.02
	Error	10.324	28	0.369			
	Within-group						
	Time	1.14	3	0.38	7.26^{S}	.00*	0.21
	Time*Group	0.26	3	0.09	1.63^{S}	.19	0.06
	Error	4.39	84	0.05			

Note: * = $p < .05$, ** = $p < .01$, *** = $p < .001$, S = Sphericity Assumed, H = Huynh-Feldt

However, focus on between groups found that the variance between the experimental and control groups was found to be stress ($F = 6.63$, $p < .05$, $\eta^2_p = 0.19$), anxiety ($F = 8.46$, $p < .05$, $\eta^2_p = 0.23$), depression ($F = 4.15$, $p < .05$, $\eta^2_p = 0.13$), resilience ($F = 8.31$, $p < .05$, $\eta^2_p = 0.23$) and self-esteem ($F = 4.74$, $p < .05$, $\eta^2_p = 0.15$) were significant and large effect size. The researcher used a post-hoc test using LSD, as shown in Table 5. Nevertheless, the variance values of positive psychology between the experimental and control groups were not significant ($F = 0.57$, $p = .46$, $\eta^2_p = 0.02$), with a small effect size.

In addition, the variance within the experimental and control groups revealed that the variance values of depression ($F = 3.72$, $p < .05$, $\eta^2_p = 0.12$), resilience ($F = 8.31$, $p < .05$, $\eta^2_p = 0.23$), self-esteem ($F = 5.38$, $p < .05$, $\eta^2_p = 0.16$) and positive psychology ($F = 7.26$, $p < .05$, $\eta^2_p = 0.21$) were significant at the .05 level and had a large effect size. The researcher performed a post-hoc test using the LSD method, shown in Table 6. However, the variance values of stress ($F = 1.35$, $p = .27$, $\eta^2_p = 0.05$) and anxiety ($F = 1.27$, $p = .29$, $\eta^2_p = 0.04$) within the experimental and control groups were not significant and medium effect size.

Table 5 Result of pairwise comparison between groups by the LSD method

Variable	Group	Time	Mean difference	*p*
Stress	Experimental-Control	Pre-test	-1.00	.25
		Post-test	-3.27**	<.01
		Follow up 1 month	-2.27	.11
		Follow up 3 months	-3.07*	<.05
Anxiety	Experimental-Control	Pre-test	-0.33	.65
		Post-test	-3.53***	<.001
		Follow up 1 month	-2.27	.07
		Follow up 3 months	-3.27**	<.01
Depression	Experimental-Control	Pre-test	-0.40	.66
		Post-test	-1.73*	<.05
		Follow up 1 month	-1.80	.16
		Follow up 3 months	-2.67*	<.05
Resilience	Experimental-Control	Pre-test	0.09	.45
		Post-test	0.32*	<.05
		Follow up 1 month	0.38**	<.01
		Follow up 3 months	0.43**	<.01
Self-esteem	Experimental-Control	Pre-test	0.14	.41
		Post-test	0.30*	<.05
		Follow up 1 month	0.23	.07
		Follow up 3 months	0.36*	<.05

Note: * = $p < .05$, ** = $p < .01$, *** = $p < .001$

Table 6 Result of pairwise comparison within groups by the LSD method

Variable	Time	Experimental			Control		
		Mean difference			Mean difference		
		(1)	(2)	(3)	(1)	(2)	(3)
Depression	Pre-test (1)						
	Post-test (2)	2.00**			0.67		
	Follow up 1 month (3)	0.80	-1.20		-0.60	-1.27*	
	Follow up 3 months (4)	2.27**	0.27	1.47	0.00	-0.67	0.60
Resilience	Pre-test (1)						
	Post-test (2)	-0.26**			-0.03		
	Follow up 1 month (3)	-0.31**	-0.05		-0.02	0.01	
	Follow up 3 months (4)	-0.39***	-0.13	-0.08	-0.05	-0.02	-0.03
Self-esteem	Pre-test (1)						
	Post-test (2)	-0.20*			-0.04		
	Follow up 1 month (3)	-0.25*	-0.05		-0.16	-0.12	
	Follow up 3 months (4)	-0.29**	-0.10	-0.05	-0.08	-0.04	0.08
Positive psychology	Pre-test (1)						
	Post-test (2)	-0.26**			-0.17*		
	Follow up 1 month (3)	-0.29**	-0.02		-0.16	0.01	
	Follow up 3 months (4)	-0.36***	-0.10	-0.07	-0.10	0.07	0.06

Note: * = $p < .05$, ** = $p < .01$, *** = $p < .001$

Discussion

The results demonstrate that Rainbow Psycho-care effectively reduces mental health problems and promotes protective factors among LGBTQ+ youths, the program successfully reduced stress, anxiety, and depression levels in the experimental group to levels lower than those in the control group at the post-intervention, one-month, and three-month follow-ups. The finding is comparable to Kaplan et al.'s (2023) study, which studied the effects of CBT-based psychoeducation programs on university students. This study found that Rainbow Psycho-care reduces student stress levels. Therefore, this explains that the program provides basic information on mental health problems occurring among LGBTQ+ youths, including common symptoms, risk factors, treatments, emotional awareness skills, and techniques for managing emotions and stress. As a result, participants in the experimental group were more aware of mental health issues and possessed fundamental knowledge and abilities for self-observation and self-care. Furthermore, the experimental group was assigned homework (Action Plan) to apply what they learned from each activity in real-life situations. As such, the experimental group gained knowledge and skills in self-observation, coping skills, and emotion management, which they can implement in their daily lives (Craig et al., 2013; Pityaratstian, 2022; Sarkhel et al., 2020).

However, the study findings showed that the experimental group of LGBTQ+ youths experienced higher levels of stress, anxiety, and depression during the 1-month follow-up period compared to the post-intervention period. That describes the mental health problems had interconnected, suggesting that an increase in some mental health problems may lead to a rise in other mental health problems (Hafeez et al., 2017). This is explained in that the one-month follow-up study was conducted in August, when LGBTQ+ youths face midterm exams at school, which could explain why mental health problems among LGBTQ+ youths were on the rise. This demonstrates that the increased prevalence of mental health problems among LGBTQ+ youths can be attributed to several kinds of daily concerns, including economics, learning, and exam-related issues (Chooting et al., 2019). This is consistent with the concept of minority stress, which states that minority stress may occur in three ways. General stress may occur regardless of whether an individual is a minority, such as economic, transportation, and general living issues (Meyer, 2003).

Conversely, during the 3-month follow-up period, the experimental group's levels of stress, anxiety, and depression were lower than the control groups, with mean scores similar to those obtained after the intervention. In contrast, the control group reported more mental health problems, which suggests that the LGBTQ+ youths in the experimental group who participated in Rainbow Psycho-care, which included activities to train them to observe their own emotions, be able to recognize and manage their feelings, develop skills that are necessary for their daily lives, and had activities that trained them to apply those skills in their daily lives, could significantly decrease the level of their stress, anxiety, and depression. This is evident from the qualitative data that the experimental group in the three-month follow-up explained:

> *"I use relaxation techniques to assist me to relax. When I face stressful situations, I am less stressed than before joining the activity."*

(A LGBTQ+ youth, a focus group in a three-month follow-up).

> *"I usually have trouble sleeping, but using the mood tracker method before sleeping allows me to observe how I'm feeling today and what makes me feel better. Then, I feel more relaxed and asleep more easily lately."*

(A LGBTQ+ youth, a focus group in a three-month follow-up).

Such shows that Rainbow Psycho-care improved the experimental group's emotional management skills. This resulted in the experimental group returning to having low levels of mental health problems after going through difficult situations, compared to the control group, which had greater levels of mental health problems throughout the research period. This is consistent with Ittasakul and Hongsanguansri (2015), who explain that CBT can decrease mental health problems and prevent recurrence in the long term.

Furthermore, in the post-intervention, one-month, and three-month follow-ups, the Rainbow Psycho-care increased the levels of resilience, self-esteem, and positive psychology of the experimental group to a higher level than the control group. This is consistent with Ghanbari et al. (2021), and Şahin and Türk (2021), who discovered psychoeducation raised the level of factors preventing mental health problems in the experimental group to a higher level than the control group. This shows that the Rainbow Psycho-care included appropriate activities and materials for LGBTQ+ high school students. The activities, which included problem-solving, goal-setting, forgiveness, empathy, and communication skills, empowered the experimental group to identify

their strengths (Pinciotti et al., 2022; Smith et al., 2017). Moreover, emotional and social support from LGBTQ+ peers strengthened protective factors against mental health problems (Hendricks & Testa, 2012). Additionally, Rainbow Psycho-care maintains a level of resilience, self-esteem, and positive psychology three months after the program ends, consistent with the study of Şahin and Türk (2021), which discovered that implementing a CBT-based psychoeducation program could create protective factors against mental health issues in the sample during the post-intervention and follow-up period.

The results also suggest the difference in positive psychology between the experimental and control groups was not significant. Nevertheless, the experimental group had higher levels of positive psychology than the control group at post-intervention, one-month follow-up, and three-month follow-up. Yet, the difference may not be large enough to be significant. This shows that the control group had a higher level of positive psychology, similar to the experimental group, because the level of positive psychology is measured using five components: (1) Positive emotions, (2) Engagement, (3) Relationships, (4) Meaning, and (5) Accomplishment. Furthermore, the researcher examined the average values of each component in every research period, explaining that the two sample groups attend high school and participate in various school-related activities. Besides, they are also at the point where they need to set a study goal to take the university entrance exam. As such, goals were established and pursued, resulting in comparable levels of engagement, meaning, and accomplishment pre-intervention and post-intervention. Unfortunately, during the 1-month and 3-month follow-up periods, it was found that the control group did not have the necessary resources to keep track of their goals or the skills to regulate their emotions. This may have caused sadness, loss, and guilt about their daily experiences, gradually decreasing the average values for each component. In contrast to the experimental group, which maintained goal setting, gratitude, and communication skills, the average values for each element steadily climbed and peaked over the three-month follow-up period. This is consistent with studies by Pinciotti et al. (2022) and Smith et al. (2017), which found that LGBTQ+ youths should improve their communication, emotional management, goal-setting, and positive emotions.

Conclusion and Recommendation

The Rainbow Psycho-care, designed for LGBTQ+ high school students, derived from CBT-based psychoeducation, mental health problems, resilience, self-esteem, and positive psychology, effectively reduces the level of mental health problems and enhances protective factors against such issues. Despite LGBTQ+ youths increasing acceptance, they continue to face gender discrimination. As a result, preventing mental health problems in LGBTQ+ youths still demands focusing on positive characteristics such as helping LGBQ+ youths develop resilience, self-esteem, and positive psychology. They should also get support from many sectors of society, including families, schools, health facilities, and society, to appreciate and accept diversity and promote long-term mental health among LGBTQ+ youths.

However, this study has limitations. Firstly, further research should track mental health problems and protective factors at six-month and one-year intervals following the end of the program, as mental health problems and protective factors can change due to everyday life events. Secondly, the small sample size in this study may introduce bias, so future research should involve a larger sample size to minimize errors. In addition, this study focused on LGBTQ+ in specific group. Future research should extend to include LGBTQ+ in diverse religious backgrounds, rural areas, and different provinces to minimize errors. Finally, this study focuses specifically on LGBTQ+ students with supportive and accepting parents of their sexual orientation, thus future research should also evaluate LGBTQ+ students who conceal their sexual orientation. This will help in addressing the mental health challenges faced by all groups within the LGBTQ+ community.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References

Anderson, C. M., Hogarty, G. E., & Reiss, D. J. (1980). Family treatment of adult schizophrenic patients: A psycho-educational approach. *Schizophrenia Bulletin*, *6*(3), 490–505. https://doi.org/10.1093/schbul/6.3.490

Argyriou, A., Goldsmith, K. A., & Rimes, K. A. (2021). Mediators of the disparities in depression between sexual minority and heterosexual individuals: A systematic review. *Archives of Sexual Behavior*, *50*, 925–959. https://doi.org/10.1007/s10508-020-01862-0

Baiocco, R., Scandurra, C., Rosati, F., Pistella, J., Ioverno, S., Bochicchio, V., Wang, H.-C., & Chang, T.-S. (2023). Minority stress, resilience, and health in Italian and Taiwanese LGB+ people: A cross-culture comparison. *Current Psychology*. *42*, 104–115. https://doi.org/10.1007/s12144-021-01387-2

Beck, A. T., & Alford, B. A. (2009). *Depression: Causes and treatment* (2nd ed.). University of Pennsylvania Press.

Chavanduka, T. M. D., Gamarel, K. E., Todd, K. P., & Stephenson, R. (2021). Responses to the gender minority stress and resilience scales among transgender and nonbinary youth. *Journal of LGBT youth*, *18*(2), 135–154. https://www.tandfonline.com/doi/full/10.1080/19361653.2020.1719257

Chooting, R., Wiwattanaworaset, P., Buathong, N., Noofong, Y., Chaithaweesup, P., Cheecharoen, P., Sarayutpitak, O.-O., Yusuk, C., Rungruang, N., Jansuwan, R., Sae-Lim, P., & Madawa, N. (2019). *สถานภาพสุขภาพจิต สภาพครอบครัว และการทำหน้าที่ของครอบครัวของนักศึกษาปริญญาตรีในมหาวิทยาลัยแห่งหนึ่งในภาคใต้ของประเทศไทย* [Mental health status, family state and family functioning of undergraduate students in a Southern University, Thailand]. *Journal of the Psychiatric Association of Thailand*, *64*(4), 337–350. [in Thai]

Craig, S. L., & Austin, A. (2016). The AFFIRM open pilot feasibility study: A brief affirmative cognitive behavioral coping skills group intervention for sexual and gender minority youth. *Children and Youth Services Review*, *64*, 1–9. https://doi.org/10.1016/j.childyouth.2016.02.022

Craig, S. L., Austin, A., & Alessi, E. (2013). Gay affirmative cognitive behavioral therapy for sexual minority youth: A clinical adaptation. *Clinical Social Work Journal*, *41*, 258–266. https://doi.org/10.1007/s10615-012-0427-9

David, D., Cristea, I., & Hofmann, S. G. (2018). Why cognitive behavioral therapy is the current gold standard of psychotherapy. *Frontiers in Psychiatry*, *9*, 4. https://doi.org/10.3389/fpsyt.2018.00004

Ghanbari, E., Yektatalab, S., & Mehrabi, M. (2021). Effects of psychoeducational interventions using mobile apps and mobile-based online group discussion on anxiety and self-esteem in woman with breast cancer: Randomized controlled trial. *JMIR mHealth uHealth*, *9*(5), e19262. https://doi.org/10.2196/19262

Goss-Sampson, M. A. (2022). *Statistical analysis in JASP 0.16.1: A guide for students*. JASP Stats https://jasp-stats.org/wp-content/uploads/2022/04/Statistical-Analysis-in-JASP-A-Students-Guide-v16.pdf.

Hafeez, H., Zeshan, M., Tahir, M. A., Jahan, N., & Naveed, S. (2017). Health care disparities among lesbian, bisexual, and transgender youth: A literature review. *Cureus*, *9*(4), e1184. https://doi.org/10.7759/cureus.1184

Hendricks, M. L., & Testa, R. J. (2012). A conceptual framework for clinical work with transgender and gender nonconforming clients: An adaptation of the minority stress model. *Professional Psychology: Research and Practice*, *43*(5), 460–467. https://doi.org/10.1037/a0029597

Ittasakul, P., & Hongsanguansri, S. (2015). *ภาวะซึมเศร้า* [Depression]. In M. Lotrakul & P. Sukanich (Eds.), *Ramathibodi essential psychiatry*, (4th ed., pp. 167–189). Department of Psychiatry, Faculty of Medicine Ramathibodi Hospital. [in Thai]

Kaplan, V., Duken, M. E., Kaya, R., & Almazan, J. (2023). Investigating the effects of cognitive-behavioral-therapy-based psychoeducation program on university students' automatic thoughts, perceived stress, and self-efficacy levels. *Journal of Research & Health*, *13*(2), 87–98. http://doi.org/10.32598/JRH.13.2.2125.1

Lerdrat, V. (2022). *ปัญหาชีวิตและการสนับสนุนสิทธิ LGBTQ+ จากการสำรวจเยาวชนโดย Kid for Kids* [Life problems and support for LGBTQ+ rights from the youth survey by Kid for Kids]. Retrieved from https://www.the101.world/lgbtq-life-in-youthsurvey2022/#:~:text=1.%20อารมณ์และสุขภาพจิต,16.3%25%20หรือกว่าครึ่งเท่าตัว. [in Thai]

Mahidol University, Plan International Thailand, & UNESCO Bangkok. (2014). *การกลั่นแกล้งทางเพศที่มุ่งเป้าไปยังนักเรียนมัธยมศึกษาที่เป็นหรือถูกมองว่าเป็นคนข้ามเพศหรือชอบเพศเดียวกัน: ประเภท, ความชุก, ผลกระทบ, แรงจูงใจและมาตรการป้องกันใน 5 จังหวัดของประเทศไทย* [Bullying targeting secondary school students who are or are perceived to be transgender or same-sex attracted: Types, prevalence, impact, motivation and preventive measure in 5 provinces of Thailand]. UNESCO. http://unesdoc.unesco.org/images/0022/002275/227518e.pdf [in Thai]

Manee, T. S., & Chupradit, P. W. (2025). Evidence-based analysis of mental health challenges among LGBTQ+ youths. *Community and Social Development Journal, 26*(2), 105–120. https://doi.org/10.57260/csdj.2025.273468

Manee, T. S., & Chupradit, P. W. (2024). Development of a protective factors questionnaire on mental health problems among high school students with sexual diversity. *Academic Psychiatry and Psychology Journal*, *40*(2), 13–27. https://he01.tci-thaijo.org/index.php/APPJ/article/view/270281

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129*(5), 674–697. https://doi.org/10.1037/0033-2909.129.5.674

Newman, P. A., Prabhu, S. M., Akkakanjanasupar, P., & Tepjan, S. (2022). HIV and mental health among young people in low-resource contexts in Southeast Asia: A qualitative investigation. *Global Public Health*, *17*(7), 1200–1214. https://doi.org/10.1080/17441692.2021.1924822

Oei, T. P. S., Sawang, S., Goh, Y. W., & Mukhtar, F. (2013). Using the Depression Anxiety Stress Scale 21 (DASS-21) across cultures. *International Journal of Psychology*, *48*(6), 1018–1029. https://doi.org/10.1080/00207594.2012.755535

Ojanen, T. T. (2009). Sexual/gender minorities in Thailand: Identities, challenges, and voluntary-sector counseling. *Sexuality Research and Social Policy*, *6*(2), 4–34. https://doi.org/10.1525/srsp.2009.6.2.4

Payaksee, S. (2017). *ความไม่เท่าเทียมทางสิทธิของกลุ่มผู้มีความหลากหลายทางเพศ* [Inequalities of rights with sexual diversity]. In *The struggles and cries of those with secondary status*. Proceedings of the 16th Graduate Students' Conference in Sociology and Anthropology, 29–30 June 2017, Naresuan University (pp. 903–914). [in Thai]

Pinciotti, C. M., Smith, Z., Singh, S., Wetterneck, C. T., & Williams, M. T. (2022). Call to action: Recommendations for justice-based treatment of obsessive-compulsive disorder with sexual orientation and gender themes. *Behavior Therapy*, *53*(2), 153–169. https://doi.org/10.1016/j.beth.2021.11.001

Pinto-Gouveia, J., Carvalho, S. A., Palmeira, L., Castolho, P., Duarte, C., Ferreira, C., Duarte, J., Cunha, M., Matos, M., & Costa, J. (2016). Befree: A new psychological program for binge eating that integrates psychoeducation, mindfulness, and compassion. *Clinical Psychology & Psychotherapy*, *24*, 1090–1098. https://doi.org/10.1002/cpp.2072

Pityaratstian, N. (2022). *ทักษะพื้นฐานในการบำบัดด้วยความคิดและพฤติกรรม* [Basic skills in CBT]. Chulalongkorn University Press. [in Thai]

Pityaratstian, N., & Buathong, N. (n.d.) *แบบวัดภาวะซึมเศร้า ความวิตกกังวลและความเครียด (DASS-21)* [Depression Anxiety Stress Scales (DASS-21)]. http://www.cumentalhealth.com/index.php?lay=show&ac=article&Id=539909324 [in Thai]

Puckett, J. A., Matsuno, E., Dyar, C., Mustanski, B., & Newcomb, M. E. (2019). Mental health and resilience in transgender individuals: What type of support makes a difference? *Journal of Family Psychology*, *33*(8), 954–964. https://doi.org/10.1037/fam0000561

Rungruang, P., Suksai, T., Jinwongpo, A., Prasomruk, P., Phosuk, I., & Panthumas, S. (2020). *การเปรียบเทียบความเครียดระหว่างนักศึกษาที่มีความหลากหลายทางเพศที่ครอบครัวยอมรับและไม่ยอมรับในมหาวิทยาลัยมหิดล* [Comparison of stress between family acceptance LGBT and non-acceptance LGBT's students in Mahidol University]. *Journal of Khon Kaen Provincial Health Office*, *2*(2), 187-198. [in Thai]

Şahin, H., & Türk, F. (2021). The impact of cognitive-behavioral group psycho-education program on psychological resilience, irrational beliefs, and well-being. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *39*(4), 672–694. https://doi.org/10.1007/s10942-021-00392-5

Sarkhel, S., Singh, O. P., & Arora, M. (2020). Clinical practice guideline for psychoeducation in psychiatric disorders: General principles of psychoeducation. *Indian Journal of Psychiatry*, *62*(Suppl 2), S319–S323. https://doi.org/10.4103/psychiatry.IndianJPsychiatry_780_19

Smith, N. G., Hart, T. A., Kidwai, A., Vernon, J. R. G., Blais, M., & Adam, B. (2017). Results of a pilot study to ameliorate psychological and behavioral outcomes of minority stress among young gay and bisexual men. *Behavior Therapy*, *48*(5), 664–677. https://doi.org/10.1016/j.beth.2017.03.005

Tinnam, C., Omphornuwat, K., & Duaidee, R., (2020). *ยุทธศาสตร์สุขภาวะ LGBTIQN+ ประเทศไทย 2021–2023* [LGBTIQN+ wellbeing strategies in Thailand 2021–2023]. Thai Health Promotion Foundation. https://dol.thaihealth.or.th/File/media/6d6d28e0-5321-4e73-b161-9228f2d74f11.pdf [in Thai]

Toomey, R. B., & Anhalt, K. (2016). Mindfulness as a coping strategy for bias-based school victimization among Latino sexual minority youth. *Psychology of Sexual Orientation and Gender Diversity*, *3*(4), 432–441. https://doi.org/10.1037/sgd0000192

Westbrook, D., Kennerley, H., & Kirk, J. (2007). *An introduction to cognitive behavior therapy: Skills & applications*. SAGE Publication.

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Advantages and challenges in implementing digital transformation in some high schools in the Mekong Delta

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Abstract

The rapid advancement of technology has significantly accelerated the digital transformation in Vietnamese education, introducing innovative teaching methods and yielding promising results. This study involved surveying 45 high school teachers from three different provinces and cities in the Mekong Delta: Can Tho, Soc Trang, and Ca Mau. The aim was to evaluate their perspectives on the benefits and challenges of digital transformation in educational institutions. The findings indicate that while digital transformation offers several advantages—such as enhancing student engagement, streamlining document preparation, and improving student management—teachers still face notable challenges, particularly concerning inadequate infrastructure and a lack of reference materials. Further research involving a broader participant base and a more extensive exploration of the root causes is recommended to gain a deeper understanding of these issues.

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Introduction

Currently, there are several different definitions of Digital Transformation. Basically, Digital Transformation is understood as the application of breakthrough technologies to increase productivity, creative value, and social welfare. The research team of Ngo Tu Thanh has clarified the difference between the definition of "Digital Transformation" and "Digitization". Accordingly, "Digitization" is simply the process of converting real values into digital form. Conversely, "Digital Transformation" is the process of using digital technologies such as artificial intelligence (AI) and big data to analyze, process, and create new value from digitized data (Ngo & Le, 2024). Digital Transformation in education is the process of applying and integrating digital technology into the educational environment to improve and enhance the effectiveness of teaching, learning, management, and interaction among educational community members (Le, 2022; Mai, 2021).

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During the fourth industrial revolution, the education system has undergone considerable reforms to enhance the quality of teaching and educational management. As a result, the use of technology in education has become a widespread trend, particularly in Vietnam's education system. This move is supported by policies such as the "National Digital Transformation Program to 2025, with a Vision to 2030," as defined in Decision No. 749/QD-TTg dated June 3, 2020. This program focuses on creating remote teaching and learning platforms, using digital technology in administration and instruction, and digitizing documents and textbooks. It prioritizes education for digital transformation because of its quick impact on society awareness, efficiency, and cost savings (Prime Minister, 2020).

According to the Ministry of Education and Training, 63 educational institutions and 710 education departments have created a shared database, while 82 percent of high schools use school administration software. Digital technology has made a substantial contribution to lifelong learning programs and the availability of online materials, including around 5,000 electronic lectures, over 7,000 theses, and more than 31,000 multiple-choice questions shared by highly qualified teachers (Nguyen, 2022).

High schools are utilizing digital technologies to innovate and improve the quality of education. Many schools in the Mekong Delta and across the country have adopted new teaching methods, allowing teachers and students to develop initiatives and creativity. However, many secondary school teachers still face challenges with digital transformation, particularly in teaching practices and student management. Thus, further research study is required to address these issues, supplement reference materials, and promote ongoing educational innovation.

Literature review

Studies on Implementing Digital Transformation in Education

The advancement of information and communication technology (ICT) has considerably accelerated transformation processes in several areas, including education. In recent years, the academic community has expressed a rising interest in studying digital transformation in the educational sphere. Using scientific measuring methodologies, Luong has comprehensively analyzed digital transformation research since 2020, selecting 1,130 articles and conference papers from the Web of Science database. This collection of work focuses mostly on psychology and education, with interconnected themes. This research has shown two main themes: strategy and digital competency. Vietnamese writers have recognized four critical areas: teachers' digital competency, digital transformation preparedness, digital universities, and human resources (Luong, 2023).

Phan and colleagues (2020) developed a theoretical framework for developing an information technology competence model, outlining the prerequisites for instructors' skills in using technology for online teaching in educational institutions (Phan et al., 2020). Ha's research looked into the role of stakeholders in school readiness for digital transformation and lecturers' satisfaction with online learning (Ha, 2020). Beginning in 2022, Vietnamese researchers have concentrated more on creating digital transformation competencies in education for both instructors and students, and some research has developed a framework of information technology competencies for teachers, which includes ten competency groups and particular indications and levels for each component. These competency groups help teachers identify learning objectives for students in the subject, thereby building teaching content and choosing more appropriate teaching methods (Nguyen et al., 2022).

Tran's team identified digital competency evaluation techniques applicable globally and in Vietnam, significantly adding to teachers' professional development programs' theoretical underpinning and practical application (Tran & Nguyen, 2022). Nguyen's group also investigated the perceptions of online learning platforms among students, educators, and administrators in Vietnamese and Singaporean universities (Nguyen et al., 2023). According to Nguyen's research, incorporating artificial intelligence into education has recently received significant attention, as indicated by the growing number of searches and research projects. Higher education institutions are implementing digital transformation through online training programs and distance learning technologies (Nguyen, 2024b).

Research on digital transformation in education has produced exciting results on a global scale. Elango's team believes that the Internet is an essential educational instrument capable of overcoming barriers and allowing individuals to become 21st-century learners by enabling tailored learning based on their interests and cognitive capacities (Elango et al., 2008). Benavides and colleagues' research shows increased interest in digital transformation among institutions, as seen by increased published publications since 2016. Furthermore, the team underlines the importance of delving deeper into concepts

and approaches for implementing digital transformation in universities to ensure the project's success (Benavides et al., 2020).

Studies on the Advantages and Difficulties of Implementing Digital Transformation in Education

Ho's study used a mixed-methods approach, including questionnaires and observations, and interviewed 205 instructors from 20 kindergartens around Thanh Hoa province. The findings show that teachers have considerable problems implementing digital transformation in kindergartens, mainly when using technical equipment and support software, both of which are critical issues for kindergarten teachers today (Ho, 2023). Nguyen's research team discovered several challenges in digitally transforming kindergarten and general school activities. Their findings identify 12 significant difficulties teachers face, including limited human resources, inadequate infrastructure, and excessive expenses connected with technology implementation. These problems impede schools' successful digital transition (Nguyen et al., 2024).

Nguyen and Pham identified five key hurdles to digital transformation in higher education in Vietnam. These include changes in training methods, content, and programs; inaccuracies and unreliability in data warehouses; slower technological development than global standards; a lack of understanding of core digital transformation technologies and basic platform systems; resistance to online learning methods; and training institutions' perspectives on digital transformation. The research team stressed that successful digital transformation necessitates shifting executives' mindsets from traditional to practical digital business methods and thinking (Nguyen & Pham, 2023). E-learning technology makes education more accessible and flexible, with courses adapted to specific student needs (Reigeluth et al., 2008). However, the availability of educational materials and video lectures in the virtual environment has created challenges for young people, such as diminished face-to-face communication and fewer communication channels. While students frequently see access to high-quality instructional materials as a benefit of educational digitalization, not everyone can fully use this possibility (Frolova & Rogach, 2021).

The research above shows that digitalization in education is becoming a global trend, particularly in Vietnam. Educators and administrators are exploring, implementing, and refining digital approaches to improve their efficacy. However, this issue has been somewhat overlooked in the Mekong Delta. Recognizing this reality, this essay aims to examine teachers' perspectives on the advantages and challenges of adopting digital transformation in educational institutions, offering a comprehensive overview of the situation.

Methodology

Research method: The author group closely combined qualitative and quantitative research models for 45 high school teachers in the Mekong Delta (Louis et al., 2007). Specifically, they used the grounded theory research method and survey methods to approach the research issue more objectively and scientifically.

Theoretical research method: The author group synthesized and analyzed data from secondary sources, mainly collected from books, newspapers, scientific journals, etc., to inherit the necessary information for the article and thereby interpret and form new theoretical foundations (Glaser et al., 1968). At the same time, the study of secondary materials helped inherit studies related to the research topic that were published in books, scientific articles, programs, projects, and local report data.

Survey method: The survey used a standardized list of questions to collect data, as Pham and Nguyen (2011) described. The Likert scale was employed to quantify replies, allowing for more precise assessments of levels of agreement (Allen & Seaman, 2007). A five-point Likert scale with intervals (5–1)/5=0.8 (Narli, 2010; Yavuz et al., 2013). The scale View points were described as follows: $1.0 \leq M < 1.8$: Do not agree; $1.8 \leq M < 2.6$: Slightly agree; $2.6 \leq M < 3.4$: Somewhat agree; $3.4 \leq M < 4.2$: Mostly agree; $4.2 \leq M \leq 5.0$: Strongly agree.

Data processing method: Following data collection, the data were encrypted and analyzed with the Jamovi v.2.4.11 software. The Mann-Whitney U test was used to determine potential differences in view points between central and suburban areas. Furthermore, the Kruskal-Wallis H test was used to determine any differences in views among different age and professional groups. All tests used a significance level of $p < .05$.

The study team coded qualitative data to categorize and classify them into research-relevant categories. This enabled detailed analysis and debate based on the acquired data.

Results and Discussion

Digital Transformation Training in High School Education

After completing a survey on the digital transformation training process in high schools, the research team found that the majority of the 45 instructors had not received formal training, Only, 18 teachers, or 40 percent, had participated in training or attended a seminar on digital transformation in education, while 60 percent had no such experience.

The topic of these training programs differed by province/city. In Can Tho and Ca Mau, the emphasis was on practicing information technology in student management and instruction. The key topics covered were designing lectures, scheduling online teaching, using software for testing and evaluation, and managing students. Meanwhile, the training sessions in Soc Trang were more varied, providing an overview of the theoretical foundation, encompassing principles, implementation methodologies, and instances of digital transformation in education. These workshops also included practical applications, software for teaching and learning, student management, and, most importantly, the use of artificial intelligence (AI) in digital transformation.

Most teachers rated these training sessions highly effective, claiming to have learned much about digital transformation. They learned how to use technology in teaching to save time and maximize efficiency. Even while some instructors had not received formal training or attended seminars, they had learned about digital change in education through various communication channels. The majority (51.1%) learned via the Internet and social networks. In recent years, the Ministry of Education and Training and related agencies have organized and coordinated many domestic and international conferences and seminars to promote the application of information technology (IT) in educational innovation and management in Vietnam. Additionally, the publication of information on government portals/websites and social media platforms such as Facebook, Zalo, and YouTube has been given more attention. At the 2024 Conference on Government Information Connectivity and Management in the Online Environment with the Portals of Ministries, Sectors, and Localities, the Deputy Minister of Information and Communications, Bui Hoang Phuong, emphasized that current portals/websites were important "bridges" between the government and the people in the digital age (Office of the Government of Vietnam, 2024). Furthermore, on November 30, the Ministry of Information and Communications developed and launched the National Book and Newspaper Platform with the domains sachdientu.vn and ebook.gov.vn to meet the information access needs of the people, especially in remote, isolated, and particularly difficult areas (Nguyen, 2024a). Learned via books and newspapers, friends, and colleagues, although not the majority, such still have a certain influence, with respective rates of 28.9 percent and 33.3 percent (Figure 1).

This finding revealed that digital transformation training in the Mekong Delta was inconsistent, resulting in diverse opinions among teachers on digital transformation. This gap could exacerbate the challenges of implementing digital conversion in secondary schools. The research group's conclusion aligns with earlier studies, which have shown that the lack of synchronized training negatively impacts teachers' instructional activities (Vo et al., 2024).

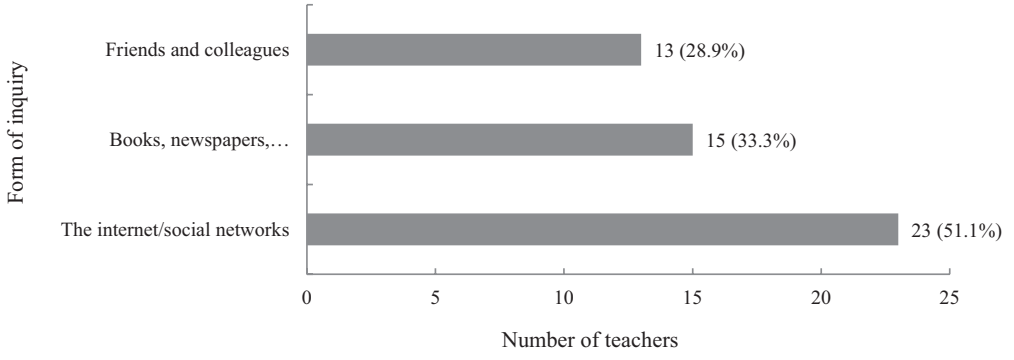


Figure 1 Information channels teachers used to learn about digital transformation

Advantages and Difficulties in Implementing Digital Transformation in Some High Schools in the Mekong Delta

This study used a 5-point Likert scale to examine the benefits and obstacles of digital transformation in high schools in three Mekong Delta provinces/cities: Can Tho, Soc Trang, and Ca Mau. Additionally, Mann-Whitney U and Kruskal-Wallis H were used to compare the differences in mean evaluations among the 45 teachers who participated in the survey.

Advantages of digital transformation in Mekong Delta high schools

When the research team examined the benefits of digital transformation in several secondary schools in the Mekong Delta, they discovered the following results. Most of the participating teachers "mostly agree" with the assertions offered by the research team, such as Q111 through Q117 (Table 1). The mean ratings of the four age groups of teachers (22–30, 31–40, 41–50, and over 50 years old) (Table 2) were as follows: There were no statistically significant differences among the groups of teachers in their evaluations of Q111 (Reducing the burden of document preparation), Q113 (Developing digital skills for teachers and students), Q114 (Promoting research and innovation in education and improving teaching methods), Q116 (Enabling flexible learning for students without spatial or time constraints), and Q117 (Helping students self-study). Conversely, Q112 (Making lessons more fascinating for students) and Q115 (Teachers, students, and parents can track students' learning progress using score processing software) had significantly different opinions from instructor groups. In Q112, teachers aged 41–50 and over 50 "mostly agree," but instructors aged 22–30 and 31–40 "strongly agree" (Kruskal-Wallis H test, $\chi^2 = 8.14$, $df = 3$, $p = .04$). For Q115, instructors aged 41–50 "mostly agree," while other age groups "strongly agree" (Kruskal-Wallis H test, $\chi^2 = 8.57$, $df = 3$, $p = .04$).

The Likert scale provides a precise quantitative measure of teachers' perspectives on the benefits and challenges of digital transformation. The Kruskal-Wallis H test was helpful in identifying age-related perception changes, notably for assertions Q112 and Q115 (Table 2). These findings indicate that younger teachers are more enthusiastic about using digital technologies to make lessons more exciting and accessible to track students' progress.

Table 1 Evaluation of teachers on the advantages of implementing digital transformation in teaching

Code	Content	*M*±*SE*	View point
Q111	Reducing the burden in document preparation	3.91±.82	Mostly agree
Q112	Making lessons more interesting and exciting for students	4.04±.77	Mostly agree
Q113	Developing digital skills for teachers and students	4.07±.69	Mostly agree
Q114	Promoting research and innovation in education, improving teaching methods	4.13±.55	Mostly agree
Q115	Allowing teachers, students, and parents to monitor student learning progress through grade management software	4.13±.69	Mostly agree
Q116	Enabling flexible learning for students without spatial or time limits	4.11±.57	Mostly agree
Q117	Helping students self-study and review knowledge at home	4.02±.72	Mostly agree

Note: $1.0 \leq M < 1.8$: Do not agree; $1.8 \leq M < 2.6$: Slightly agree; $2.6 \leq M < 3.4$: Somewhat agree; $3.4 \leq M < 4.2$: Mostly agree; $4.2 \leq M \leq 5.0$: Strongly agree.

Table 2 Evaluation of teachers participating in the survey on the advantages of implementing digital transformation in teaching categorized by age

Code	Age group (Year) (*M*±*SE*)				Kruskal – Walis H
	22–30	31–40	41–50	Over 50	($df = 3$)
Q111	3.75±.48	4.00±.24	3.84±.12	4.00±.00	$\chi^2 = 2.12$, $p = .55$
Q112	4.25±.25	4.25±.23	3.79±.10	4.00±.00	$\chi^2 = 8.14$, $p = .04$
Q113	4.25±.25	4.25±.18	3.84±.14	4.00±.00	$\chi^2 = 5.42$, $p = .14$
Q114	4.25±.25	4.30±.15	3.89±.07	4.50±.50	$\chi^2 = 7.07$, $p = .07$
Q115	4.75±.25	4.20±.17	3.89±.13	4.50±.50	$\chi^2 = 8.57$, $p = .04$
Q116	4.25±.25	4.25±.14	3.89±.11	4.50±.50	$\chi^2 = 5.24$, $p = .16$
Q117	4.25±.25	4.10±.20	3.89±.13	4.00±.00	$\chi^2 = 2.60$, $p = .46$

Note: $1.0 \leq M < 1.8$: Do not agree; $1.8 \leq M < 2.6$: Slightly agree; $2.6 \leq M < 3.4$: Somewhat agree; $3.4 \leq M < 4.2$: Mostly agree; $4.2 \leq M \leq 5.0$: Strongly agree; Q111: Reducing the burden in document preparation: Q112: Making lessons more interesting and exciting for students; Q113: Developing digital skills for teachers and students; Q114: Promoting research and innovation in education, improving teaching methods; Q115: Allowing teachers, students, and parents to monitor student learning progress through grade management software; Q116: Enabling flexible learning for students without spatial or time limits; Q117: Helping students self-study and review knowledge at home.

In contrast, older teachers may perceive the benefits but are less likely to express strong approval, probably due to a more extended period of adaption to new technologies. These findings are crucial for adapting professional development and support programs for different age groups, ensuring that all instructors can effectively use digital resources in their teaching practices. To promote clarity and engagement, ensure the findings are presented concisely and with appropriate statistical details. Including a discussion that analyzes the statistical data and provides practical consequences can make the research more engaging and accessible to a broader audience.

Among the specialist categories, only Q111 exhibited a difference in mean evaluation among teachers in Natural Sciences, Social Sciences, and Others (Technology, Arts, etc.). Teachers in the Natural Sciences group "mostly agree," but teachers in the other two groups "strongly agree" (Kruskal-Wallis H, χ^2= 6.86, df = 2, p = .03). In contrast, there were no significant variations in the mean assessments for Q112–117 (Kruskal-Wallis H, df = 2, p > .05 in all cases) (Table 3).

Furthermore, when assessing differences between high schools in the two study regions—the central region schools (An Khanh High School in Can Tho, Hoang Dieu High School in Soc Trang, and Cai Noc High School in Ca Mau) and the suburban region schools (Phan Van Tri High School in Can Tho, Doan Van To High School in Soc Trang, and Vam Dinh High School in Ca Mau)—using the Mann-Whitney U test, the research team found no statistically significant differences between these regions (Mann-Whitney U, $p > .05$ in all cases, Table 4).

Table 3 Evaluation of teachers on the advantages of implementing digital transformation in teaching categorized by expertise

Code	*M*±*SE*			Kruskal – Walis H
	Natural Sciences	Social Sciences	Other	(df = 2)
Q111	3.70±.16	4.25±.16	4.43±.20	χ^2 = 6.86, p = .03
Q112	3.93±.15	4.25±.16	4.29±.29	χ^2= 1.81, p = .41
Q113	4.00±.14	4.13±.13	4.29±.29	χ^2 = 1.00, p = .61
Q114	4.03±.10	4.13±.13	4.57±.20	χ^2 = 5.64, p = .06
Q115	4.03±.14	4.13±.13	4.57±.20	χ^2 = 4.01, p = .14
Q116	4.03±.10	4.25±.16	4.29±.29	χ^2 = 1.73, p = .42
Q117	3.93±.14	4.13±.13	4.29±.29	χ^2 = 1.43, p = .49

Note: 1.0 ≤ M < 1.8: Do not agree; 1.8 ≤ M < 2.6: Slightly agree; 2.6 ≤ M < 3.4: Somewhat agree; 3.4 ≤ M < 4.2: Mostly agree; 4.2 ≤ M ≤ 5.0: Strongly agree; Q111: Reducing the burden in document preparation: Q112: Making lessons more interesting and exciting for students; Q113: Developing digital skills for teachers and students; Q114: Promoting research and innovation in education, improving teaching methods; Q115: Allowing teachers, students, and parents to monitor student learning progress through grade management software; Q116: Enabling flexible learning for students without spatial or time limits; Q117: Helping students self-study and review knowledge at home.

Table 4 Evaluation of teachers on the advantages of implementing digital transformation in teaching categorized by geographical distribution

Code	Content	*M*±*SE*		Mann Whitney U
		Central area	Suburban area	
Q111	Reducing the burden in document preparation	3.96±.15	3.83±.22	Z = -.312 p = .755
Q112	Making lessons more interesting and exciting for students	4.15±.12	3.89±.23	Z = -.780 p = .435
Q113	Developing digital skills for teachers and students	4.07±.15	4.06±.13	Z = -.501 p = .616
Q114	Promoting research and innovation in education, improving teaching methods	4.22±.11	4.00±.11	Z = -1.367 p = .172
Q115	Allowing teachers, students, and parents to monitor student learning progress through grade management software	4.19±.16	4.06±.10	Z = -1.275 p = .202
Q116	Enabling flexible learning for students without spatial or time limits	4.22±.12	3.94±.10	Z = -1.671 p = .095
Q117	Helping students self-study and review knowledge at home	4.15±.15	3.83±.15	Z = -1.932 p = .053

Note: 1.0 ≤ M < 1.8: Do not agree; 1.8 ≤ M < 2.6: Slightly agree; 2.6 ≤ M < 3.4: Somewhat agree; 3.4 ≤ M < 4.2: Mostly agree; 4.2 ≤ M ≤ 5.0: Strongly agree.

The results from Tables 1, 2, 3 and 4 show that the evaluations were typically fair despite disparities in mean assessments between teacher groups. Teachers generally agree with the research team's recommended criteria from Q111 to Q117, indicating digital transformation's benefits in secondary schools. This finding suggested that participating instructors understood the roles and benefits of digital transformation in teaching and learning. It was a trend and a necessity to keep up with societal change. Digital transformation was viewed as developing an educational ecosystem that makes data more accessible and diversifies teaching, testing, and evaluation approaches. The findings of this study were congruent with previous research on the current state of digital revolution in education. Leshchenko et al. (2021) found that digital transformation in education improved the ability to do scientific research (organize, plan, and execute) and the capacity to use technology in teaching and learning. Furthermore, studies by Ipatov et al. (2020), Tsarapkina et al. (2021), Lattouf (2022), Srichailard (2023), and Timotheou et al. (2023) have backed up the benefits of digital transformation in education.

Difficulties of digital transformation in Mekong Delta high schools

In addition to evaluating the benefits, the research team studied the difficulties of adopting digital transformation in high schools across three provinces/cities in the Mekong Delta. The findings are as follows: Teachers evaluated most of the difficulty criteria in Table 5 as "Somewhat agree", except Q132, which was rated as "Mostly agree" (3.49±.89 SE). Overall, these assessments were relatively neutral. As a result, comparing means across different groups was required to explain these assessments and discover the causes behind the scores.

There were no significant differences in the mean ratings of the four instructor groups for criteria Q131–Q1310 across age groups (Kruskal-Wallis H, df=3, p >.05 in all cases). However, to provide a more accurate assessment of the opinions in Table 5, the research team examined the evaluations of teachers aged 22–30, 31–40, 41–50, and over 50 years, as shown in Table 6. While most evaluations indicated "somewhat agree" other groups scored criteria as "mostly agree". Specifically, Q131 (for teachers aged 31-40 and above 50), Q135 (for teachers aged 31–40), Q139 (for teachers aged 31–40), and Q1310 (for teachers aged 41–50) were identified, demonstrating that, although *instructors' judgments across the four age groups tend to be neutral, they generally agree with the criteria proposed by the research team.*

Based on expertise groups in Table 7, evaluations from natural sciences teachers, social sciences teachers, and other instructors (technology, arts, etc.) showed no significant differences (Kruskal-Wallis H, df = 2, p >.05). However, mean ratings found disparities across groups, with some instructor groups rating some criteria as "Mostly agree". Notably, Q132 (natural sciences and social sciences teachers), Q139 (other instructors), and Q1310 (other teachers) were all given this rating, showing that while overall evaluations were impartial, there was agreement on the stated criteria.

Regarding geographical distribution, the Mann-Whitney U test was used to compare high schools in central and suburban locations, and there were no significant differences between Q131 and Q1310. Table 8 revealed differences in the suburban area. Teachers at suburban schools rated criteria Q131, Q132, Q135, Q136, Q137, Q139, and Q1310 as "Mostly agree", suggesting that *suburban teachers face more challenges with digital transformation than their central area counterparts*.

Table 5 Evaluation of teachers on the difficulties of implementing digital transformation in teaching

Code	Content	*M*±*SE*	View point
Q131	Inadequate facilities, lack of equipment (computers, phones, laptops...)	3.36±.88	Somewhat agree
Q132	Unstable Internet infrastructure	3.49±.89	Mostly agree
Q133	Time-consuming and labor-intensive	2.87±.94	Somewhat agree
Q134	Lack of necessary technical knowledge to use technology in teaching	3.04±.98	Somewhat agree
Q135	Limitations in software for assessing student learning	3.20±.97	Somewhat agree
Q136	Difficulty in changing students' learning habits	3.29±1.04	Somewhat agree
Q137	Student's ability to use information technology is still different	3.20±.94	Somewhat agree
Q138	Lack of support from professional staff and leaders	3.07±.91	Somewhat agree
Q139	Digital learning resources are widespread, not strictly controlled in terms of content	3.27±.91	Somewhat agree
Q1310	Legal regulations on education are still not comprehensive, affecting intellectual property rights	3.29±1.04	Somewhat agree

Note: $1.0 \leq M < 1.8$: Do not agree; $1.8 \leq M < 2.6$: Slightly agree; $2.6 \leq M < 3.4$: Somewhat agree; $3.4 \leq M < 4.2$: Mostly agree; $4.2 \leq M \leq 5.0$: Strongly agree.

Table 6 Evaluation of teachers participating in the survey on the difficulties of implementing digital transformation in teaching categorized by age

Code	Age group (year) (*M*±*SE*)				Kruskal – Walis H
	22–30	31–40	41–50	Over 50	(*df* = 3)
Q131	3.00±.71	3.45±.18	3.26±.20	4.00±.00	$\chi^2 = 1.79$, $p = .62$
Q132	3.75±.48	3.50±.21	3.37±.21	4.00±.00	$\chi^2 = 1.62$, $p = .65$
Q133	2.75±.25	3.00±.25	2.79±.20	2.50±.50	$\chi^2 = 1.72$, $p = .63$
Q134	2.75±.25	3.05±.28	3.16±.18	2.50±.50	$\chi^2 = 1.77$, $p = .62$
Q135	2.50±.29	3.45±.22	3.16±.22	2.50±.50	$\chi^2 = 5.89$, $p = .12$
Q136	2.75±.75	3.35±.25	3.37±.19	3.00±1.00	$\chi^2 = 1.42$, $p = .70$
Q137	2.75±.48	3.15±.22	3.39±.21	2.60±.50	$\chi^2 = 3.30$, $p = .35$
Q138	2.75±.25	3.25±.24	3.00±.19	2.50±.50	$\chi^2 = 2.56$, $p = .47$
Q139	3.00±.41	3.41±.22	3.26±.20	2.50±.50	$\chi^2 = 2.89$, $p = .41$
Q1310	2.75±.25	3.25±.26	3.47±.22	3.00±1.00	$\chi^2 = 2.12$. $p = .55$

Note: $1.0 \le M < 1.8$: Do not agree; $1.8 \le M < 2.6$: Slightly agree; $2.6 \le M < 3.4$: Somewhat agree; $3.4 \le M < 4.2$: Mostly agree; $4.2 \le M \le 5.0$: Strongly agree; Q131: Inadequate facilities, lack of equipment (computers, phones, laptops...); Q132: Unstable Internet infrastructure; Q133: Time-consuming and labor-intensive; Q134: Lack of necessary technical knowledge to use technology in teaching; Q135: Limitations in software for assessing student learning; Q136: Difficulty in changing students' learning habits; Q137: Student's ability to use information technology is still different; Q138: Lack of support from professional staff and leaders; Q139: Digital learning resources are widespread, not strictly controlled in terms of content; Q1310: Legal regulations on education are still not comprehensive, affecting intellectual property rights.

Table 7 Evaluation of teachers on the difficulties of implementing digital transformation in teaching categorized by expertise

Code	M±SE			Kruskal – Walis H
	Natural Sciences	Social Sciences	Other	(*df* = 2)
Q131	3.37±.16	3.38±.32	3.29±.36	$\chi^2 = .04$, $p = .98$
Q132	3.57±.16	3.50±.38	3.14±.34	$\chi^2 = 1.21$, $p = .55$
Q133	2.77±.16	3.13±.40	3.00±.38	$\chi^2 = 1.46$, $p = .48$
Q134	2.97±.18	3.25±.41	3.14±.34	$\chi^2 = 1.07$, $p = .59$
Q135	3.20±.18	3.25±.41	3.14±.34	$\chi^2 = .21$, $p = .90$
Q136	3.37±.19	3.25±.31	3.00±.44	$\chi^2 = .91$, $p = .63$
Q137	3.20±.17	3.25±.41	3.14±.34	$\chi^2 = .20$, $p = .91$
Q138	3.07±.15	3.13±.40	3.00±.44	$\chi^2 = .46$, $p = .79$
Q139	3.27±.15	3.13±.40	3.43±.43	$\chi^2 = .26$, $p = .88$
Q1310	3.27±.17	3.13±.44	3.57±.48	$\chi^2 = .52$, $p = .77$

Note: $1.0 \le M < 1.8$: Do not agree; $1.8 \le M < 2.6$: Slightly agree; $2.6 \le M < 3.4$: Somewhat agree; $3.4 \le M < 4.2$: Mostly agree; $4.2 \le M \le 5.0$: Strongly agree; Q131: Inadequate facilities, lack of equipment (computers, phones, laptops...); Q132: Unstable Internet infrastructure; Q133: Time-consuming and labor-intensive; Q134: Lack of necessary technical knowledge to use technology in teaching; Q135: Limitations in software for assessing student learning; Q136: Difficulty in changing students' learning habits; Q137: Student's ability to use information technology is still different; Q138: Lack of support from professional staff and leaders; Q139: Digital learning resources are widespread, not strictly controlled in terms of content; Q1310: Legal regulations on education are still not comprehensive, affecting intellectual property rights.

Table 8 Evaluation of teachers on the difficulties of implementing digital transformation in teaching categorized by geographical distribution

Code	Content	*M*±*SE*		Mann Whitney U
		Central area	Suburban area	
Q131	Inadequate facilities, lack of equipment (computers, laptops...)	3.22±.18	3.56±.18	$Z = -1.069$ $p = .285$
Q132	Unstable Internet infrastructure	3.37±.19	3.67±.18	$Z = -1.160$ $p = .246$
Q133	Time-consuming and labor-intensive	2.85±.19	2.89±.21	$Z = -.195$ $p = .846$
Q134	Lack of necessary technical knowledge to use technology in teaching	2.85±.18	3.33±.24	$Z = -1.727$ $p = .084$
Q135	Limitations in software for assessing student learning	3.00±.20	3.50±.19	$Z = -1.748$ $p = .080$

Table 8 Continued

Code	Content	*M*±*SE*		Mann Whitney U
		Central area	Suburban area	
Q136	Difficulty in changing students' learning habits	3.15±.20	3.50±.25	Z = -1.198 p = .231
Q137	Student's ability to use information technology is still different	3.04±.20	3.44±.18	Z = -1.404 p = .231
Q138	Lack of support from professional staff and leaders	3.00±.19	3.17±.19	Z = -.665 p = .506
Q139	Digital learning resources are widespread, not strictly controlled in terms of content	3.24±.20	3.61±.14	Z = -2.153 p = .301
Q1310	Legal regulations on education are still not comprehensive, affecting intellectual property rights	3.22±.22	3.41±.22	Z = -.652 p = .514

Note: $1.0 \le M < 1.8$: Do not agree; $1.8 \le M < 2.6$: Slightly agree; $2.6 \le M < 3.4$: Somewhat agree; $3.4 \le M < 4.2$: Mostly agree; $4.2 \le M \le 5.0$: Strongly agree.

Tables 5, 6, 7 and 8 show that teachers ranked criteria Q131–Q1310 at the "Somewhat agree" level, indicating a neutral approach. Although the mean values in Tables 6, 7, and 8 (by age group, competence, and geographical distribution) did not differ much, they leaned toward "Mostly agree". This finding suggested that, while the obstacles highlighted by the research team did not significantly influence, they partially impacted the target groups, particularly those in suburban regions. Schools in these areas frequently faced obstacles such as poor transportation infrastructure, restricted access to critical services, and varying levels of information technology use compared to urban centers. These factors added to the more significant problems teachers face in suburban settings.

In addition to investigating teachers' judgments of the benefits of digital transformation using non-parametric statistical approaches, the research team investigated this problem with an open question: "What difficulties do you encounter during the digital transformation process in general schools?" Figure 2 depicts the responses to some significant challenges.

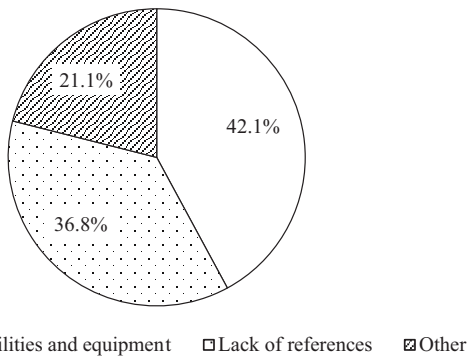


Figure 2 Typical difficulties in implementing digital transformation

Figure 2 shows that issues with facilities (42.1%) and a lack of reference materials (36.8%) present substantial challenges for teachers undergoing digital transformation. Typical answers include:

"Some schools have not ensured facilities, equipment, and have unstable internet connections, making it difficult to implement digital transformation effectively"

Opinion of teachers at Hoang Dieu School, Soc Trang.

"Access to new technologies is limited due to continuous innovations, which makes it difficult for teachers to engage in digital transformation activities"

Opinion of teachers at Phan Van Tri School, Can Tho.

"There have not been many training sessions; the training and guidance for teachers is limited, and knowledge about digital transformation is mainly self-taught without proper reference materials, leading to errors in the implementation of digital transformation"

Opinion of teachers at Doan Van To School, Soc Trang.

These obstacles were consistent with studies on digital transition. According to Shang and Li (2023)'s research, fundamental obstacles in digital transformation arose from a lack of investment, poor educational infrastructure, and challenges related to teacher and student capacities (Shang & Li, 2023). Similarly, a study by Yang and Wang (2023) identified problems with ineffective digital resources and an over emphasis on data volume and technology innovation while overlooking human development. As a result, digital transformation necessitates a holistic approach that addresses three key pillars: (1) culture and skills, (2) infrastructure and technology, and (3) ecosystem (Brunetti et al., 2020).

Conclusions and Recommendations

The study investigated teachers' perceptions of the benefits and challenges of implementing digital transformation in institutions. The findings show that digital transformation has various benefits, including enhanced student involvement, reduced workload, and improved student management, monitoring, and connectivity. However, teachers faced substantial hurdles regarding infrastructure and a lack of reference resources. From the researched results, the research team has proposed several solutions to support the implementation of digital transformation, such as Investing in infrastructure and equipment; Organizing training sessions to raise awareness about digital transformation; Completing policies, and proposing measures to encourage the implementation of digital transformation; Additionally, raising awareness among everyone, especially teachers and educators, about the issue of digital transformation and the importance of implementing digital transformation in education; Creating a positive learning environment, encouraging teachers and students to participate in digital learning, and effectively utilizing and exploiting online materials and resources.

Additional studies with a bigger and more diverse sample size need to be conducted to acquire a more thorough and nuanced knowledge of these challenges. Expanding the scope of the study will aid in identifying the causes of these issues and provide insights into potential solutions. This future research should strive to develop solutions to improve the infrastructure and availability of reference resources, resulting in a more seamless digital transformation process in educational institutions.

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Conflict of Interests

The authors declare no potential conflicts of interest concerning the research.

References

Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. *Quality progress*, *40*(7), 64–65. https://www.bayviewanalytics.com/reports/asq/likert-scales-and-data-analyses.pdf

Benavides, L. M. C., Tamayo Arias, J. A., Arango Serna, M. D., Branch Bedoya, J. W., & Burgos, D. (2020). Digital transformation in higher education institutions: A systematic literature review. *Sensors*, *20*(11), 3291. https://doi.org/10.3390/s20113291

Brunetti, F., Matt, D. T., Bonfanti, A., De Longhi, A., Pedrini, G., & Orzes, G. (2020). Digital transformation challenges: Strategies emerging from a multi-stakeholder approach. *The TQM Journal*, *32*(4), 697–724. https://doi.org/10.1108/TQM-12-2019-0309

Elango, R., Gudep, V. K., & Selvam, M. (2008). Quality of e-learning: An analysis based on e-learners' perception of e-learning. *Electronic Journal of E-learning*, *6*(1), 29–41. https://files.eric.ed.gov/fulltext/EJ1098757.pdf

Frolova, E. V., & Rogach, O. V. (2021). Digitalization of higher education: Advantages and disadvantages in student assessments. *European Journal of Contemporary Education*, *10*(3), 616–625. https://doi.org/10.13187/ejced.2021.3.616

Glaser, B. G., Strauss, A. L., & Strutzel, E. (1968). The discovery of grounded theory; strategies for qualitative research. *Nursing research*, *17*(4), 364. http://www.sxf.uevora.pt/wp-content/uploads/2013/03/Glaser_1967.pdf

Ha, T. T. (2020). Promoting the role of the people in the cause of industrialization, modernization, and digitization for economic growth in Vietnam today. In *Proceedings of the 2nd international scientific and practical conference "Modern management trends and the digital economy: From regional development to global economic growth" (MTDE 2020)*. https://doi.org/10.2991/aebmr.k.200502.053

Ho, S. H. (2023). The situation of preschool teachers' information technology application capacity in the trend of digital transformation: A study in some kindergartens in Thanh Hoa province. *Hong Bang International University Journal of Science - HIUJS*, *25*(9/2023), 55–62. https://doi.org/10.59294/HIUJS.25.2023.502

Ipatov, O., Barinova, D., Odinokaya, M., Rubtsova, A., Pyatnitsky, A., & Katalinic, B. (2020). The impact of digital transformation process of the Russian university. In *Proceedings of the 31st DAAAM international symposium*. https://doi.org/10.2507/31st.daaam.proceedings.037

Lattouf, O. M. (2022). Impact of digital transformation on the future of medical education and practice. *Journal of Cardiac Surgery*, *37*(9), 2799–2808. https://doi.org/10.1111/jocs.16642

Le, D. V. (2022). *Chuyển đổi số trong trường tiểu học Hoàng An - Cơ hội và thách thức [Digital Transformation at Hoang An Elementary School - Opportunities and Challenges]*. The Electronic Portal of the Education and Training Office of Hiep Hoa District, Bac Giang Province. http://pgdhiephoa.edu.vn/tin-tuc-thong-bao/hoat-dong-chung/chuyen-doi-so-trong-truong-tieu-hoc-hoang-an-co-hoi-va-thach-thuc-.html [In Vietnamese]

Leshchenko, M., Kolomiiets, A., Iatsyshyn, A., Kovalenko, V., Dakal, A., & Radchenko, O. (2021). Development of informational and research competence of postgraduate and doctoral students in conditions of digital transformation of science and education. *Journal of Physics: Conference Series, 1840*(1), 012057. https://doi.org/10.1088/1742-6596/1840/1/012057

Louis, C., Lawrence, M., & Keith, M. (2007). Surveys, longitudinal, cross-sectional and trend studies (Chapter 9). In t. Edition (Ed.), *Research Methods in Education* (pp. 20). Routledge. https://doi.org/10.4324/9780203029053

Luong, D. H. (2023). Digital transformation in education between 2020 and 2022: A scientometric approach. *Vietnam Journal of Educational Sciences (VJES)*, *875*, 77.43. https://doi.org/10.15625/2615-8957/12310401

Mai, N. T. (2021). *Tầm quan trọng của chuyển đổi số đối với giáo dục đào tạo trong giai đoạn hiện nay [The importance of digital transformation for education and training in the current period]*. Learning Resources and IT Center - Da Nang University of Education. https://lrel.ued.udn.vn/vi/news/cong-nghe-giao-duc/tam-quan-trong-cua-chuyen-doi-so-doi-voi-giao-duc-dao-tao-trong-giai-doan-hien-nay-12.html#:~:text=Chuy%E1%BB%83n%20%C4%91%E1%BB%95i%20s%E1%BB%91%20trong%20gi%C3%A1o%20d%E1%BB%A5c%20%C4%91%C3%A0o%20t%E1%BA%A1o%20t%E1%BA%ADp%20trung [In Vietnamese]

Narli, S. (2010). An alternative evaluation method for Likert type attitude scales: Rough set data analysis. *Scientific Research and Essays*, *5*(6), 519–528. http://www.academicjournals.org/SRE

Ngo, T. T., & Le, T. M. T. (2024). Application of digital transformation in university teaching. *Pedagogy & Psychology. Theory and practice*, *2*(52), 20–25. https://journals.indexcopernicus.com/api/file/viewByFileId/1944449

Nguyen, A. T., Tran, P. C., & Nguyen, T. P. A. (2023). Digital transformation in higher education from online learning perspective: A comparative study of Singapore and Vietnam. *Policy Futures in Education*, *21*(4), 335–354. https://doi.org/10.1177/14782103221124

Nguyen, D. L., Truong, M. H. V., Le, A. V., & Nguyen, N. T. C. (2022). The Study on Awareness, Ability and Policy Suggestions to Meet Job Requirements of the Digital Transformation. *International Journal of Instruction*, *15*(2), 1017–1038. https://doi.org/10.29333/iji.2022.15256a

Nguyen, H. D. (2022). *Enhance the application of information technology and digital transformation in education*. Center for Educational Communication. Retrieved 16/07 from https://moet.gov.vn/giaoducquocdan/tang-cuong-ung-dung-cntt/Pages/Default.aspx?ItemID=8349 [In Vietnamese]

Nguyen, M. T., & Pham, D. H. (2023). The impact of digital transformation in higher education: the case study from vietnam. *Journal of Higher Education Theory and Practice*, *23*(5). https://articlearchives.co/index.php/JHETP/article/view/5542/5495

Nguyen, T. (2024a). *Ra mắt nền tảng sách, báo điện tử* [Launch of the E-book and E-newspaper Platform]. Nhan Dan Newspaper. https://nhandan.vn/ra-mat-nen-tang-sach-bao-dien-tu-post848129.html [In Vietnamese]

Nguyen, T. H. C. (2024b). Nghiên cứu tổng quan về sử dụng trí tuệ nhân tạo trong dạy học [Overview study on the use of artificial intelligence in teaching]. *TNU Journal of Science and Technology*, *229*(04), 140–147. https://doi.org/10.34238/tnu-jst.8541

Nguyen, X. A., Pham, K. L., & Trinh, V. H. (2024). Current situation of some difficulties in implementing digital transformation of activities of preschool and high schools. *TNU Journal of Science and Technology*, *229*(04), 222–229. https://doi.org/10.34238/tnu-jst.8568

Office of the Government of Vietnam. (2024). *Cổng Thông tin điện tử là cầu nối quan trọng giữa chính quyền và người dân* [The Electronic Information Portal is an important 'bridge between the government and the people]. Office of the Government of Vietnam. https://vpcp.chinhphu.vn/cong-thong-tin-dien-tu-la-cau-noi-quan-trong-giua-chinh-quyen-va-nguoi-dan-115241114162902929.htm [In Vietnamese]

Prime Minister. (2020). *Decision No. 749/QD-TTg: Approving the National Digital Transformation Program to 2025, with orientation to 2030*. Government of the Socialist Republic of Viet Nam: Government of the Socialist Republic of Viet Nam Retrieved from https://datafiles.chinhphu.vn/cpp/files/vbpq/2020/06/749.signed.pdf [In Vietnamese]

Pham, V. Q., & Nguyen, Q. T. (2011). *Phương pháp nghiên cứu Xã hội học* [Methods of sociological research]. Hanoi National University Publishing House. http://thuvien.sptwnt.edu.vn/Ebookview.aspx?id=2021052400201 [In Vietnamese]

Phan, T. C., Ngo, T. T., & Phan, M. T. (2020). Assessment of information technology use competence for teachers: Identifying and applying the information technology competence framework in online teaching. *Journal of Technical Education and Training*, *12*(1). https://doi.org/10.30880/jtet.2020.12.01.016

Reigeluth, C. M., Watson, W. R., Watson, S. L., Dutta, P., Chen, Z., & Powell, N. D. (2008). Roles for technology in the information-age paradigm of education: Learning management systems. *Educational Technology*, 32–39. http://www.jstor.org/stable/44429625

Shang, J., & Li, X. (2023). The difficulties and corresponding strategies of educational digital transformation. *Journal of East China Normal University (Educational Sciences)*, *41*(3), 72. https://doi.org/10.16382/j.cnki.1000-5560.2023.03.008

Srichailard, P. (2023). The development learning model of flipped classroom with digital storytelling for department of computer education. *Kasetsart Journal of Social Sciences*, *44*(3), 929–938. https://doi.org/10.34044/j.kjss.2023.44.3.31

Timotheou, S., Miliou, O., Dimitriadis, Y., Sobrino, S. V., Giannoutsou, N., Cachia, R., Ioannou, A. (2023). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. *Education and information technologies*, *28*(6), 6695-6726. https://doi.org/10.1007/s10639-022-11431-8

Tsarapkina, J. M., Anisimova, A. V., Gadzhimetova, B. D., Kireycheva, A. M., & Mironov, A. G. (2021). The impact of digital education transformation on technical college teachers. *Journal of Physics: Conference Series*, *2001*(1), 012030. https://doi.org/10.1088/1742-6596/2001/1/012030

Tran, T. T. H., & Nguyen, K. Q. (2022). Educators' digital competencies: related concepts and assessment toolkits. *Vietnam Journal of Education*, *22*(16), 24–28. https://tcgd.tapchigiaoduc.edu.vn/index.php/tapchi/article/view/505

Vo, L. T. T., Tran, A. N., Phan, T. Q., Nguyen, P. L. H., Tran, L. T. C., & Dinh, Q. M. (2024). Strategies for biological lesson plan designing and applying: A case study at Cai Nuoc high school in Ca Mau Province, Vietnam. *Kasetsart Journal of Social Sciences*, *45*(1), 113–120. https://doi.org/10.34044/j.kjss.2024.45.1.12

Yang, X., & Wang, R. (2023). Difficulties and solutions: Next step in the digital transformation of education. *Journal of East China Normal University (Educational Sciences)*, *41*(3), 82. https://doi.org/10.16382/j.cnki.1000-5560.2023.03.008

Yavuz, G., Gunhan, B. C., Ersoy, E., & Narli, S. (2013). Self-efficacy beliefs of prospective primary mathematics teachers about mathematical literacy. *Journal of College Teaching & Learning (TLC)*, *10*(4), 279–288. https://doi.org/10.19030/tlc.v10i4.8124

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Employing English reading activities to promote English reading comprehension of EFL undergraduate students through self-made teaching materials

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Abstract

The purposes of this study were (1) to construct English reading activities through self-made teaching materials for developing English reading comprehension for first-year undergraduate students at a private university in Bangkok, (2) to compare students' learning achievement between the pre-test and the post-test of employing English reading activities through self-made teaching materials, and (3) to gauge the students' level of satisfaction towards activities through self-made teaching materials. Twenty-five students were purposely selected from first-year undergraduate students at a private university in Bangkok during the first semester of the 2023 academic year. The instruments used were five units of English lessons based on general reading content, a reading achievement test, a questionnaire, and an interview to gauge the subjects' positive assessment of the effectiveness of the instructional materials. The *t*-test was utilized to analyze the English reading progress of the subjects before and after using the English reading lessons based on general reading content. Data analysis was carried out by examining the questionnaire scores in terms of standard deviation, percentages and mean. The results showed that: (1) English reading activities through self-made teaching materials for developing English reading comprehension had an efficiency of 85.60/82.50, which was higher than the 80/80 standard. (2) There was a significant difference between the pre-test and the post-test at $p < .05$ the level of significance. (3) The students reported a high level of satisfaction towards English reading lessons.

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Introduction

Improvements in information and communication technology, as well as the emergence and developments in the Internet network, have made communication more convenient. Surveys suggest that the global number of Internet users continues to grow unabatedly. Figures suggest that there were more than 5.4 billion users of the Internet in 2023 (ITU-Statistics, 2023). Additionally, a causal relationship was discovered between the Internet network and the production and dissemination of information, in that the Internet has caused the processing of information to be done more quickly and conveniently. The benefits provided by the Internet, such as communication, production, and dissemination, also alter the behavior of people when they search for information. Furthermore, by the individual desires of people, the search for information via the internet increases. Currently, information dissemination on the Internet is favored as the media can be presented via an eBook (electronic book), and the data within this 'book' are represented in English. Accordingly, if we are to exist successfully within an information society, we must depend on information. We must be aware of how to pursue information aligned with the conceptual framework for developing learners' skills or, in other words, skills necessary for people living in the 21st century. Looking at the skills of people in the 21st century from a conceptual framework, it is evident that the skill of reading is necessary for everybody to acquire. Consequently, reading also happens to be one of the most important skills for students of English as a Second Language (ESL), as well as for those studying English as a Foreign Language (EFL).

The understanding of the meaning of written material is believed to be a much-needed skill in enabling students to gain knowledge, garner information, and also become proficient in learning grammatical structures and vocabulary from a variety of texts (Bamford & Day, 2004). These factors contribute to achievements in language adroitness, academic progress, and personal growth (Abdelhalim, 2017). We can therefore allude to the fact that encouraging students to engage in reading comprehension tasks is indispensable in developing their language skills and helping them achieve their learning goals. With this in mind, educators have a role of great significance in elevating the comprehension skills of students in English reading tasks. Educators can achieve this through the utilization of reading tasks when teaching. It can naturally be assumed that reading tasks have a significant role in the creation and construction of meaning in written texts of reading comprehension. This is the reason that a high proportion of teachers assign a high degree of importance to pre, during and post reading tasks to increase the students' reading comprehension skills (Protacio, 2017).

The requisite reading strategies are split into three areas according to Tanjung et al. (2022): pre-reading (planning) strategies, while-reading (monitoring) strategies, and post-reading (evaluating) strategies. Initially, pre-reading strategies are concerned with scanning and subsequently trying to assume the meaning of the text. This skill aids the reader in deciding which written material fits the purpose of their reading. Once it has been decided whether the book or article is appropriate for the purpose, the reader then goes on to think about the topic, impart information from the context, and develop questions to ask themselves (Alemi & Ebadi, 2010). During the while-reading strategies, readers can resolve issues regarding their reading problems through techniques such as self-questioning, self-monitoring, and problem-solving. Post-reading strategies are more concerned with aspects of evaluation and responses to said evaluation. Learners can use their skills to evaluate their strategy by questioning their aims, how effectively they are performing their strategy, and what supplementary targets they can reach that are connected to the text. This self-analysis, in the form of questions, helps readers to appraise the effectiveness of their course of action and respond in the correct manner (Westwood, 2008).

The researcher, an English teacher at a private university in Bangkok, observes that first-year students who have recently graduated from Mathayom studies and are new to higher education share similar types of problems when reading English. Specifically, these difficulties include the exact nature of the discourse, the dense nature of the information in the written article, and an overload of new vocabulary. Furthermore, the content does not apply to the everyday lives of students. Taking such factors into account, it can be stated that if the students are unable to gain the fundamental comprehension of the material they will, in turn, also be unable to hit their exact goal regarding content. The reason for this is that learners in Thailand have been conditioned to comprehend written material closely, with care, and at a ponderous speed. Subsequently, it can be deemed that students generally, but especially those at the intermediate level, need to alter their reading routines and skills to attain an advanced status.

Learners must be trained to address a written text with an explicit purpose, to actuate previous

knowledge, to acquire a better understanding, to focus on the central principle, and to employ their ability to think. Consequently, this researcher produces reading materials, in English, to improve levels of student competency. This is done using the previously mentioned strategy of pre-reading, while-reading, and post-reading. The purpose of these combined tasks is to help students read, understand, learn, and enjoy the chosen written material successfully while creating a more communicative reading environment.

Literature Review

Reading and Comprehension

Research by DeBruin-Parecki et al. (2015) opines that reading makes it possible for learners to become autonomous in comprehending written material, while also making progress with their academic and professional skill levels. Successful readers have higher levels of comprehension because they can make connections with differing ideas, understand notions of complexity, and reflect on this information while reading concurrently. Therefore, education systems seek to introduce educational policies that favor critical thinking and pre-reading to improve the comprehension ability of learners (Javed et al., 2015). Similarly, systematic inclusion of reading and comprehension in the educational environment, allows learners to reflect on the material critically and thus understand a text better. The use of rationale in answering comprehension questions has also been developed (DeBruin-Parecki et al., 2015). According to Glenberg (2011), comprehension is the ability to form competent responses to the information contained within the written material. Consequently, it can be concluded that complete comprehension is not a realistic target for the reader. Alternatively, the reader should simply strive to understand the main theme that the writer wants to convey, rather than every nuance considered by the writer throughout the text as such a thorough understanding might not even exist. To put it more simply, the reader should not aim to achieve complete comprehension of a text; they should only aspire to an appropriate level of comprehension.

Additionally, background knowledge is crucial in encouraging the reader to learn something new. It is said that the schema theory formalizes how background knowledge impacts language comprehension. It is seen as a dynamic process that involves a complex web of ideas, abilities, and techniques to grasp new facts, events, and circumstances. According to the schema theory, reading comprehension is regarded as an interactive process between the text and the reader's prior knowledge (McNamara, 2007). Thus, the reader will understand the text if he/she creates or activates a schema that corresponds with the information from the text.

Teaching Material

Teaching materials are tools for learning that encompass learning resources, methods, constraints, and evaluation criteria necessary for achieving desired outcomes (Sinthopruuangchai, 2011). Moreover, teaching materials should be crafted and formatted with instructional guidance, as they will be utilized by the teacher to aid and bolster the learning process. Therefore, we can infer that the teacher's role in designing or creating teaching materials is crucial to the success of the learning process. Material refers to anything utilized to meet learning requirements, encompassing not only books but also CDs, videos, dictionaries, and other resources (Tomlinson & Masuhara, 2021). Using teaching materials helps teachers maintain organization in delivering content to students and ensures the achievement of all predetermined competencies. Additionally, Tomlinson and Masuhara (2021) outline several principles for developing materials: (1) The material should be impactful for learners, (2) It should foster a sense of comfort among students, (3) The material should enhance learners' confidence, (4) Learners should view it as both relevant and beneficial. Consequently, the researcher utilizes Tomlinson's guidelines to design the lessons.

The Rules of Pre, While, and Post-Strategy

The division of reading activities into the three stages; pre-reading, while-reading, and post-reading means that the educator can firstly, prepare learners well for the text, and secondly, assist in guiding them through the text to optimize learning. During the initial Pre-Reading stage, the context, scope, or test type, of the topic is built using, what is known as, the 'hook', which triggers prior knowledge and motivates the student to engage. This stage is designed to involve the student as thoroughly as possible while fully engaging the senses. Pre-reading has the purpose of differentiating between the contexts, experiences, predispositions, and prior knowledge that learners have and in turn influences both how they read and how they acquire knowledge from written material (Nunan, 1989).

While the pre-reading stage has an emphasis on improving skills before reading, the while-reading stage concerns itself more with the actual text as learners work on their reading strategies, as well as decrypting and understanding problems within passages of text (Tierney & Readence, 2004). More specifically, the while-reading stage is used to understand the functions of new words, analyze words of reference, decipher the grammatical function of a sentence, and improve the efficient use of a dictionary. These issues are all appreciated by the teacher in their lesson aims. In addition to focusing on the organization of the reading passage and text structure, the while-reading stage also concerns itself with the content of the text, and the general and detailed information found within it (Grabe, 2004).

The post-reading phase is where the in-depth analysis of the material is undertaken, as the educator can check learner comprehension. During this particular stage, learners have the opportunity to use vocabulary and language connected to the topic of the text (Mukhroji, 2011). They consolidate the knowledge gained from the previous two stages, appraising, integrating, and examining the material by making associations, and asking critical questions to establish meaning in the text (Alyousef, 2006). The use of this method and its three stages means that teachers have the power to actuate learners and, the three skills of speaking, listening, and writing can be fused desirably.

Thus, the researcher has incorporated the rules of pre-, while-, and post-reading strategies into the lesson structures and, subsequently, into this research. The aim of these strategies, along with the accompanying materials, is to assist learners in advancing their reading skills, thereby enhancing both their achievements and satisfaction.

Objectives of the Study

The objectives of this study are as follows:

1. To construct English reading activities through self-made teaching materials for developing English reading comprehension for first-year undergraduate students.

2. To compare students' learning achievement between the pre-test and the post-test of employing English reading activities through self-made teaching materials.

3. To survey students' satisfaction with activities through self-made teaching materials.

Methodology

Participants

The study involved a group of first-year undergraduate students from the Thai-Nichi Institute of Technology, a private university in Bangkok. The sample comprised 25 first-year students enrolled in an English Foundation Course, drawn from various faculties at TNI during the first semester of the 2023 academic year. This course was designed for students who scored below 40 marks on the TNI English Proficiency Standard Test. The participants were selected through purposive sampling, based on the class assigned to the researcher by the university registrar's office. Table 1 and Table 2 present the frequency and percentage of the subjects' gender and faculties, respectively.

Table 1 Frequency and percentage of the subjects' gender

Gender	Frequency	Percentage
Male	12	48.00
Female	13	52.00
Total	25	100.00

Table 2 Frequency and percentage of the subjects' faculties

Faculties	Frequency	Percentage
Business Administration	10	40.00
Engineering	10	40.00
IT	5	20.00
Total	25	100.00

Based on Table 1 and Table 2, it turned out that more than half of the participants were female (13) and male (12), studying in 3 faculties including Business Administration (40%), Engineering (40%), and IT (20%).

Topics Used In An Experiment

The topics used in this experiment were (1) Living around the World, (2) Human Sensibility, (3) The Melting World, (4) Existence and (5) Drinking Tea. These were chosen based on the results of a survey of students' needs questionnaire.

Duration In Experiment

The study was conducted over a seven-week period (2 hours per week).

Variables

Variables in this study include:

1. The English reading achievement level of the participating students before and after using English lessons based on the content of general reading.

2. The students' satisfaction with the English reading lessons based on the content of general reading in five units.

Research Instruments

Data were collected with the following instruments:

1. Five lessons of English reading lessons based on content of general reading.

2. English reading achievement test.

3. A survey, in the form of a questionnaire, was put together to gauge the satisfaction level of topics concerned with general reading in five units.

Construction and Development of Research Instruments

The researcher constructed the English lessons based on content about general reading and the achievement test in the following way:

Firstly, this study began by studying the content of the general reading, understood the objectives, and then focused on the relevant skills and strategies for English reading. Sub-topics such as reading to identify the main theme, topic sentences, pronoun references, and sequencing events were emphasized. Secondly, the researcher derived five topics out of eight from the survey of needs questionnaire and interviewed the participants from the target group regarding topics required for first-year undergraduate students. The topics are delineated below in Table 3:

Table 3 Topics students required arranged from highest to lowest mean score

Rank	Topic	Mean	*SD*	Meaning
1	The Melting World	4.63	0.54	Strongly agree
2	Drinking Tea	4.60	0.59	Strongly agree
3	Living around the World	4.58	0.59	Strongly agree
4	Human Sensibility	4.57	0.67	Strongly agree
5	Existence	4.55	0.62	Strongly agree
6	Sciences	3.69	0.89	Agree
7	Languages	3.64	0.96	Agree
8	World Peace	3.62	0.77	Agree

Thirdly, the initial selection of topics focused on the students' perceived needs. The top five topics, identified by their mean scores, were then adapted for first-year undergraduate students. This adaptation involved providing vocabulary guidelines and explanations, simplifying language structures, sourcing relevant images, and integrating the content into suitable reading material. Subsequently, the table of contents was developed by defining the objectives, content, topics, target reading skills, reading activities, and evaluation criteria. Finally, the completed table underwent inspection for the Index of Item–Objective Congruence (IOC) by English lecturers, all holding PhDs in English Language Teaching and English Studies. Lesson plans were developed for all five lessons, each including learning objectives, topics, and content. The reading activities comprised pre-reading, while-reading, and post-reading tasks. Furthermore, experts reviewed the lesson plans for suitability and accuracy before their implementation with the students.

The pre-reading activity included showing images and answering questions to introduce students to the lesson and connect vocabulary with the images. The while-reading activities were divided into five groups: (1) True/False, (2) Wh-questions, (3) Information Gap, (4) Matching and (5) Sequencing Events. The post-reading activities were categorized into three types: (1) semantic maps, (2) information tables and (3) concept mapping. The lesson test comprised multiple-choice questions, sequencing events, information gaps, and answering questions.

The English Reading Achievement Test

Students completed a pre- and post-class achievement test, and the tests followed the same design and included 30 items each, with a total of 30 scores. The duration of each test was 60 minutes. Each question had four options to choose from, only one of which was the correct answer. The tests were assessed by three English lecturers, all of whom have PhDs in English Language Teaching and English Studies, before being used with a group of 40 students who were not part of the target group to determine the level of difficulty. Based on the difficulty level and rank of discrimination, the test was between 0.69 and 0.77 and 0.33 and 0.44, respectively. The calculation of the test reliability was done using the Kuder-Richardson method (KR 20), resulting in a reliability coefficient value of 0.870 for the English reading achievement test. Both the pre and post-experiment reading achievement tests were the same, with only the order of choices switched.

The Satisfaction Questionnaire

The researcher designed a questionnaire to examine the levels of student satisfaction. It was designed to incorporate both closed and open-ended type questions. The answers to these questions were separated into 5 rating scales in line with the Likert scale system. The five components of the questionnaire were satisfaction, content, instructional design, teaching-learning activities, and evaluation. The questionnaire was developed by the researcher and examined by three teachers from the English department, all of whom hold a Ph.D. in English Language Teaching and English Studies, to ensure language accuracy and content validity. Items with IOC values ranging from 0.50 to 1.00 were deemed acceptable to ensure validity. Subsequently, the questionnaire was piloted with 40 students during the first semester of the 2023 academic year at TNI and assessed for proper reliability. The value of Cronbach's Alpha Coefficient was 0.880.

Data Collection

The teaching material was first trialed with a single student and then on a small group of students before being implemented in normal classroom setting. Thus, there were three distinct steps in the data collection process:

Phase 1

A sample TNI student worked through lessons based on English reading, which contained content regarding general reading. This student was chosen from outside the research test group. The test subject completed the pre and post-tests that contained 30 questions. This 'pre-research' task meant that the researcher was able to garner feedback relating to learner opinion and to correct any issues connected to the proficiency tests and the five units themselves. The student scored 38 out of 50 on the five lesson tests, or 75 percent. On the post-test, the student scored 21 out of 30, or 73.32 percent. The effectiveness of English reading lessons based on content about general reading was 75.00/73.32.

Phase 2

A small group of 10 students then studied the English reading lessons based on the content of the general reading with tests following after the lesson, as well as taking a post-course test. In Phase 2, the researcher also recorded any problems that occurred along with any suggestions made for improvements in the material and any overall improvements in the lessons. The resulting scores from each lesson and post-test ability assessment were calculated as 78.22/75.22. On the lesson tests, these 10 students scored 392 out of 500 (78.22%). Meanwhile, the results of the post-test, showed the students scored 111 out of 170, or 75.22 percent. Hence, the effectiveness of the English reading lessons was therefore more effective than the English reading lessons in phrase 1.

Phase 3

In this phase, 25 students completed the English foundation course and the post-test. The scores obtained from the different lessons along with the post-test were calculated as 85.60/82.50. Students scored 856 out of 1,000 (85.60%) on the lesson tests. The results for the post-test showed the students scored 495 out of 600, or (82.50%).

Statistics Used in Data Analysis

1. The effectiveness of the lesson was calculated using the E1/E2 formula model (Brahmawong, 1978, as cited in Dokchandra, 2010) followed by the 80/80 criteria.
2. The comparison between the pre-test and post-test was done using the *t*-test, which was calculated by computer program.
3. The data from the questionnaire were rated to find the mean and standard deviation and then translated based on criteria developed by Creswell (2008) as follows:

$1.00 \leq \bar{X} < 1.50$ indicates the lowest satisfaction
$1.51 \leq \bar{X} < 2.50$ indicates low satisfaction
$2.51 \leq \bar{X} < 3.50$ indicates moderate satisfaction
$3.51 \leq \bar{X} < 4.50$ indicates high satisfaction
$4.51 \leq \bar{X} \leq 5.00$ indicates the highest satisfaction

Results

Phase 1

The tests were administered to all 25 students after each of the five units. The statistics used in the data analysis consisted of the arithmetic mean ($\bar{X}$), the standard deviation (*SD*), and the percentage and rank order of scores in each unit. The lesson tests had a mean score of over 80 percent for each unit.

Phase 2

As drawn in Table 4, the comparison of pre-test and post-tests indicated the difference at a significant level.

Table 4 The comparison of the pre-and post-tests

Test	Total score	$(\bar{X})$	*SD*	*t*	Sig
Pre-test	30	7.80	3.30	26.933*	0.000
Post-test	30	25.80	1.53		

Note: * represents statistical significance at the 0.05 level.

The results of the post-test were 0.05 higher than the results of the pre-test (Sig = 0.000 < 0.05). The mean score of the post-test was 25.80, which was higher than the pre-test score of 7.80 out of 30. The discrepancy between the pre-test and post-test scores was 18.00, and 26.933 for the *t*-test. These results show that the students' reading ability improved as a result of the course lessons, which confirms the second hypothesis (H_2).

Phase 3

As can be seen in Table 5, the results of the students' satisfaction questionnaire and interview are listed:

The mean score of all five units was 4.54 (M_{ALL} = 4.54, SD_{ALL} = 0.33). The highest mean score was on unit 2 (M_{U2} = 4.68, SD_{U2} = 0.48), followed by unit 5 (M_{U5} = 4.57, SD_{U5} = 0.50). The lowest mean score was on unit 4 (M_{U4} = 4.43, SD_{U4} = 0.69). The overall results indicated the highest student satisfaction with the English lessons based on general reading content (Table 5), confirming hypothesis 3. In addition to these figures, the interview portion showed most students expressed positive feelings towards the English reading lessons. They claimed that they need to study and read content that is close to their daily life. As many students stated, "The topic or the content that is related to our routine or our experience might help us understand easier what we are reading and there is no need to struggle a lot while we are reading it." Furthermore, they felt positive and motivated to participate and learn through these lessons. As one of the students stated; "For me, these lessons improve my self-confidence in English reading and increase motivation in learning" As a result of the students' responses, there was no doubt why most of them chose the English reading lessons according to their needs and their decisions.

Table 5 The results of students' satisfaction with the English reading lessons based on the content of general reading in five units

Unit	Topic	Mean	*SD*	Meaning
1	Living around the World	4.54	0.74	The highest satisfaction
2	Human Sensibility	4.68	0.48	The highest satisfaction
3	The Melting World	4.50	0.64	High satisfaction
4	Existence	4.43	0.69	High satisfaction
5	Drinking Tea	4.57	0.50	The highest satisfaction
	Total	4.54	0.33	The highest satisfaction

Discussion

1. The effectiveness of the English reading lessons focused on general reading content exceeded the established criteria, possibly due to the following reasons:

1.1 Basing the English lessons on general reading content enables learners to establish a background knowledge of understanding, as prescribed by (Stipdonk et al., 2020), who advocated background knowledge as playing a significant role in learners' long-term development of reading comprehension. Critical analysis is also empowered. The efficacy of background knowledge in boosting comprehension when reading shows how comprehension understanding is something that is built up, and previous knowledge is vital in that construction. Additionally, with learners already being familiar with the more generic contents, and having gained a background understanding of the topic, they found things from this point on more straightforward. These research results are in line with Cook and O'Brien (2014), whose research revealed that students' background knowledge on the topic or the content of the passages would allow students to become acquainted with the content of the instruction and help in doing the reading comprehension test as well.

1.2 English reading theories developed by Mukhroji (2011) and Grabe (2004), were used to create the teacher-learner task for each unit. Students began with relatively simple activities that gradually increased in difficulty for pre-reading exercises. During the while-reading stage, questions were asked to check the students' understanding. Semantic maps and information charts were employed during the post-reading phase to help students accurately complete the required data. Additionally, students were able to utilize reading strategies to help with their reading comprehension. This finding is consistent with that of Singh (2016)'s research, which showed that the students who engaged in pre-reading, while reading, and post-reading activities performed better in reading comprehension tests. Moreover, the course design was based on expert opinions regarding objective learning, which includes pre-reading, while-reading, and post-reading activities. These experts believe that students are motivated by student-centered reading activities which allow them to construct meaning and integrate information from the text. Students can synthesize information by being motivated to perceive the passage. Therefore, teachers should focus more on the reading material and use suitable and effective techniques and methods in reading classes.

2. Learners' reading ability improved significantly at the 0.05 level, possibly due to increased satisfaction and motivation to study the required content. The contents used for this research were what the students chose on their own from the survey. They were also motivated to comprehend their reading materials from what they were interested in, which enhanced their skills for identifying details. Moreover, a certain degree of familiarity for the learners was enhanced by blending English reading instruction with strategies, semantic maps, and charts. The researcher developed information charts and semantic maps to help the students correctly fill out the information during the post-reading phase. This was supportive of Jittisukpong (2019) whose research revealed that reading instruction with strategies with semantic maps made the students enjoy learning English, and it helped improve their reading skills effectively.

3. The results of students' satisfaction revealed that they felt higher levels of satisfaction with the English lesson, which was due to the students' positive perception toward the use of general English reading lessons. This may be because the learners engaged in activities in the lesson by themselves throughout the time. Moreover, they enjoyed the reading process and were enthusiastic throughout the lesson. It is possible that in this study the students were motivated by the content of the reading close to what they are familiar with. That is why they find ways to build bridges into the text, through the kind of activities they choose to do before, during, and after reading. In this way, they can gain richer experiences. Consequently, students are not stressed because they are reading for fun, and this finding is in line with Day (2015)'s extensive reading precepts. He also showed that if the reading materials can connect to personal experience and knowledge, and engage in self-monitoring, these will link students' schema and give them a richer reading experience.

Conclusion and Recommendation

The results of the study and subsequent analysis revealed the following points:

1. The efficiency of English reading lessons based on general reading content for first-year undergraduate students in this study was 85.60/82.50, higher than the established criteria (80/80). It could be shown that English reading lessons based on general reading content were very effective for this group of learners, which confirms the first hypothesis (H_1).

2. The level of the subjects' English reading ability improved after this method of instruction was introduced at a statistically significant level of 0.05, which confirms the second hypothesis (H_2).

3. The students' overall results showed the highest satisfaction with the English reading lessons based on the content of general reading, which confirms the third hypothesis (H_3).

Contemplating the aforementioned points, it is recommended that further research compares online education with the direct, face-to-face, and traditional method of learning.

Conflict of Interest

The authors declare that there is no conflict of interest in conducting this research.

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References

Abdelhalim, S. M. (2017). Developing EFL students' reading comprehension and reading engagement: Effects of a proposed instructional strategy. *Theory and Practice in Language Studies*, *7*(1), 37. http://dx.doi.org/10.17507/tpls.0701.05

Alemi, M., & Ebadi, S. (2010). The effects of pre-reading activities on ESP reading comprehension. *Journal of Language Teaching and Research*, *1*(5), 569–577. https://doi.org/10.4304/jltr.1.5.569-577

Alyousef, H. S. (2006). Teaching reading comprehension to ESL/EFL learners. *Journal of Language and Learning*, *5*(1), 63–73. https://www.researchgate.net/publication/235771368_Teaching_reading_comprehension_to_ESLEFL_learners

Bamford, J., & Day, R. R. (2004). *Extensive reading activities for teaching language*. Cambridge University Press.

Cook, A. E., & O'Brien, E. J. (2014). Knowledge activation, integration, and validation during narrative text comprehension. *Discourse Processes*, *51*(1–2), 26–49. https://doi.org/10.1080/0163853X.2013.855107

Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Pearson Education.

Day, R. R. (2015). Extending extensive reading. *Reading in a Foreign Language*, *27*(2), 294–301. https://doi.org/10.64152/10125/66893

DeBruin-Parecki, A., Van Kleeck, A., & Gear, S. (2015). *Developing early comprehension: Laying the foundation for reading success*. Paul H. Brookes Publishing Co.

Dokchandra, D. (2010). *Enhancing English reading comprehension through a text structure reading strategy call program* [Unpublished doctoral dissertation]. Kasetsart University.

Glenberg, A. M. (2011). How reading comprehension is embodied and why that matters. *International Electronic Journal of Elementary Education*, *4*(1), 5–18. https://iejee.com/index.php/IEJEE/article/view/210

Grabe, W. (2004). 3. Research on teaching reading. *Annual Review of Applied Linguistics*, *24*, 44–69. https://doi.org/10.1017/S0267190504000030

ITU-Statistics. (2023, December 3). Mobile network coverage. Facts and figures 2023. https://www.itu.int/itu-d/reports/statistics/2023/10/10/ff23-mobile-network-coverage/

Javed, M., Lin, S. E., & Mohamed, A. R. (2015). Developing reading comprehension modules to facilitate reading comprehension among Malaysian secondary school ESL students. *International Journal of Instruction*, *8*(2), 139–154. https://doi.org/10.12973/iji.2015.8211a

Jittisukpong, P. (2019). Using semantic mapping in teaching English reading skills of Thai EFL learners. *Journal of Roi Et Rajabahat University*, *13*(2), 201–214. https://so03.tci-thaijo.org/index.php/reru/article/view/213071

McNamara, D. S. (2007). *Reading comprehension strategies: Theories, interventions, and technologies*. Psychology Press.

Mukhroji, M. (2011). *The importance of teaching reading strategies to improve students reading comprehension* [Unpublished master's thesis]. Universitas Negeri Malang.

Nunan, D. (1989). *Designing tasks for the communicative classroom*. Cambridge University Press.

Protacio, M. S. (2017). A case study exploring the reading engagement of middle grades English learners. *RMLE Online*, *40*(3), 1–17. https://doi.org/10.1080/19404476.2017.1280586

Singh, R. (2016). The impact of intrinsic and extrinsic motivators on employee engagement in information organizations. *Journal of Education for Library and Information Science*, *57*(2), 197–206. https://doi.org/10.3138/jelis.57.2.197

Sinthopruuangchai, S. (2011). *A study of Thai EFL learners' metacognitive awareness of reading strategies* [Master's thesis, Language Institute, Thammasat University]. https://digital.library.tu.ac.th/tu_dc/digital/api/DownloadDigitalFile/download_digi/119921/?path=thesis/lg/0636/title-appendices.pdf

Stipdonk, L. W., Dudink, J., Reiss, I. K., & Franken, M. C. J. P. (2020). Does a narrative retelling task improve the assessment of language proficiency in school-aged children born very preterm? *Clinical Linguistics & Phonetics*, *34*(12), 1112–1129. https://doi.org/10.1080/02699206.2020.1720824

Tanjung, N. J. U., Lubis, Y., & Daulay, E. (2022). The effect of pre-reading, during reading, and post reading activities to monitor students' comprehension in reading narrative text. *INSPIRATION: Instructional Practices in Language Education, 1*(2), 16–30. https://jurnal.uinsu.ac.id/index.php/inspiration/article/view/14150

Tierney, R. J., & Readence, J. E. (2004). *Reading strategies and practices: A compendium* (6th ed.). Pearson.

Tomlinson, B., & Masuhara, H. (2021). *SLA applied: Connecting theory and practice*. Cambridge University Press.

Westwood, P. (2008). *What teachers need to know about reading and writing difficulties*. ACER Press.

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Causal relationship model of Chinese generation Z undergraduates' academic motivations

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Abstract

It is critical to acknowledge that academic motivation is a foundational element influencing learners' learning engagement, outcomes as well as educators' effective instruction. However, Generation Z (Gen Z) undergraduates are reported lacking of academic motivation in some areas of China. As motivation is an intrinsic psychological process closely related to personal emotions, psychological perceptions and needs, this paper attempts to analyze academic emotions and learning motivation via basic psychological needs in order to enhance Gen Z academic motivation. This paper adopts a quantitative research method among a sample of 960 Gen Z undergraduates in Guangxi Province, China, through the Achievement emotions questionnaire, Basic psychological needs satisfaction scale and Academic motivation scale (college version) to investigate the correlations among variables including academic emotions, need for competence, autonomy, and relatedness as well as academic motivation. The results demonstrate that the causal relationship model partially matches the data set well, as illustrated by the fit indices. Furthermore, the findings showed that academic emotions could predict academic motivation through competence and relatedness needs except for autonomy. Additionally, while academic emotions could predict academic motivation through competence and relatedness; nevertheless, academic emotions fail to predict academic motivation through competence and autonomy. Therefore, educators in higher education need to realize the cultural variances in the roles of basic psychological needs of Gen Z undergraduates in China, particularly autonomy satisfaction.

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Introduction

As per the Pew Research Center, Generation Z (Gen Z) comprises individuals born after 1997 (Dimock, 2019), who now take up the majority at universities in China and report lacking of motivation to learn (Li et al., 2024). Owing to the era they live has its own characteristics, they might display different motivation, preferences and needs academically compared with previous generations (Li et al., 2024). Hence, understanding what motivates them academically has become a crucial issue for educators to consider as it is a key influential factor in the learning process and outcomes (Alemayehu & Chen, 2023). Furthermore, academic motivation serves as the primary driving force behind their overall learning and development, including academic accomplishment. Students with higher drive are more likely to pick things up fast and find their classes enjoyable, whereas uninspired learners are unlikely to learn much and find learning uncomfortable and irritating (Filgona et al., 2020)

Additionally, academic motivation is a psychological reaction, experience and process, which is affected by individual emotions, basic psychological needs, etc. (Chevrier & Lannegrand, 2022). Based on self-determination theory, the major basic psychological needs drive individual motivation: autonomy, competence, and relatedness. Whether these three needs are met directly affects academic motivation and performance. Importantly, the theory emphasizes the interdependence of the key psychological needs of autonomy, competence and relatedness, as well as how to generate these needs and boost their motivation to learn. (Chevrier & Lannegrand, 2022).

Emotions are often seen as an indication of the three basic psychological needs. (Deci & Ryan, 2000). Specifically, emotions represent the degree to which these fundamental requirements are met, and variations in emotions can show individual variances in achieving these needs. Emotions are not simply a response to fulfillment or lack of demands, but they also play a part in feedback and control (Pekrun, 2006). Positive academic emotions can assist students in setting objectives, overcoming problems, expanding their brains, developing problem-solving abilities, and establishing self-regulation processes, while negative emotions often reflect unfulfilled psychological needs (Pekrun et al., 2002).

Deci and Ryan (2000) proposed the theory of basic psychological needs, A certain number of studies have explored the impact of these needs on academic motivation; however, empirical researches on Chinese Gen Z undergraduates in this context are still lacking, in particular, whether this impact is influenced by cultural background, varied regions, etc.

Even if the link between academic emotions and academic motivation has been explored by many researchers, the mediating path and processes underling this associations remain relatively underexposed. Detailed explanations of the mediation effects can shed light on the how the two elements interact with other mediators. As motivation is an inherent psychological process strongly linked to emotions, psychological perceptions and needs, by introducing the mediating variable of basic psychological needs, how academic emotions affect the academic motivation via the mediators can be explained in depth with empirical data.

Hence, this study aims to examine the impact pathways of academic emotions and psychological needs including needs for autonomy, competence and relatedness on academic motivations with the goal of understanding the influential mechanism and boosting Chinese Gen Z undergraduates' academic motivation.

Research Objectives

1. To examine causal relationships among the academic emotions and academic motivations via basic psychological needs of autonomy, competence and relatedness as mediator
2. To examine the chained mediator of competence and autonomy between academic emotions and academic motivations
3. To examine the chained mediator of competence and relatedness between academic emotions and academic motivations

Research Hypotheses

1. Psychological needs of autonomy, competence and relatedness are mediators between academic emotions and academic motivations.
2. Competence and autonomy are mediators between academic emotions and academic motivations.
3. Competence and relatedness are mediators between academic emotions and academic motivations.

Hypothesized Model

The model is based on Self-Determination Theory (Ryan & Deci, 2000) and Control-Value Theory by

Pekrun (2006), whose variables include academic emotions, psychological needs of autonomy, competence and relatedness, as well as academic motivations. The research conceptual framework is depicted in Figure 1.

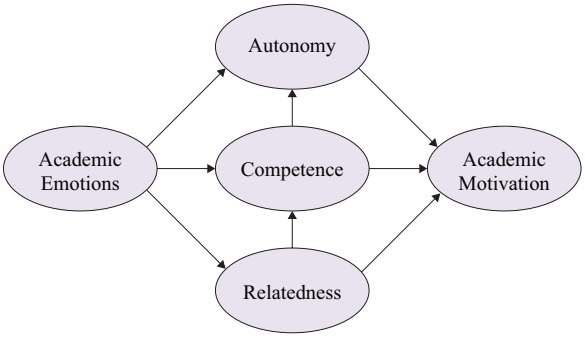


Figure 1 Hypothesized model

Literature Review

This study was based on two theories. One is Basic Psychological Needs Theory (BPNT) (Deci & Ryan, 2000) whose three elements of BPNT are relatedness, competence, and autonomy needs. Second is Pekrun's Control Value Theory (2006); he coined the phrase "academic emotions", in which personal traits and classroom predictors, academic emotions are highly connected with motivation, learning styles, cognitive abilities, autonomy, and academic achievement.

Gen Z Undergraduates' Characteristics, Preferences

"Digital Natives" refer to Gen Z undergraduates who came of age in the digital era and commonly rely on the Internet (Agárdi & Alt, 2024). However, due to Generation Z's social isolation and lack of in-person interactions, it has negative repercussions for their psychological and emotional well-being (Kassymova et al., 2023). Other psychological conditions like excessive anxiety disorder, difficulty focusing on study, low interest in study are reported among Gen Z due to excessive screen time (Savira, 2021). The emotional circumstances of Generation Z have been linked to a notable increase in the previous ten years in the utilization of mental health services at college advising facilities. Within this intensely challenging environment, nearly every student may encounter strain linked to their education because of elements like peer rivalry, moving from a rural community to an urban metropolis, having to live up to family anticipations, etc. (Kassymova et al., 2023).

Standardized tests are the main forms to evaluate students (Moore et al, 2017). Consequently, learning focused on exams is what students are used to, and they may also have less exposure to reflect on their own needs (Yu et al., 2018), still Gen Z can be considered to act individually in a flexible way and value autonomy (Çankaya et al., 2020). Gen Z also craves an environment where they can share, exchange ideas and enjoy creative and open learning opportunities. To sum up, Gen Z' leaning preference is interactive and internet-based approaches. They value flexibility and autonomy and are experiencing psychological problems caused by their studies and life.

Academic Motivations

Academic motivation (AM) is the catalyst that prompts school enrollment and qualification acquisition (Clark et al., 2014). Precisely, Ryan and Deci categorized academic motivation as three types: intrinsic motivation, extrinsic motivation and amotivation (Chevrier & Lannegrand, 2022). Extrinsic motivation is the practice of pursuing academic goals in order to obtain benefits or outcomes from other sources. Intrinsic motivation is the act of engaging in academic pursuits solely for the internal fulfillment and happiness received from learning itself. The condition of not being motivated to complete an academic task because one feels that doing so will not produce the desired results is known as amotivation (Ryan & Deci, 2000).

Numerous psychological factors might have a favorable or negative impact on academic motivation (Isik et al., 2018). Additionally, it was discovered that both intrinsic and extrinsic motivation were favorably correlated with the satisfying of psychological demands (Çelik, 2024). Scholars laudably acknowledge the impact that motivation and emotional response play in their engagement and academic success (Murphy et al., 2019).

Academic Emotions

Emotions that are closely associated to academic success, classroom instruction, and learning (such as test-related anxiety, learning enjoyment, or pride in accomplishment), are referred to as academic emotions (Pekrun et al., 2002). Aside from personality and classroom antecedents, motivation, means of acquiring knowledge, cognitive capacities, self-guidance, and academic accomplishment are all highly associated with their academic emotions. Research identifies nine academic emotions that are associated to classroom,

learning, and examination-centered academic settings. They include enjoyment, hope, relief, pride, anger, anxiety, boredom, hopelessness, and shame (Bieleke et al., 2021).

Basic Psychological Needs (BPN)

The concept of basic psychological needs comes from the Basic Psychological Needs Theory (BPNT), which holds that needs—which are distinct, fundamental, inherent, and universal—epitomize an ideal functioning experience (Yu et al., 2018). Three basic psychological needs are distinguished by the BPNT: the need for autonomy, which pertains to possessing the liberty and flexibility to try out new conducts and behaviors; the need for competence, which correlates to feeling skilled, experiencing adeptness and productive in activities; and the need for relatedness, which is related to the sensation of bonding and feeling meaningful and important to others. The intrinsic drive to participate in academic tasks and attain superior results can be stimulated and awakened when they feel autonomous, capable, and connected to the surroundings (Zhen et al., 2017).

The Associations between Academic Emotions and Basic Psychological Needs

The links between academic emotions and basic psychological needs have been investigated by many researchers and mentioned by some theories.

In a learning environment, positive academic emotions are able to support psychological needs, and provide the groundwork for their self-regulated learning processes (Diamond & Aspinwall, 2003). As a result, students are more likely to be involved in their coursework and goals (Wigfield et al., 2002). But unfavorable academic emotions fall short of meeting psychological requirements and using up their cognitive resources for learning (Derakshan et al., 2009). This can lead to disengagement or even school abandonment (Ouweneel et al., 2014). Therefore, basic needs satisfaction is affected through both positive and negative academic emotions (Zhen et al., 2017). Apart from that, evidence has revealed that school relatedness is positively linked to positive academic emotions (such as pride) while negatively linked to negative academic emotions (Lam et al., 2015).

According to control–value theory, Pekrun and Stephens (2012) believe emotions are thought to impact autonomy in education, which is described as self-driven goal adoption, self-management and tracking of the learning process.

Based on the broaden-and-build theory, learning-related positive emotions, such as pride and enjoyment, can extend the cognition and initiative, allowing them to set goals, embrace new ideas and challenges, and engage in independent exploration. Positive academic emotions are able to encourage learners to vigorously search for learning possibilities and resources, stimulate increased determination and perseverance particularly in the face of adversity (Fredrickson, 2001). On the other hand, students experiencing negative academic emotions, such as boredom, tend to concentrate on perceived threats. This focus on perceived threats can cause students to doubt their ability to learn, and as a result, they feel less competent in their academic abilities. Therefore, learning-related negative emotions can have a detrimental influence on mental states and undermine sense of competence (Zhen et al., 2017).

The Associations between Basic Psychological Needs and Academic Motivations

Researches exploring links of motivation and basic psychological needs in variable-oriented approaches are quite extensive (Chevrier & Lannegrand, 2022). In the context of secondary education, varying impacts of perceived autonomy, competence, and relatedness on their motivation regulation have been demonstrated: the perception of autonomy and competence served as significant indicators of intrinsic motivation (Kaiser et al., 2020). In the realm of higher education, a more self-directed motivational approach is associated with a greater perceived fulfillment of psychological needs, highlighting the significance of creating learning environments that cater to psychological needs (Puklek Levpušček & Podlesek, 2019). Another survey of a sample of 617 Canadian undergraduate students shows the importance of satisfying the basic psychological needs, which raise their desire for their studies and decrease procrastination (Oram & Rogers, 2022).

In self-determination theory, if a person feels autonomous and in charge throughout a task, they are inclined to generate self-attributions and have an overwhelming feeling of mastery over their conduct; fulfillment of competence needs increases faith in accomplishing tasks; fulfillment in relatedness suggests that students appreciate concern and assistance when dealing with challenges, and the feeling of bonding to others (Ryan & Deci, 2000). In particular, students are more encouraged to explore learning tasks while their expectations for autonomy, relatedness, and competence are fulfilled. As a result, individuals are naturally inclined

to demonstrate academic abilities and connect with the educational setting far better (Ryan & Deci, 2000).

The Associations between Competence and Autonomy

The links of competence and autonomy have been explained by many researchers. Satisfaction with their perceived competency determines a drive to be autonomous (Wood, 2016). Several empirical investigations have confirmed the idea that perceived competence functions as a motivating basis for responsiveness to an autonomy-supportive provision and actions (Reeve, 2012). It has been demonstrated that perception of competence predicts their level of autonomy and helps them become self-reliant learners who can take advantage of opportunities to improve their competence and engagement in the classroom (Ryan & Deci, 2000). Students' high competence enriches students autonomous learning behaviors, leading to higher enthusiasm for learning. These results suggest that motivation, engagement, cognitive growth and performance are significantly impacted by autonomy through competence support (Bürgermeister et al., 2016).

The Associations between Competence and Relatedness

The quality of the teacher-student relationship could possess an impact on perceived competency. A supportive and collaborative teacher-student relation can be developed via the increase of students' sense of competence in a favorable emotional environment in which learners feel a comfortable and compassionate relationship with their teachers (Hipkins, 2012).

Based on the cited literature and related evidences, the influential path was established among the variables of academic emotions, psychological needs and academic motivations. Therefore, the hypothesized model was formed.

Methodology

Participants and Data Collection

The research focused on ten universities in Guangxi Province, China, as the target settings. In this study, 32 parameters were identified from the related variables, and a 20:1 ratio per parameter was adopted based on Kline (2016). Consequently, a sample size of 640 Generation Z undergraduates was determined, meaning a minimum of 640 respondents was required. To account for a compensatory response rate, the sample size was increased to 100 respondents per university, resulting in a total sample of 1,000 across the 10 universities. Of the 1,000 distributed questionnaires, 960 were deemed valid, resulting in a response rate of 96 percent.

For data collection, first, stratified sampling was used to select the ten participating universities. Then, 100 paper questionnaires were randomly distributed to teachers at each university, who informed their students about the survey's purpose and instructed them to complete the questionnaires based on their actual situations. At each school, respondents were further selected through convenience sampling, ensuring equal representation from grades one, two, and three across three major categories. In the second stage, unqualified data were excluded to ensure equal numbers in each group. The final sample consisted of 960 Generation Z undergraduates (49.0% female, 51.0% male) from different grades (31% Grade 1, 32% Grade 2, 36% Grade 3) and various majors (35% Liberal Arts, 33% Science, 32% Arts and Sports). The data collection process was completed in May 2023.

Research Instrument

The questionnaire was comprised of items for demographics: gender, age, grades, and major as well as a total of 69 items in a set of survey questions.

Academic motivations were assessed by academic motivation scale college version (AMS-C 28) to test Gen Z's academic emotions (Vallerand et al., 1993). It is a seven point Likert scale with 28 items asking students to correspond to a list of statement of reasons why they go to college. This 28-item questionnaire evaluates motivation in an academic context across seven dimensions: amotivation, external regulation, introjected regulation, identified regulation, intrinsic motivation-to know, intrinsic motivation-accomplishment, and intrinsic motivation-stimulation.

Basic psychological needs were evaluated using the Chinese version of the Basic Psychological Need Satisfaction Scale (BPNS) (Yang et al., 2021) with nine items to test three dimensions: autonomy, competence, relatedness. Students rate the descriptions on a seven point Likert scale from "strongly disagree" to "strongly agree".

Academic emotions were evaluated using a short version of the Achievement Emotions Questionnaire for brevity (Bieleke et al., 2021). The scale tests nine emotions: enjoyment, hope, pride, anger, anxiety, shame, hopelessness, and boredom.

As for the quality of the research instrument, two methods were adopted. The content validity of this questionnaire was checked by the results of Item-Object Congruence (IOC). Itemization presented its IOC between 0.60–1.00, which is suitable to use. In terms of the reliability, the Cronbach's Alpha coefficients above 0.7 was considered as acceptable for this study. The IOC of all 24 items were between 0.7 to 1, and the Cronbach's Alpha value were all greater than 0.7.

Data Analysis

Initially, each item in the sample and the demographic features of the participants were examined using descriptive statistics. Then, by using SPSS 22.0, data were checked by common method variance test, KMO & Bartlett's sphericity test, whose criteria are no single factor accounts for more than 50 percent of the variance, KMO > 0.7, $p < .05$ respectively in this research. Third, correlation analysis of latent variable Third, correlation analysis of latent variable and The distribution of latent variables and observed variables in structural equation modelling were tested. Finally, structural equation modelling was to test causal relationship by several criteria such as path coefficient, overall model fit and mediators based on bias-corrected bootstrap tests. To evaluate model fit, criteria for model fit are factor loading ≥ 0.50; CMIN/DF < 3; GFI > 0.9; AGFI > 0.9; NFI > 0.9; RMSEA < 0.08; IFI > 0.9; TLI > 0.9; CFI > 0.9. In order to test the statistical significance of these indirect effects, bias-corrected bootstrap tests with a 95 percent confidence interval was adopted.

Results

This study aims to examine the impact pathways of academic emotions and academic motivation via psychological needs for autonomy, competence and relatedness. The causal relationship model of four independent variables (IVs) including academic emotions, autonomy, competence and relatedness with one dependent variable (DVs) academic motivations from the empirical data from 960 samples is presented in this part.

Common Method Variance Test and KMO and Bartlett's Test

Common Method Biases (CMB) was checked in order to get high quality data, and test result showed that no single factor accounts for more than 50 percent of the variance, meaning the data have no CMB, since KMO is 0.906, more than 0.7, and Bartlett's sphericity test value is 0.000 ($p < .05$). The results satisfy the prerequisite requirements of the following analysis.

Pearson Correlation Analysis

The degree of relationship or correlation between two continuous variables is measured using correlation. The most popular technique for determining the correlation between variables is Pearson correlation analysis. The correlation analysis results of latent variables are presented in Table 1.

From Table 1, it is evident that the correlation coefficients between groups of latent variables range from 0.001 to 0.419, indicating correlation levels from no correlation to moderate correlation. In contrast, the correlation coefficients within groups range from 0.313 to 0.798, reflecting correlation levels from moderate to high. This concludes that the within-group correlation coefficients are higher than the between-group correlation coefficients, indicating that the observed data have already been categorized appropriately and are suitable for use in the SEM mode.

Table 1 Correlation analysis of latent variable

Variables	AE	AUT	REL	COM	AM	AE	AUT	COM	REL	AM
AE	1									
AUT	.326**	1								
REL	.342**	.309**	1							
COM	.313**	.419**	.320**	1						
AM	.216**	.210**	.341**	.310**	1					
AE	.032	.027	.001	.009	-.003	1				
AUT	.041	-.010	.016	.018	-.003	-.123**	1			
COM	.045	.065*	.009	-.002	-.010	-.096**	.419**	1		
REL	.015	.040	.008	.014	.019	-.106**	.309**	.320**	1	
AM	-.007	-.029	.007	-.004	-.027	-.063	.274**	.373**	.342**	1

Note: AE = Academic Emotions, AUT = Autonomy, COM = Competence, REL = Relatedness, AM = Academic Motivation, * $p < .05$. ** $p < .01$.

The Developed Structural Equation Modelling

The developed model confirmed the structural equation modeling of academic motivations, with the basic psychological needs of autonomy, competence, and relatedness serving as mediators. Based on the calculated R^2 values, which represent the reliability of the 24 studied variables in their squared multiple correlations, the values ranged from 0.175 to 0.832. Among these, the autonomy variable group exhibited the lowest range, with values between 0.175 and 0.215 (Table 2).

As displayed in Table 2, the standardized factor loadings of the 24 variables were indicated by B, all variables were significant (denoted by $p < 05$, *). The observed variables can be explained as follows: academic emotions consists of 8 observed variables, with standardized factor loadings ranging from 0.513 to 0.724. AUT consists of 3 observed variables, with standardized factor loadings ranging from 0.558 to 0.691. COM consists of 3 observed variables, with standardized factor loadings ranging from 0.920 to 1.054. REL consists of 3 observed variables, with standardized factor loadings ranging from 0.828 to 0.933. AM consists of 7 observed variables, with standardized factor loadings ranging from 0.668 to 0.818.

Structural Equation Modelling

The study of a set of relationships between one or more independent variables and one or more dependent variables is made possible by a class of statistical techniques known as structural equation modeling (SEM) (Hancock & Mueller, 2006). The developed structural equation model is presented in Figure 2.

The CMIN/DF is 1.1661, which is lower than 3, indicating a good model fit. The *p*-value is .065, which exceeds the threshold of 0.05. This model demonstrates a good fit overall, as the fit indices (GFI = 0.982, AGFI = 0.970, NFI = 0.990, IFI = 0.999, TLI = 0.998, CFI = 0.999) all meet or exceed the standard value of 0.9. Additionally, the RMSEA is 0.037, which is below the acceptable limit of 0.08. Most of the fit indices satisfy the criteria for general SEM research.

Table 2 The distribution of latent variables and observed variables in structural equation modelling

Latent Variables	R2	Observed Variables	Factor Loading	SE	*t*-value	Standardized estimates (B)	Construct Reliability (R2)
Academic Emotions		AE1 = Enjoyment	0.624	0.058	10.83	0.73*	0.532
		AE2 = Hope	0.627	0.056	11.281	0.753*	0.567
		AE3 = Pride	0.724	0.06	11.963	0.819*	0.671
		AE4 = Anger	-0.513	0.034	-15.278	-0.534*	0.286
		AE5 = Anxiety	-0.546	0.048	-11.315	-0.567*	0.321
	-	AE6 = Shame	0.699	0.035	-20.12	-0.694*	0.482
		AE7 = Hopelessness	-0.781	0.038	-20.819	-0.726*	0.527
		AE8 = Boredom	-0.628	0.039	-16.055	-0.609*	0.371
Autonomy	0.951	AUT1 = Autonomy Item1	0.691			0.480*	0.23
		AUT2 = Autonomy Item2	0.558	0.032	17.19	0.418*	0.175
		AUT3 = Autonomy Item3	0.627	0.038	16.466	0.464*	0.215
Competence	0.162	COM1 = Competence Item1	0.92			0.769*	0.592
		COM2 = Competence Item2	1.054	0.035	29.979	0.838*	0.702
		COM3 = Competence Item3	1.02	0.054	18.978	0.824*	0.678
Relatedness	0.185	REL1 = Relatedness Item1	1.238			0.912*	0.832
		REL2 = Relatedness Item2	1.233	0.062	19.786	0.875*	0.765
		REL3 = Relatedness Item3	1.344	0.082	16.44	0.899*	0.808
Academic Motivations	0.316	LM1 = Intrinsic motivation-to know	0.555			0.620*	0.384
		LM2 = Intrinsic motivation-toward accomplishment	0.644	0.032	19.817	0.744*	0.554
		LM3 = Intrinsic motivation-to experience stimulation	0.567	0.035	16.152	0.662*	0.439
		LM4 = Extrinsic motivation-identified	0.629	0.037	16.918	0.74*	0.547
		LM5 = Extrinsic motivation- introjected	0.691	0.042	16.29	0.705*	0.497
		LM6 = Extrinsic motivation-external regulation	0.683	0.045	15.302	0.746*	0.557
		LM7 = Amotivation	0.601	0.044	13.768	0.52*	0.271

Note: *significant with $p < .05$

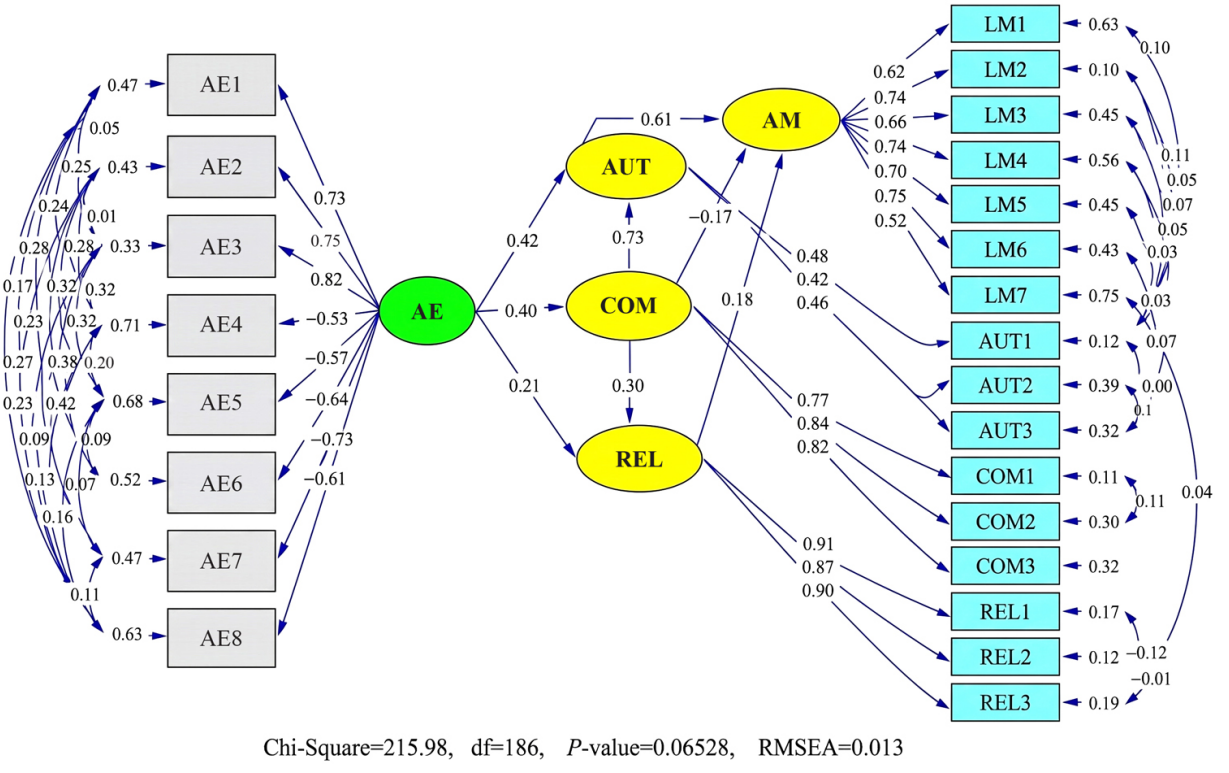


Figure 2 Structural Equation Modeling (AE = Academic Emotions, AUT = Autonomy, COM = Competence, REL = Relatedness, AM = Academic Motivation)

Mediating Effects Testing

The mediating effects testing results are presented in Table 3.

In order to assess the significance of indirect effects in the multiple in-direct effects modeling, bias-corrected bootstrap tests (95% confidence interval) were used. Table 3 shows the bias-corrected bootstrap test results as 2 groups. The first group is predictable group consisting of: (1) academic emotions could predict academic motivation through competence, (2) academic emotions could predict academic motivation through relatedness, (3) academic emotions could predict academic motivation through competence and relatedness. The second group is unpredictable group consisting of: (1) academic emotions could not predict academic motivation through autonomy, and (2) academic emotions could not predict academic motivation through competence and autonomy. The testing results illustrated the path pass thorough autonomy was not significant. Nevertheless, each of the remaining indirect paths were significant, showing that the mediating effects between them exist.

Table 3 Mediating effects testing result

Path	β	CI	
		Lower	Upper
Academic emotions -> Autonomy -> Academic motivation	.008	-0.008	0.027
Academic emotions -> Competencies -> Academic motivation	.063**	0.036	0.096
Academic emotions -> Relatedness -> Academic motivation	.064**	0.036	0.098
Academic emotions -> Competencies -> Autonomy -> Academic motivation	.005	-0.005	0.016
Academic emotions -> Competencies -> Relatedness -> Academic motivation	.018**	0.009	0.032

Note: ** significant at 0.01, two-tailed.

Discussion

Impacts of Academic Emotions on Academic Motivation Through Psychological Needs of Autonomy, Competence and Relatedness

This study aims to examine the impact pathways of academic emotions and psychological needs including needs for autonomy, competence and relatedness on academic motivation by empirical data of Gen Z undergraduates from China. The first hypothesis of psychological needs of autonomy, competence and relatedness are mediators between academic emotions, and academic motivations were partially indicated by the conceptual model and empirical data. Importantly, it can be concluded that academic emotions impact academic motivations through the mediators of competence and relatedness respectively except for autonomy.

Academic emotions were discovered to have a significant direct influence on competence, relatedness, and autonomy, with the exception of the association between academic emotions and autonomy, which was not significant. This suggests that academic emotions can positively affect feeling of competence, the relatedness to others, as well as autonomy. Except for the association between autonomy and academic emotions, all of the factors' direct impacts on academic motivation were significant. This shows that competence, relatedness, and academic emotions are major drivers of academic motivation, but autonomy has a reduced influence on emotions in the academic environment of the sample locations.

The mediating role of autonomy: in this study, autonomy plays less of a role in predicting academic motivation for Chinese students, which is counter to many researchers, like "autonomy enhances motivation and achievement" (Cullen & Oppenheimer, 2024). But there are also some researches supporting the finding for this research, for example, a survey of 605 Chinese students showed the direct prediction of competence and relatedness satisfaction on learning motivation were significant, but autonomy satisfaction was not (Zhen et al., 2017). This might be due to cultural difference: in individualistic societies like the US and Europe, autonomy and independence are heavily supported and cherished, whereas in a collectivization-oriented country like China, people are socialized into a much more intimate manner of functioning (Uchida & Kitayama, 2009). In conventional teaching ways, learners are the ones to receive knowledge, while teachers are the people who organize and spread that knowledge. When learning new topics, students are used to listening to the instructions and explanation. Even if fulfillment of autonomy allows students to make their own choices, it can also cause emotions of powerlessness, tension, and timidity, particularly when they are left to explore without the assistance of their tutors (Zhen et al., 2017).

The mediating role of competence: studies have shown that perceptions of their mathematical proficiency and enjoyment during the learning process are positively correlated with their enjoyment of mathematics. This implies that students are more likely to enjoy and be motivated to learn mathematics if they feel more in control of their leaning activities and have greater confidence in their skills (Peixoto et al., 2017). According to longitudinal research, learners with a high anxiety level about global mathematics are more likely to believe they are not as competent in mathematics, which lowers their drive to learn. (Van der Beek et al., 2024) According to the control-value theory, emotions can have a significant impact on motivation through a number of mediating variables, such as an enhanced sense of competence. To put it another way, positive emotions related to learning can stimulate advanced cognitive processing (problem-solving skills, strategic thinking), make it easier to employ cognitive and meta-cognitive learning strategies like critical thinking, and inspire students to put in extra effort and try to conquer difficult obstacles during learning process. Perceived competence is subsequently improved, which might boost their motivation and academic performance (Artino et al., 2012). Therefore, the mediating role of competence is supported by many researchers and in line with this study result.

The mediating role of relatedness: Since smooth interpersonal ties may act as a stress buffer and induce good academic motivational states, the urge for relatedness is fundamental to optimum learning (Ryan & Deci, 2000). Academic emotions can promote or demote sense of belonging and subsequently influence academic motivation and achievement (Pekrun et al., 2011). Students experiencing low levels of positive emotions also report feeling less connected to their peers, as well as lower levels of academic drive and school interest. Teenagers who got more emotional support from their instructors at the start of the school year reported higher levels of academic motivation and behavioral engagement. Additionally, students had more favorable interactions with their classmates when they are provided with greater emotional support. (Ruzek et al., 2016).

Competence and Autonomy are Mediators between Academic Emotions and Academic Motivations

The mediating effects testing results revealed that academic emotions predict academic motivation via competence and relatedness. However, there was no substantial relationship between the paths from academic emotions to academic motivation via both competence and autonomy. This emphasizes the relevance and influence of competence and relatedness in mediating the impact of academic emotions on academic motivation, whereas autonomy plays a lesser role.

When students experience sense of competence, they in turn feel socially-related to their tutors (Bürgermeister et al., 2016). Competence-supportive teaching primarily enhances the students' effectiveness in interactions with the environment including teachers and peers (Ryan & Deci, 2000). Perceptions of effectiveness in implementing competence-enhancing behaviors and techniques influence perceived competence, which in turn affects the interpersonal interaction between instructors and students as well as students' willingness to participate constructively in learning activities. (Wood, 2016). These evidences are in line with the research result of this study.

Conclusion and Recommendation

The purpose of this study was to investigate the influence of academic emotions and psychological needs on academic motivation among Chinese Generation Z undergraduates. Specifically, the research focused on the links between academic emotions, competence, autonomy, relatedness, and academic motivation. The main findings were that academic emotions influenced competence, relatedness and autonomy, and that competence, and relatedness can predicted academic motivation considerably. However, autonomy had a minimal influence on academic motivation. Academic emotions predicted academic motivation through competence and relatedness, but not autonomy. This research attempted an advanced grasp of Generation distinct psychological traits in different cultural setting so as to boost their academic motivation. Importantly, the research will benefit relevant stakeholders including teachers, school leaders and policy-makers in higher education. For teachers and school leaders, Gen Z undergraduates' need of competence and relatedness should be emphasized, which can take forms like effective competence-supportive teaching and improved teacher-student interpersonal relationship, so as to boost their academic motivation via positive emotional climate created by teachers and schools. For policy-makers, this research provides some hints for student-centered education from psychological viewpoints. More specially, local policymakers can innovate educational policies and effectively establish strategies that better support emotional and psychological needs by understanding the impact of these psychological factors on Gen Z undergraduates, thereby enhancing their motivation to learn.

The limitations include the following: first, it was geographically confined to one province in China. Comparative multi-region studies can reveal cultural nuances and provide boarder scale samples to improve the accuracy of the results. Second, while the research rigorously examined motivational factors using quantitative methods, detailed motivational guidelines in depth through qualitative approaches have not been explored.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

Agárdi, I., & Alt, M. A. (2024). Do digital natives use mobile payment differently than digital immigrants? A comparative study between generation X and Z. *Electronic Commerce Research*, *24*, 1463–1490. https://doi.org/10.1007/s10660-022-09537-9

Alemayehu, L., & Chen, H. L. (2023). The influence of motivation on learning engagement: The mediating role of learning self-efficacy and self-monitoring in online learning environments. *Interactive Learning Environments*, *31*(7), 4605–4618. https://doi.org/10.1080/10494820.2021.1977962

Artino, A. R., Jr., Holmboe, E. S., & Durning, S. J. (2012). Control-value theory: Using achievement emotions to improve understanding of motivation, learning, and performance in medical education: AMEE Guide No. 64. *Medical Teacher*, *34*(3), e148–e160. https://doi.org/10.3109/0142159X.2012.651515

Bieleke, M., Gogol, K., Goetz, T., Daniels, L., & Pekrun, R. (2021). The AEQ-S: A short version of the Achievement Emotions Questionnaire. *Contemporary Educational Psychology*, *65*, 101940. https://doi.org/10.1016/j.cedpsych.2020.101940

Bürgermeister, A., Ringeisen, T., & Raufelder, D. (2016). Fostering students' moderation competence: The interplay between social relatedness and perceived competence. *Teaching in Higher Education*, *21*(8), 990–1005. https://doi.org/10.1080/13562517.2016.1209183

Çankaya, I., Saglam, A. Ç., & Tan, Ç. (2020). Generation Z support to autonomy in education in Turkey: Evaluation of teacher candidates' views. *The Excellence in Education Journal*, *9*(3), 82–96. https://files.eric.ed.gov/fulltext/EJ1284623.pdf

Çelik, O. (2024). Academic motivation in adolescents: The role of parental autonomy support, psychological needs satisfaction and self-control. *Frontiers in Psychology*, *15*, 1384695. https://doi.org/10.3389/fpsyg.2024.1384695

Chevrier, B., & Lannegrand, L. (2022). The relationship between academic motivation and basic psychological needs within the freshman year context: A longitudinal person-oriented approach. *European Journal of Psychology of Education*, *37*(3), 921–947. https://doi.org/10.1007/s10212-021-00569-7

Clark, M. H., Middleton, S. C., Nguyen, D., & Zwick, L. K. (2014). Mediating relationships between academic motivation, academic integration and academic performance. *Learning and Individual Differences*, *33*, 30–38.https://doi.org/10.1016/j.lindif.2014.04.007

Cullen, S., & Oppenheimer, D. (2024). Choosing to learn: The importance of student autonomy in higher education. *Science Advances*, *10*(29), eado6759. https://doi.org/10.1126/sciadv.ado6759

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Derakshan, N., Smyth, S., & Eysenck, M. W. (2009). Effects of state anxiety on performance using a task-switching paradigm: An investigation of attentional control theory. *Psychonomic Bulletin & Review*, *16*, 1112–1117.https://doi.org/10.3758/PBR.16.6.1112

Diamond, L. M., & Aspinwall, L. G. (2003). Emotion regulation across the life span: An integrative perspective emphasizing self-regulation, positive affect, and dyadic processes. *Motivation and Emotion*, *27*, 125–156. https://doi.org/10.1023/A:1024521920068

Dimock, M. (2019, January 17). Defining generations: Where Millennials end and Generation Z begins. Pew Research Center. https://www.pewresearch.org/short-reads/2019/01/17/where-millennials-end-and-generation-z-begins/

Filgona, J., Sakiyo, J., Gwany, D. M., & Okoronka, A. U. (2020). Motivation in learning. *Asian Journal of Education and Social Studies*, *10*(4), 16–37. https://doi.org/10.9734/ajess/2020/v10i430273

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*(3), 218–226. https://doi.org/10.1037/0003-066X.56.3.218

Hancock, G. R., & Mueller, R. O. (Eds.). (2006). *Structural equation modeling: A second course.* Information Age Publishing.

Hipkins, R. (2012). The engaging nature of teaching for competency development. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 441–456). Springer. https://doi.org/10.1007/978-1-4614-2018-7_20

Isik, U., Tahir, O. E., Meeter, M., Heymans, M. W., Jansma, E. P., Croiset, G., & Kusurkar, R. A. (2018). Factors influencing academic motivation of ethnic minority students: A review. *SAGE Open*, *8*(2), 2158244018785412. https://doi.org/10.1177/2158244018785412

Kaiser, F. G., Dierkes, P. W., Höffler, T. N., & Bogner, F. X. (2020). The relationship between students' motivation and their perceived amount of basic psychological need satisfaction: A differentiated investigation of students' quality of motivation regarding biology. *International Journal of Science Education*, *42*(17), 2801–2818. https://doi.org/10.1080/09500693.2020.1836690

Kassymova, G., Abutalip, D., Okenova, B., Yesbossyn, M., & Dossayeva, S. (2023). Importance of dialogue in psychological counselling to avoid stress anxiety of Generation Z. *Bulletin of Kazakh Leading Academy of Architecture and Construction*, *88*(2), 270–283. https://doi.org/10.51488/1680-080X/2023.2-27

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.

Lam, U. F., Chen, W. W., Zhang, J., & Liang, T. (2015). It feels good to learn where I belong: School belonging, academic emotions, and academic achievement in adolescents. *School Psychology International*, *36*(4), 393–409. https://doi.org/10.1177/0143034315589649

Li, H., Chu, Z. X., & Du, Z. F. (2024). 大学生多样化学习动机的解构与重构 [Deconstruction and reconstruction of college students' diversified learning motivations]. *Jiangsu Higher Education*, *11*, 80–88. [in Chinese]

Moore, K., Jones, C., & Frazier, R. S. (2017). Engineering education for Generation Z. *American Journal of Engineering Education*, *8*(2), 111–126. https://doi.org/10.19030/ajee.v8i2.10067

Murphy, S., MacDonald, A., Wang, C. A., & Danaia, L. (2019). Towards an understanding of STEM engagement: A review of the literature on motivation and academic emotions. *Canadian Journal of Science, Mathematics and Technology Education*, *19*, 304–320. https://doi.org/10.1007/s42330-019-00054-w

Oram, R., & Rogers, M. (2022). Academic procrastination in undergraduate students: Understanding the role of basic psychological need satisfaction and frustration and academic motivation. *Canadian Journal of Education*, *45*(3), 619–645. https://doi.org/10.53967/cje-rce.v45i3.5293

Ouweneel, E., Le Blanc, P. M., & Schaufeli, W. B. (2014). On being grateful and kind: Results of two randomized controlled trials on study-related emotions and academic engagement. *The Journal of Psychology*, *148*(1), 37–60. https://doi.org/10.1080/00223980.2012.742854

Peixoto, F., Mata, L., Monteiro, V., & Sanches, C. (2017). "How do you feel about math?": Relationships between competence and value appraisals, achievement emotions and academic achievement. *European Journal of Psychology of Education*, *32*, 385–405. https://doi.org/10.1007/s10212-016-0299-4

Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review*, *18*, 315–341. https://doi.org/10.1007/s10648-006-9029-9

Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research. *Educational Psychologist*, *37*(2), 91–105. https://doi.org/10.1207/S15326985EP3702_4

Pekrun, R., Goetz, T., Frenzel, A. C., Barchfeld, P., & Perry, R. P. (2011). Measuring emotions in students' learning and performance: The Achievement Emotions Questionnaire (AEQ). *Contemporary Educational Psychology, 36*(1), 36–48. https://doi.org/10.1016/j.cedpsych.2010.10.002

Pekrun, R., & Stephens, E. J. (2012). Academic emotions. In K. R. Harris, S. Graham, T. Urdan, S. Graham, J. M. Royer, & M. Zeidner (Eds.), *APA educational psychology handbook: Individual differences and cultural and contextual factors* (Vol. 2, pp. 3–31). American Psychological Association. https://doi.org/10.1037/13274-001

Puklek Levpušček, M., & Podlesek, A. (2019). Links between academic motivation, psychological need satisfaction in education, and university students' satisfaction with their study. *Psihologijske teme*, *28*(3), 567–587. https://doi.org/10.31820/pt.28.3.6

Reeve, J. (2012). A self-determination theory perspective on student engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 149–172). Springer. https://doi.org/10.1007/978-1-4614-2018-7_7

Ruzek, E. A., Hafen, C. A., Allen, J. P., Gregory, A., Mikami, A. Y., & Pianta, R. C. (2016). How teacher emotional support motivates students: The mediating roles of perceived peer relatedness, autonomy support, and competence. *Learning and Instruction*, *42*, 95–103. https://doi.org/10.1016/j.learninstruc.2016.01.004

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Savira, R. (2021). A survey on problems caused by psychological factors among Gen Z. *Al- Hikmah: Jurnal Dakwah dan Ilmu Komunikasi*, *8*(2), 158–167.

Uchida, Y., & Kitayama, S. (2009). Happiness and unhappiness in east and west: Themes and variations. *Emotion*, *9*(4), 441–456. https://doi.org/10.1037/a0015634

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Brière, N. M., Senécal, C. B., & Vallières, É. F. (1993). *Academic Motivation Scale (AMS-C 28), college (CEGEP) version* [Measurement instrument]. Laboratoire de Recherche sur le Comportement Social, Université du Québec à Montréal. https://www.lrcs.uqam.ca/wp-content/uploads/2017/08/emecegep_en.pdf

Van der Beek, J. P. J., Van der Ven, S. H. G., Kroesbergen, E. H., & Leseman, P. P. M. (2024). How emotions are related to competence beliefs during mathematical problem solving: Differences between boys and girls. *Learning and Individual Differences*, *109*, 102402. https://doi.org/10.1016/j.lindif.2023.102402

Wigfield, A., Battle, A., Keller, L. B., & Eccles, J. S. (2002). Sex differences in motivation, self-concept, career aspiration, and career choice: Implications for cognitive development. In A. McGillicuddy-De Lisi & R. De Lisi (Eds.), *Biology, society, and behavior: The development of sex differences in cognition* (pp. 93–124). Ablex Publishing.

Wood, D. R. (2016). The impact of students' perceived relatedness and competence upon their motivated engagement with learning activities: A self-determination theory perspective [Doctoral dissertation, University of Birmingham]. http://etheses.bham.ac.uk/id/eprint/6627

Yang, Y., Yao, M., Yang, Y., Ye, Q., & Lin, T. (2021). Reliability and validity of the Chinese nine-item basic psychological need satisfaction scale based on self-determination theory with older adults. *Frontiers in Psychology*, *12*, 751631. https://doi.org/10.3389/fpsyg.2021.751631

Yu, S., Chen, B., Levesque-Bristol, C., & Vansteenkiste, M. (2018). Chinese education examined via the lens of self-determination. *Educational Psychology Review*, *30*, 177–214. https://doi.org/10.1007/s10648-016-9395-x

Zhen, R., Liu, R. D., Ding, Y., Wang, J., Liu, Y., & Xu, L. (2017). The mediating roles of academic self-efficacy and academic emotions in the relation between basic psychological needs satisfaction and learning engagement among Chinese adolescent students. *Learning and Individual Differences*, *54*, 210–216. https://doi.org/10.1016/j.lindif.2017.01.017

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Unveiling the experience of teachers in educational parlance: The post pandemic era of Covid-19

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Abstract

The COVID-19 pandemic significantly disrupted global education, compelling educators to rapidly adapt to remote learning environments. This study examines the experiences of higher education teachers in the Cagayan Valley, Philippines, during this unprecedented shift. Utilizing a phenomenological research design, ten educators were interviewed to explore the personal and professional challenges they faced, including technological difficulties, mental health concerns, and student engagement issues. Findings reveal that while the abrupt transition posed substantial obstacles—such as adapting teaching methodologies and ensuring assessment integrity—educators also demonstrated resilience and innovation. Coping mechanisms ranged from the adoption of blended learning strategies to increased collaboration among peers. The study highlights the critical need for educational institutions to develop frameworks for crisis management, ensuring better preparedness for future disruptions. This research informs effective strategies that can enhance the educational landscape in times of crisis, ultimately promoting a more adaptable and resilient educational system.

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Introduction

The emergence of the Novel Coronavirus (COVID-19) in late 2019 brought unprecedented changes to all aspects of human life. The rapid transmission of the virus forced societies worldwide to alter their daily routines and interactions drastically. Activities once considered routine were abruptly curtailed as the virus spread, compelling people to exercise extreme caution in public spaces. Face masks, face shields, and alcohol became everyday essentials, and paranoia around social interactions grew as the health risks became more evident.

The fear surrounding COVID-19 was amplified by the alarming rise in cases, the increasing number of deaths, and the overwhelming strain on healthcare systems worldwide. Vulnerable groups, such as the elderly, children, pregnant women, and those with pre-existing health conditions, were particularly at risk, making the

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pandemic a source of widespread anxiety. COVID-19 was first detected in Wuhan, China, in late 2019 (Adil et al., 2021), and its rapid transmission forced countries to close their borders and enforce stringent health protocols to safeguard public health.

News reports and social media platforms flooded people with images and stories of the virus's deadly impact, particularly its effect on the respiratory system. Although extensive research has been conducted to trace the origins of the virus and explore ways to boost immunity, a definitive explanation of its origin remains elusive. Vaccines were developed to combat the virus and its variants, but the threat persists, prompting governments and health experts to emphasize preventive measures and social distancing.

The pandemic's impact extended far beyond health, permeating various aspects of society, including education. In an effort to limit social contact and mitigate the spread of the virus, governments worldwide imposed lockdowns, prompting educational institutions to close their doors. The sudden transition to remote learning posed significant challenges for both teachers and students. Educators had to quickly adapt to new modes of instruction, often sacrificing the quality of education as traditional pedagogies gave way to online platforms. The psychological toll of these changes was profound, with many teachers reporting mental health struggles linked to the stress of transitioning to remote teaching (Santiago et al., 2023). This disruption led to a dramatic shift in the education sector, where learning and teaching were reshaped by the demands of a global crisis (Lizana et al., 2021).

For teachers in higher education, the pandemic presented a unique set of challenges. They were not only tasked with navigating new teaching modalities but were also deeply concerned about the well-being of their students. Student welfare, always a priority, became even more critical as the pandemic demanded resilience and adaptability in the face of an ever-changing educational landscape. This crisis underscored the importance of flexibility in higher education, pushing institutions and educators alike to innovate and adapt to the new normal (Sobral et al., 2021).

In the Cagayan Valley region of the Philippines, the COVID-19 pandemic had a profound impact on educational institutions. When the government mandated the closure of schools and universities, the region responded swiftly, though the transition was not without difficulties. With the pandemic striking in the middle of the academic year, schools and universities were left scrambling to adjust, relying on preliminary assessments to evaluate students' academic performance. At that time, the primary concern was not grades or instructional quality but ensuring the safety of students and faculty amid an unfolding global health crisis.

As the pandemic persisted, it became clear that educational institutions needed to find long-term solutions to continue delivering quality education. Higher education institutions in the Philippines, like many around the world, embraced remote learning, recognizing the lasting impact of the pandemic on the education system. This shift to virtual classrooms highlighted the necessity of investing in technology and infrastructure that could support online learning during crises, ensuring continuity in education despite external disruptions.

This study aims to explore the recovery mechanisms adopted by higher education teachers during the pandemic. By examining their experiences and coping strategies, the study seeks to develop a framework for crisis management that can serve as a guide for educational institutions in future emergencies. Understanding how teachers navigated the challenges of the COVID-19 pandemic is crucial in crafting effective responses to similar unprecedented events in the future.

Research Questions

1. How did the Covid-19 pandemic impact educators' professional and personal lives?
2. What challenges did educators face while adapting to the sudden shift in teaching modalities during the pandemic?
3. What specific problems arose for educators regarding technology, mental health, and student engagement in the new learning environment?
4. What coping mechanisms and strategies did educators develop to navigate the difficulties presented by the pandemic?

Methodology

Research Design

This study employed a phenomenological research design, which is widely used in qualitative research to explore and describe the lived experiences of individuals in specific contexts (Moustakas, 1994). Phenomenology allows researchers to delve into the subjective experiences of participants, focusing on how they interpret and make sense of a particular phenomenon (Vagle, 2018). In this case, the study explored the experiences of teachers

during the COVID-19 pandemic, specifically how the pandemic affected their professional and personal lives. A descriptive approach was integrated within the phenomenological design to capture the details of these experiences and the impact of the pandemic on the educational system in the Philippines. This design was deemed appropriate as it allowed for a comprehensive understanding of the phenomenon, going beyond surface-level observations to uncover deeper insights (Deocadez & Gayoles, 2022). The study was conducted in Region II, Philippines, from January 2022 to November 2023, ensuring that the participants' experiences were collected in a relevant temporal and geographical context.

Population and Sampling

The research utilized purposive sampling, a non-probability sampling technique often employed in qualitative research to select participants who have firsthand experience with the phenomenon under investigation (Palinkas et al., 2015). This method allowed the researcher to intentionally choose teachers who could provide rich, detailed insights into their experiences during the COVID-19 pandemic. The eligibility criteria included: (1) teachers from higher education and vocational institutions, (2) fluency in Filipino, English, or their local dialect, and (3) a willingness to participate in the study. The sample size was determined by data saturation, a concept used in qualitative research to indicate the point at which no new information or themes are emerging from the data (Fusch & Ness, 2015). This study reached data saturation after interviewing 10 participants. However, if additional insights were needed, the researcher was prepared to continue interviews until the data fully captured the essence of the teachers' experiences. Saturation is crucial in phenomenological research, ensuring that the collected data are comprehensive and reflective of the diversity of the participants' experiences (Guest et al., 2020).

Research instrument

The primary tool for data collection was a semi-structured interview guide, which is commonly used in qualitative research to balance structure with flexibility (Kallio et al., 2016). Semi-structured interviews allow researchers to ask predetermined questions while also probing further into participants' responses, facilitating a deeper exploration of their experiences. The interview questions were designed to elicit open-ended responses about the teachers' perceptions of the COVID-19 pandemic and its impact on their teaching practice. Key questions included: "How would you describe COVID-19?" and "How has the pandemic changed your life as a teacher?" These broad questions were supplemented by more probing inquiries such as "What challenges did you face during the pandemic?" and "How did you cope with the transition to remote teaching?" Probing questions help to uncover detailed and nuanced information that participants may not immediately volunteer (Adebayo et al., 2023). This method ensured that the data collected were rich and contextually relevant.

Data Collection

Data were gathered through face-to-face interviews, which are a primary means of collecting qualitative data and allow for direct interaction between the researcher and participants Sula and Hoxha, (2025). To ensure accuracy in capturing participants' responses, interviews were audio-recorded, with participants' consent, for later transcription and analysis. Informed consent was obtained from each participant before the interview, as required by ethical research standards (Bhandari, 2021). Participants were made fully aware of the study's objectives, the voluntary nature of their participation, and their right to withdraw at any point. Ensuring participants' privacy and confidentiality is critical in qualitative research, as it fosters trust and encourages more honest and open responses (Orb et al., 2001). The researcher took measures to protect participants' identities by anonymizing their responses and ensuring that all data were securely stored. Additionally, the interviews were conducted in settings convenient for the participants, respecting both their time and comfort. The interviews lasted approximately 45 minutes each, providing sufficient time to explore the participants' experiences without causing undue fatigue.

Data Analysis

The data collected in this study were analyzed using the Modified Van Kaam Method of Analysis of Phenomenological Data, as outlined by Moustakas (1994). This method is widely used in phenomenological research to systematically analyze and interpret participants' lived experiences. The analysis began with the transcription of each interview, followed by a detailed review of the transcripts to identify significant statements that captured the essence of the participants' experiences. These statements, known as meaning units, were then grouped into thematic clusters, which reflected shared patterns across the participants' experiences. Imaginative

variation was employed to explore the underlying structures of these experiences, allowing the researcher to move beyond surface-level descriptions to uncover deeper meanings. The final step involved synthesizing the textural and structural descriptions into a comprehensive account of the participants' experiences, ensuring that the analysis was both rigorous and reflective of the complexities of the phenomenon (Deocadez & Gayoles, 2022; Lim, 2025).

Results and Discussion

The Covid-19 pandemic significantly affected all aspects of society, including education, forcing educators, students, and institutions to adapt swiftly to an entirely new learning environment. The following section presents the results derived from interviews conducted with teacher participants, exploring their experiences, perspectives, and the challenges they encountered during the pandemic. The findings are organized into four major themes, each accompanied by subthemes that represent specific elements of the participants' experiences: (1) Knowledge about the Covid-19 Pandemic, (2) Challenges Faced on the Situation, (3) Problems Brought by the Pandemic, and (4) Coping Mechanisms.

Knowledge About the Covid-19 Pandemic

This theme explores the participants' understanding of the pandemic and their perspectives on its impact on their professional and personal lives. The participants shared diverse perspectives on how the Covid-19 pandemic affected their daily lives and work as educators. Many acknowledged that it was a historical moment that disrupted routines and imposed social restrictions. This disruption also extended to education, where the immediate shift from face-to-face to online learning was both overwhelming and challenging.

One participant, R01, described the pandemic as both a challenge and an opportunity:

> "It's a challenge because there was an abrupt change in the educational landscape… but also an opportunity for us to innovate and deliver things despite distance learning."

Another participant, R02, shared the difficulty of starting a teaching career in the middle of the pandemic:

> "It was a real challenge because I was a fresh graduate at the time."

Some participants highlighted positive outcomes, such as the acceleration of technological advancement and communication tools (R05):

> "Technology has expedited, making communication easier, even for those in far-flung areas."

These insights reflect a common theme of uncertainty at the beginning of the pandemic, followed by a gradual acceptance of the new normal and recognition of the necessity to innovate in the face of adversity.

Challenges Faced During the Pandemic

Participants discussed the unprecedented challenges they encountered as educators during the pandemic, specifically regarding the shifts in the educational system and pedagogy.

2.1. Changes in the Educational System

The sudden shift from traditional face-to-face teaching to online and blended learning required educators to adapt rapidly. Many teachers struggled with the abrupt changes, especially in terms of technology integration, assessment methods, and student engagement.

R01 emphasized the difficulty of adapting teaching and assessment practices to an online setting:

> "The assessment is very challenging… we need to devise ways to ensure students are truly learning. We're not always sure if the students are doing the work themselves or if they're copying answers."

Other participants shared similar struggles in finding effective teaching strategies in the early days of online learning. R02 noted:

> "I spent the first few months experimenting with different delivery methods. By the end of the semester, I realized students were more engaged when involved in hands-on activities, even online."

Despite these challenges, educators exhibited resilience by continuing to explore various pedagogical approaches. Adopting blended learning became a widespread strategy to address the need for flexibility in teaching.

2.2. Readiness of Students to Return to Face-to-Face Classes

A significant concern raised by participants was the readiness of students to return to face-to-face learning after months of online education. Many teachers observed that students faced difficulties in adjusting to the new realities of physical classrooms, especially with the financial burdens associated with commuting, boarding, and purchasing necessary learning tools.

R03 explained the increased financial strain on students:

"Students now need to spend on gadgets, fare, and boarding houses, which weren't concerns during online learning."

R05 noted that leniency during the pandemic might have impacted the reliability of grades:

"During the pandemic, we couldn't give failing grades… this leniency affected the reliability of assessments during that time."

These responses illustrate the complexities of transitioning back to traditional learning environments, as both teachers and students had to adjust to the new expectations and challenges posed by the post-pandemic scenario.

Problems Brought by the Pandemic

This theme focuses on the factors that challenged the participants in delivering their role as educators, particularly in terms of technology and the readiness of both teachers and students.

3.1. Technological Gaps and Challenges

The pandemic revealed stark inequalities in access to technology, with many students lacking the necessary devices and reliable internet connections to participate fully in online learning. These technological challenges greatly affected the delivery of lessons and the ability to engage students effectively.

According to R02:

"There was no best modality at first. I had to experiment with different strategies because the technological gap among students was a huge issue."

Participants also noted that many teachers, especially older ones, struggled with integrating technology into their pedagogy. While younger teachers may have been more tech-savvy, they still faced challenges in navigating the intricacies of online platforms for educational purposes.

3.2. Emotional and Mental Strain

The abrupt shift in the education system also led to emotional and mental strain for both teachers and students. The constant uncertainty and the pressure to deliver quality education under challenging circumstances took a toll on the mental health of many educators.

R01 shared:

"The abrupt change was difficult for teachers. We had to blend our knowledge of teaching with technology, and not everyone was ready for that."

These findings highlight the need for additional support, both technological and emotional, to help educators cope with the pressures brought about by the pandemic.

Coping Mechanisms

Despite the numerous challenges, the participants also demonstrated remarkable resilience by developing coping strategies to adapt to the new normal.

4.1. Resiliency Amidst the Pandemic

Participants frequently mentioned resilience as a key coping mechanism. Training and support from educational institutions helped teachers adjust to the demands of online learning. One participant, R05, mentioned:

"There were a lot of training programs available on learning management systems, and thanks to online platforms, we were still able to meet our students."

The shift to online learning taught educators to be dynamic and responsive to changes. R06 expressed how adaptability became an advantage:

"The use of online classes allowed me to be adaptable. While some found it difficult, I saw it as an opportunity for convenience."

This adaptability reflects the broader theme of resilience, where educators found ways to persevere despite the difficulties posed by the pandemic.

4.2. Adaptability and Flexibility

The final subtheme emphasizes the importance of adaptability and flexibility in overcoming the challenges of the pandemic. The responses from the participants underscore the necessity of being open to change, learning new skills, and maintaining a positive mindset throughout the crisis.

R06 shared:

"One challenge we continue to face is the need to adapt to new situations, but having a positive mindset helped me cope."

R01 also emphasized the importance of continuous learning for teachers, especially in terms of integrating technology into their teaching:

"For new teachers, it's essential to keep learning and blending technology with traditional teaching methods. For older teachers, retooling and learning new technology is necessary."

These insights highlight that the pandemic, while difficult, also served as a learning experience, fostering flexibility and growth in both personal and professional contexts.

The results of this study illustrate how the Covid-19 pandemic dramatically altered the educational landscape. Educators were forced to navigate unprecedented challenges, including adapting to new teaching modalities, addressing technological gaps, and

supporting students through the transition to and from online learning. However, the findings also reveal the remarkable resilience and adaptability of teachers in the face of adversity. The pandemic provided opportunities for innovation in pedagogy and highlighted the critical need for flexibility in the education system. Ultimately, the experiences shared by the participants underscored the importance of preparedness, technological competence, and emotional resilience in overcoming future challenges in education.

Table 1 presents the thematic analysis of participants' experiences during the Covid-19 pandemic. The themes were derived from in-depth analysis of participants' narratives capturing their lived experiences, challenges, and coping mechanisms throughout the pandemic period.

Table 1 Thematic analysis of participants' experiences during the Covid-19 pandemic

Theme	Subtheme	Description	Example Statements
1. Knowledge About the Covid-19 Pandemic	1.1. Perspective on the Covid-19 Pandemic	Participants shared diverse perspectives on how the pandemic disrupted routines and imposed social restrictions, emphasizing the historical significance of the event.	"It's a challenge because there was an abrupt change in the educational landscape… but also an opportunity for us to innovate and deliver things despite distance learning." (R01) "It was a real challenge because I was a fresh graduate at the time." (R02)
	1.2. Positive Technological Advancements	Participants noted the pandemic accelerated the adoption of technology in education, improving communication.	"Technology has expedited, making communication easier, even for those in far-flung areas." (R05)
2. Challenges Faced During the Pandemic	2.1. Changes in the Educational System	The shift from traditional face-to-face teaching to online learning required rapid adaptation by educators.	"The assessment is very challenging… we need to devise ways to ensure students are truly learning. We're not always sure if the students are doing the work themselves or if they're copying answers." (R01) "I spent the first few months experimenting with different delivery methods." (R02)
	2.2. Readiness of Students to Return to Face-to-Face Classes	Concerns about students' readiness to return to physical classrooms, exacerbated by financial burdens and leniency during online learning.	"Students now need to spend on gadgets, fare, and boarding houses, which weren't concerns during online learning." (R03) "During the pandemic, we couldn't give failing grades… this leniency affected the reliability of assessments during that time." (R05)
3. Problems Brought by the Pandemic	3.1. Technological Gaps and Challenges	Inequalities in access to technology hindered effective participation in online learning for students and teachers.	"There was no best modality at first. I had to experiment with different strategies because the technological gap among students was a huge issue." (R02)
	3.2. Emotional and Mental Strain	The abrupt changes led to emotional and mental strain for educators, affecting their ability to deliver quality education.	"The abrupt change was difficult for teachers. We had to blend our knowledge of teaching with technology, and not everyone was ready for that." (R01)
4. Coping Mechanisms	4.1. Resiliency Amidst the Pandemic	Resilience emerged as a key coping mechanism, supported by training and institutional assistance for educators.	"There were a lot of training programs available on learning management systems, and thanks to online platforms, we were still able to meet our students." (R05)
	4.2. Adaptability and Flexibility	Adaptability became crucial for educators to navigate challenges, emphasizing the importance of a positive mindset.	"The use of online classes allowed me to be adaptable. While some found it difficult, I saw it as an opportunity for convenience." (R06) "One challenge we continue to face is the need to adapt to new situations, but having a positive mindset helped me cope." (R06)
	4.3. Continuous Learning and Innovation	The pandemic highlighted the necessity of continuous learning and blending technology with traditional teaching methods.	"For new teachers, it's essential to keep learning and blending technology with traditional teaching methods. For older teachers, retooling and learning new technology is necessary." (R01)

The thematic analysis of educators' experiences during the Covid-19 pandemic reveals critical insights that extend beyond individual challenges and triumphs. The theme of knowledge about the pandemic emphasizes the duality of crisis and opportunity that many educators experienced. This aligns with the concept of "adaptive leadership," which emphasizes the ability of individuals and organizations to navigate uncertainty and foster innovation (Heifetz & Linsky, 2002). Educators recognized the need for a paradigm shift, moving away from traditional methods toward more innovative practices that could enhance student learning in a remote environment. The notion that crises can catalyze change is supported by Fullan (2020), who asserts that the pandemic served as a wake-up call, pushing educators to reevaluate their pedagogical approaches. As educational systems begin to recover and adapt, policymakers need to leverage this newfound knowledge, investing in training programs that promote flexible teaching methodologies that combine face-to-face and online learning. Future research could investigate the long-term impacts of these adaptive practices on student outcomes, particularly in diverse educational settings.

The theme regarding the challenges faced during the pandemic highlights systemic issues that have long been present in education but were exacerbated by the crisis. The sudden transition to online learning exposed significant inequities in access to technology, a finding echoed by Amirova et al. (2023) and Laufer et al. (2021), who noted that the digital divide has profound implications for educational equity. This awareness calls for immediate action from educational policymakers to ensure that all students have access to the necessary resources for online learning. Policies that promote technology equity, such as subsidizing internet access and providing devices for underserved populations, are crucial in mitigating these disparities. Moreover, as Koris, R., & Pál, Á. (2021) point out, the need for reliable assessment practices during times of crisis is paramount. Therefore, future research should explore the effectiveness of various assessment strategies in remote learning environments and how they can be adapted to ensure fairness and validity in evaluating student performance.

The emotional challenges that emerged during the pandemic signify the importance of addressing mental health and well-being in education. Agyapong et al. (2022) documented increased levels of stress among educators, emphasizing the need for comprehensive mental health support systems within schools. Educational leaders and policymakers must prioritize the integration of mental health resources into the curriculum and staff training. Additionally, the recognition that emotional support plays a vital role in educator effectiveness should inform future policy developments, ensuring that mental health resources are not merely reactive but proactively embedded within educational institutions. Research should further explore the long-term effects of the pandemic on educators' mental health and the efficacy of various support programs in promoting well-being.

The resilience and adaptability demonstrated by educators during the pandemic highlight the necessity for ongoing professional development that fosters these skills. As noted by Hwang et al. (2021), educators who engaged in training programs reported feeling more equipped to handle the demands of online teaching. This suggests that continuous professional development should be a fundamental aspect of educational practice moving forward. Policymakers should consider creating structured pathways for professional growth that incorporate both technological training and pedagogical strategies, ensuring educators are prepared for future disruptions. Moreover, the adaptability shown by educators could serve as a valuable model for students, promoting a culture of resilience that extends beyond the classroom. Future research could examine the effectiveness of resilience training programs for both educators and students, assessing their impact on academic performance and overall well-being.

Conclusion and Recommendation

The COVID-19 pandemic has had a profound and lasting impact on educational institutions, particularly in Region II, Philippines. The sudden shift from routine operations to restrictive protocols and eventually to the new normal forced educators to rethink their approaches to teaching. This study explored the lived experiences of teachers in higher education during the pandemic and illuminated the challenges and opportunities they encountered. Teachers described the pandemic as a period of immense difficulty, characterized by new problems and disruptions to the educational system. However, these adversities also catalyzed innovation, pushing educators to adopt new teaching methods and embrace technology in ways they had not previously considered. The study revealed that, despite the overwhelming challenges, teachers were able to demonstrate resilience by continuing their work and adapting to changing circumstances. Furthermore, it highlighted the important role of flexibility and adaptability in education, emphasizing the need for diverse pedagogical strategies to meet the varied needs of students. As observed, many students also struggled with financial issues but were eager to return to

face-to-face learning, valuing the in-person interaction with their teachers. Ultimately, the pandemic reinforced the necessity of resilience, innovation, and adaptability in both teaching and learning environments.

In light of the findings, several recommendations can be made to improve future educational practices. First, teachers should continue to develop flexibility and adaptability, as the future of education will likely involve further disruptions and rapid changes. Professional development programs that focus on crisis preparedness and innovative teaching strategies will be crucial to maintaining effective education. Second, higher education institutions must invest in technological facilities to ensure that digital tools and platforms are available for blended learning. Reliable internet access, comprehensive learning management systems, and sufficient training for teachers in these technologies are essential to maintaining continuity in education. Third, institutions should revise curricula to incorporate life skills training, helping students develop critical thinking, adaptability, and resilience in the face of future crises. Finally, schools should enhance their support systems for students, particularly in areas like financial aid and mental health services, to ensure that students can fully engage with their education despite external challenges. By adopting these measures, the education sector can be better equipped to navigate future uncertainties and continue to provide high-quality learning experiences for students.

Conflict of Interest

The author declares that there is no conflict of interest.

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References

Adebayo, S. B., Quadri, G., Igah, S., & Azubuike, O. B. (2023). Teaching in a lockdown: The impact of COVID-19 on teachers' capacity to teach across different school types in Nigeria. *Heliyon*, *9*(3).

Adil, M. T., Rahman, R., Whitelaw, D., Jain, V., Al-Taan, O., Rashid, F., Munasinghe, A., & Jambulingam, P. (2021). SARS-CoV-2 and the pandemic of COVID-19. *In Postgraduate Medical Journal, 97*(1144), 110–116. https://doi.org/10.1136/postgradmedj-2020-138386

Agyapong B., Obuobi-Donkor G., Burback L., & Wei Y. (2022). Stress, burnout, anxiety and depression among teachers: a scoping review. *Int J Environ Res Public Health*, *19*(17), 10706. https://doi.org/10.3390/ijerph191710706

Amirova, A., Nurumov, K., Kasa, R., Akhmetzhanova, A., & Kuzekova, A. (2023, January). The impact of the digital divide on synchronous online teaching in Kazakhstan during COVID-19 school closures. In *Frontiers in Education* (Vol. 7, p. 1083651). Frontiers Media SA.

Bhandari., P. (2021). *Ethical Considerations in Research | Types & Examples.* https://www.scribbr.com/methodology/research-ethics/

Deocadez, R. G., & Gayoles, A. (2022). LM Emerging Adult Graduating Students Adapting to the COVID-19 Pandemic: A Phenomenological Study. *Lond. J. Res. Humanit. Soc. Sci*, *22*, 29–60.

Fullan, M. (2020). Learning and the pandemic: what's next?. *Prospects*, *49*, 25–28. https://doi.org/10.1007/s11125-020-09502-0

Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, *20*(9), 1408–1416. https://doi.org/10.46743/2160-3715/2015.2281

Guest, G., Namey, E., & Chen, M. (2020). A simple method to assess and report thematic saturation in qualitative research. PLOS ONE, *15*(5), https://doi.org/10.1371/journal.pone.0232076

Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, *72*(12), 2954–2965. https://doi.org/10.1111/jan.13031

Koris, R., & Pál, Á. (2021). Fostering learners' involvement in the assessment process during the COVID-19 pandemic: Perspectives of university language and communication teachers across the globe. *Journal of University Teaching & Learning Practice, 18*(5). https://doi.org/10.53761/1.18.5.11

Laufer, M., Deacon B., de Brichambaut, P., Fecher, B., Kobsda, C., &Hesse, F. (2021). Digital higher education: a divider or bridge builder? Leadership perspectives on edtech in a COVID-19 reality. *International Journal of Educational Technology in Higher Education*, *18*, 51. https://doi.org/10.1186/s41239-021-00287-6

Lizana, P. A., Vega-Fernadez, G., Gomez-Bruton, A., Leyton, B., & Lera, L. (2021). Impact of the covid-19 pandemic on teacher quality of life: A longitudinal study from before and during the health crisis. *International Journal of Environmental Research and Public Health*, *18*(7), 3764. https://doi.org/10.3390/ijerph18073764

Lim, W. M. (2025). What is qualitative research? An overview and guidelines. *Australasian Marketing Journal*, *33*(2), 199–229.

Orb, A., Eisenhauer, L., & Wynaden, D. (2001). Ethics in qualitative research. *Journal of Nursing Scholarship, 33*(1), 93–96. https://doi.org/10.1111/j.1547-5069.2001.00093.x

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*(5), 533–44. https://doi.org/10.1007/s10488-013-0528-y.

Santiago, I. S. D., dos Santos, E. P., da Silva, J. A., de Sousa Cavalcante, Y., Gonçalves Júnior, J., de Souza Costa, A. R., & Cândido, E. L. (2023). The impact of the covid-19 pandemic on the mental health of teachers and its possible risk factors: a systematic review. *International Journal of Environmental Research and Public Health*, *20*(3), 1747. https://doi.org/10.3390/ijerph20031747

Sobral, S. R., Silva, N. J., Cardoso, A., & Moreira, F. (2021). Eu27 higher education institutions and covid-19, year 2020. *International Journal of Environmental Research and Public Health*, *18*(11), 5963. https://doi.org/10.3390/ijerph18115963

Sula, G., & Hoxha, M. (2025). Sustaining Innovation: Teacher Perspectives on Content and Language Integrated Learning (CLIL) and Digital Tool Integration in Albanian Online Education. *Computers and Education Open*, 100328.

Vagle, M. D. (2018). *Crafting phenomenological research (2nd ed.)*. UK. Routledge. https://doi.org/10.4324/9781315173474

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Exploring teacher leadership readiness in compulsory schools and the contributing two factors in China context: the mediating role of teacher leaders

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Abstract

The objectives of this mix-methods study were: (1) to define the existing levels of teacher leadership readiness of compulsory schools; (2) to examine the role of teacher leaders as a mediator between contributing factors and teacher leadership readiness, and (3) to propose guideline for improving teacher leadership readiness. Data were collected via questionnaires from 362 teachers and semi-structured interviews with six backbone teachers. The quantitative part was focused on descriptive statistics (frequency, percentage, mean, standard deviation) and the inferential statistics (*t*-test, ANOVA, correlation analysis, regression analysis, path analysis) while the qualitative part was in content analysis. Findings showed imbalanced teacher leadership readiness, significant gender differences, and teacher leaders as partial mediators for the two key contributing factors: teachers' characteristics, colleagues' relationships. The interviews outlined that (1) teacher leaders are recognized as leadership roles in position-based as well as in activities-based occasions, and (2) offering sufficient supply positions and opportunities is the prominent facilitating motivation yet the dominant inhibitor is time limit and extra workload for leadership roles. Rooted in the findings from these two sections, the study provided a guideline for teachers to execute effective teacher leadership practices, principals to take advantages of the mediating role of teacher leaders and policy makers to resources allocation.

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Introduction

Compulsory education signifies a nation's obligation to provide school-aged children with universal, equal, and high-quality educational opportunities within the established duration of compulsory education. The China government targets to improve the standards and quality of compulsory education from grades 1 to 9, progressively realize resources equalization, fortify foundational competencies, and accelerate the high-quality, balanced development as well as integration of urban and rural areas. Teachers, as agents of change, rightly and importantly possess a central position in the ways schools operate as well as in the fundamental functions of teaching and learning. In a certain sense, teacher staff is the primary influencing factor in students' development as well as school reform due to their dual involvement in the classroom and office.

Focusing on the impacts of teachers on school improvement, scholars introduced a novel theory: teacher leadership. Teacher leadership involves teachers, either individually or collectively, exerting influence on their peers, principals, and other school community members to enhance teaching and learning methods, ultimately aiming to improve student learning and achievement (York-Barr & Duke, 2004). In recent decades, with the continuous deepening and promotion of the concept of teacher leadership in the theoretical and practical fields, relevant data have shown that the teacher leadership played by leading teachers can maximize student learning (Cowana & Goldhaber, 2016), continuously improve the professional competence of members of the teacher community (Harris & Muijs, 2004), and continuously improve educational practices in schools (Wenner & Campbell, 2017). In a word, teacher leadership was placed in the important role to promote the school achievement in many aspects.

Although there are abounding practices of teachers' leadership development overseas, in China, it is mainly in the leadership role practice model, through the hierarchical organizational structure, in which teachers are appointed to leadership positions and leadership roles from top to bottom. Little attention was given to developing diversified practical practices, roles and opportunities for teacher leadership and constructing a localized and customized model of teacher leadership development (Wang & Xu, 2021). And the least amount of research was made in Guangxi as data shown in China National Knowledge Infrastructure (CNKI) when searching articles on the topic of "teacher leadership" (Zheng & Yin, 2024)

Thus, it is absolutely needed in any nuanced effort to conduct a regional research to diversify and enlarge the research boundary in teacher leadership in Guangxi, China in detailed objectives: (1) to define the existing levels of teacher leadership readiness of compulsory schools; (2) to examine the role of teacher leaders as a mediator between contributing factors and teacher leadership readiness; and (3) to propose guidelines for improving teacher leadership readiness. The objectives were achieved by a quantitative and qualitative method.

Literature Review

Teacher Leadership Readiness

Teacher leadership has roots in distributed leadership. Distributed leadership exhibits a blend of formal and informal expressions of leadership practices within its framework, placing a profound emphasis on the involvement of both teachers and administrators, working, sharing, and collaborating together, that mold leadership execution. In this mold, school leaders retain a pivotal role in distributing, sharing and empowering their school followers who are the top-down recipients (Spillane & Diamond, 2007). Specifically, the central tenet of teacher leadership presumed that leadership emerges from many teachers and every individual teacher could formally and informally exert influence on their peers, principals, and other school community members by bottom-up collaboration (Harris & Muijs, 2004).

Teacher readiness is described as willingness, preparedness, acceptance conditions perceived by teachers to effectively perform teacher leadership. The Theory of Planned Behavior (TPB) (Ajzen & Fishbein, 2005) proposed that individual social perceptions play a crucial role in shaping one's attitudes, which subsequently influence their behavioral intentions and ultimate actions. In line with this theory, the current study suggested that the teachers' perception of their readiness of teacher leadership will evaluate teachers' attitudes of teacher leadership. If an individual has strong intentions to perform teacher leadership and faces minimal constraints, they are more likely to act accordingly.

Teacher leadership readiness corresponds to the perceptions of organizational readiness in executing teacher leadership. Its predictors include teacher leadership work, teacher leadership demand and teacher leadership supply. What teachers do is defined as the teacher leadership work. The teacher leadership demand

is described as areas where schools can benefit from teacher leaders taking a leading role in improvement in functions of curriculum, teaching, and professional development. Teacher leadership supply is about having sufficient resources of high-quality teachers to fill the leadership roles, where the number of teachers are treated as candidates who are interested and qualified to fill in a leadership role (Finster, 2016).

The Contributing Factors

What factors are being considered to exert influence on teacher leadership readiness? There are a number of factors that should be taken into account in delivering this concept. As the contributors suggested, the teachers' characteristics, the principals, the colleague relationships, the school culture and school structure are meant to be uncovered in the current study. Professional expertise and personal attitudes are taken as characteristics of teachers to reveal individual influence on teacher leadership readiness (Tahir et al., 2020). It is the school head's responsibility and role as to how they make efforts to maneuver teachers to get required results and to what extent they create the environment of trust in the school and let teachers consider that they are leaders, by providing them opportunities to grow and, by creating such a culture in the school that could ensure their leadership roles (Katzenmeyer & Moller, 2009). The effectiveness of teacher leadership is significantly determined by how well teacher leaders collaborate and interact with their peers. Without considering the cultural context of the school where teacher leadership is implemented, it is not possible to establish the necessary structure for effective teacher leadership in a comprehensive manner (Hoy & Sweetland, 2001; Gülmez, 2022).

Teacher Leaders and Backbone Teachers

Many researchers confirmed that the connotation of "teacher leaders" from overseas quite matches the implication of "backbone teachers" (Chen & Lu, 2010; Wang & Hong, 2019). Teacher leaders have a pivotal role in shaping and motivating others, both formally and informally. By assisting colleagues in lesson planning and implementation, they contribute to the professional development of the teaching team. Additionally, through mentoring activities, teacher leaders can guide and support pre-service or novice teachers, motivating them to progress and advance in their teaching professions. In practice, the role of backbone teachers is mainly reflected in four overlapping work areas: developing courses and conducting teaching activities, helping and supporting colleagues, communicating with principals and teachers, and coordinating the relationship between teachers (Wang, et al., 2017). Consequently, this study integrated the practices of abroad teacher leaders for the purpose of an expansion and absorption in domestic backbone teachers' quality building.

In the current study, teacher leaders were regarded as a mediator between conditioning factors and teacher leadership readiness. Teacher leaders used strategies that include sharing, coaching, collaborating, and advocating to influence their peers (Fairman & Mackenzie, 2015). There are four discernible and discrete dimensions of the teacher leadership role: brokering role, mediating role, participative leadership, and forging close relationship. "Brokering role" is about teacher leaders translating school reform principles into classroom practices, in which teacher leaders work between the school management team and teaching staff. "Mediating role" entails teacher leaders, as the source of professional expertise, critically drawing on additional information or resources for assistance from outside of school. In this role, teacher leaders assume the responsibility of working between school and its external communities. "Participative leadership" refers to teacher leaders assisting colleagues to work together for certain developmental work, or foster a more collaborative way of working, so that those being affected would feel a part of an improvement project with a sense of ownership. "Forging close relationship" amongst individual teachers is to foster mutual learning. The latter two role responsibilities require teacher leaders to mitigate isolation amongst teachers, which has been regarded as customary in the traditional culture of teaching (Harris & Muijs, 2004). In this sense, teacher leaders are in core role to link various factors to support the development of innovative leadership practice.

Methodology

Phase One in Quantitative Section Sample

The sample teachers would be selected by using multi-stage random sampling. Step one is stratified random sampling to divide all teachers into two groups: 60,297 from primary schools; 68,693 from junior middle schools. Step two is simple random sampling by drawing lots for sample teachers' selection (200 from primary schools and 200 from junior middle schools). Step three is to distribute questionnaires and collect responses.

The sample size (n = 400) was based on Taro Yamane's 1967 formula, with 95 percent confidence and p = .05, yielding n = 398.76 (rounded up). There were 362 qualified samples to be collected after data clearing and removing out of 400 samples, leading to the response rate of 90.5 percent.

Data Collection

A borrowed and re-defined questionnaire was introduced in the quantitative section. The questionnaire consists of four parts: (1) Part one, background information, including gender, age, level of education, teaching experience, teaching subjects; (2) Part two, the teacher leadership readiness scale adapted from the Teacher Leadership Program Readiness Surveys (Finster, 2016); (3) Part three, the contributing factors scale comprised the scale of teachers' characteristics (Tahir et al., 2020), the principal leadership skills scale (Bhayo, 2021), the colleagues' relationships scale (Hu & Gu, 2012), the school culture scale (Finster, 2016), and the school structure scale (Hoy & Sweetland, 2001; Sinden et al., 2004); and (4) Part four the scale of teacher leaders (Liu, 2021). It is designed to consist of 115 items based on a 5-point Likert scale.

For content validity, Item-Object Congruence (IOC) test was administered by three experts, with all items scored ≥ 0.50, indicating their validity. For reliability, the questionnaire has gone through a pilot test to 30 teachers. The Cronbach's alpha coefficient (α) score is .958, which is considered as adequate reliability. Then, score values for all questionnaires are: the α=.936, KMO>.8, p< .05, $\chi 2$ = 47888.825, df=4186. The Average Variance Extraction (AVE) scores are from 0.568 to 0.813 while Composite Reliability (CR) scores are from .842 to .974. CR score should exceed 0.7 and AVE score should exceed 0.5 (Hair et al., 2010). Thus, it was concluded that the indicators of teacher leadership readiness, the affecting factors and mediator had the ability to represent its constructs.

Data Analysis

The first step processes to identify and eliminate missing or incorrect values and outliers to ensure the collected data of questionnaires adhered to a normal distribution based on the Skewness and Kurtosis values. Then, descriptive statistics (frequency, percentage, mean, standard deviation) are performed. Last, the inferential statistics (t-test, ANOVA, correlation analysis, regression analysis, path analysis) are presented.

Phase Two in Qualitative Section Key Informants

A number of six backbone teachers is included in the qualitative section. Key informants are selected by meeting the criteria: (1) have teacher qualification certificate; (2) be bachelor degree holder with six years of working experience or master holder with four years; (3) moral example in education (i.e. excellent class advisor); (4) be excellent in teaching; (5) be interested in educational and teaching research; (6) be in role of mentoring and coaching colleagues; (7) have leader or organizer experience, such as teaching and research team leader, lesson preparation team leader, teaching supervisor.

Data Collection

Informants are tagged in the form of T1, T2, ...T6 for a nearly 90-minute interview, which is conducted and recorded digitally via Tencent video room.

Data Analysis

The data are analyzed by breaking the process into four major steps. First, data are generated from transcribed interviews. Second, the data are read repeatedly to code the data and look for central ideas in the responses. The third step is to decode and develop initial categories. Finally, to well-defined themes (Lichtman, 2010). The research framework is depicted in Figure 1.

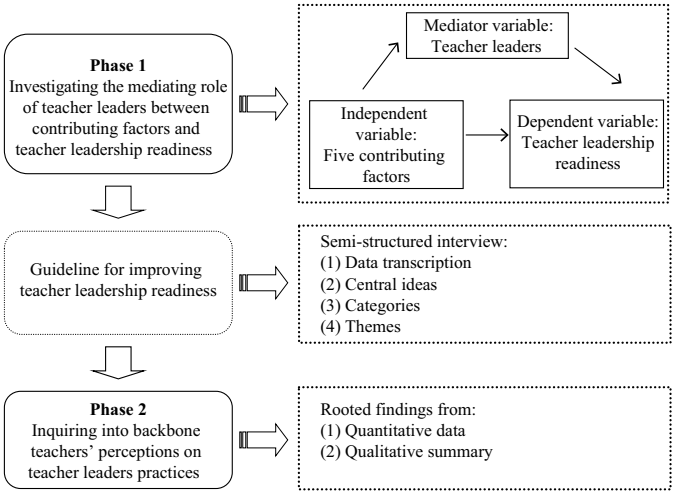


Figure 1 Research Framework

Results

Descriptive Analysis

There are 39 male teachers, accounting for 10.77 percent and 323 female teachers for 89.23 percent of the total sample. Only gender had a significance in teacher leadership readiness (TL_readiness) (t = 3.380, p < .01) when adopted independent sample t-test and ANOVA to examine demographic variables.

The current level of teacher leadership readiness is 3.86 (SD = 0.490), within which teacher leadership demand ranked first with scores 4.16 (SD = 0.657) followed by teacher leadership work 3.98 (SD = 0.670) while teacher leadership supply was the minimum of 3.43 (SD = 0.680).

The participants had the average score of 4.27 (SD = 0.483) on teachers' characteristics, 3.98 (SD = 0.658) on principal leadership skills, 4.07 (SD = 0.507) on colleagues' relationships, 3.88 (SD = 0.585) on school culture, 3.79 (SD = 0.710) on school structure, 3.74 (SD = 0.713) on teacher leaders.

Correlation Analysis

A Pearson correlation coefficients analysis was conducted to assess the strength and direction between each pair of variables. As shown in the subsequent Table 1, all research variables are in positive correlation, with scores from .391-.850 and there is significance with each variable. Specifically, it indicates a moderate to strong positive relationship, suggesting that as the perception of the five contributing factors increases, the teacher leadership readiness also tends to rise significantly.

Regression Analysis

A regression analysis was carried out to examine the prediction and explanation of the five contributing factors on teacher leadership readiness. From previous descriptive analysis of demographic variables, it was verified that gender had a significance difference in teacher leadership readiness. Therefore, gender works as the controlled variable as well as an independent variable when running the regression analysis as tabulated below in Table 2.

Table 1 Correlations of all variables

	TL_R	Ts_C	Prin_L	Collg_R	Sch_C	Sch_S	TLs
TL_R	1						
Ts_C	.535**	1					
Prin_L	.469**	.517**	1				
Collg_R	.600**	.609**	.646**	1			
Sch_C	.486**	.463**	.780**	.676**	1		
Sch_S	.451**	.468**	.776**	.569**	.850**	1	
TLs	.454**	.249**	.313**	.348**	.355**	.391**	1

Note: TL_R=Teacherleadershipreadiness,Ts_C=Teachers'characteristics,Prin_L=Principalleadershipskills,Collg_R=Colleagues'relationships, Sch_C = School culture, Sch_S = School structure, TLs = Teacher leaders.
**p < .01.

Table 2 Regression analysis on teacher leadership readiness

Variable	Unstandardized Coefficients	Standard Error	Standardized Coefficients	t	p	Tolerance	VIF
(Constant)	0.629	0.191	-	3.297	< .01	-	-
Gender* (Controlled)	0.145	0.062	0.091	2.349	< *.05*	0.970	1.031
Ts_C (Independent)	0.259	0.051	0.255	5.115	< .01	0.589	1.697
Prin_L (Independent)	0.012	0.051	0.016	0.233	n.s.	0.312	3.201
Collg_R (Independen)	0.290	0.059	0.300	4.948	< .01	0.401	2.495
Sch_C (Independen)	0.060	0.071	0.071	0.846	n.s.	0.208	4.811
Sch_S (Independent)	-0.013	0.055	-0.019	-0.238	n.s.	0.229	4.358
TLs (Independent)	0.186	0.032	0.250	5.868	< .01	0.811	1.233
Model Statistics							
R^2	0.469						
F-statistic	46.585				<0.001		
DW	1.856						

Note: Ts_C = Teachers' characteristics, Prin_L = Principal leadership skills, Collg_R = Colleagues' relationships, Sch_C = School culture, Sch_S = School structure, TLs = Teacher leaders.
Tolerance = Collinearity Statistics Tolerance, VIF = Variance Inflation Factor, DW = Durbin-Watson.
p < .05, p < .01, p < .001, n.s. = not significant.

Table 2 model controls for gender and includes teachers' characteristics, principal leadership skills, colleagues' relationships, school culture, school structure, and teacher leaders as independent variables. The results revealed that the independent variables have a significant positive impact on dependent variable with a regression coefficient of β=0.629 ($p < .01$), $R^2 = 0.469$, which indicates that the model explains 46.9 percent of teacher leadership readiness. $F = 46.585$, $p < .001$, indicating that the regression model has statistical significance. The VIF is from 1.031 to 4.811, which is lower than 5, indicating that there is no multi-collinearity problem (Hair et al., 2010). The DW score is 1.856 within the range of 2, indicating no auto correlation phenomenon.

However, in each independent variable, only the variables of teachers' characteristics, colleagues' relationships, teacher leaders have a significant positive impact on teacher leadership readiness with regression coefficients of 0.145 ($p < .05$), 0.259 ($p < .01$), 0.290 ($p < .01$) and 0.186 ($p < .01$). The variables of principal leadership skills, school culture have a positive impact on teacher leadership readiness without significance, and school structure has a negative impact on teacher leadership readiness neither with significance. Therefore, these three variables will not be performed for the later mediating effect test by path analysis.

Path Analysis and Mediating Effect Tests

The mediating effects of teacher leaders as the mediator in the relationship between teachers' characteristics and teacher leadership readiness was calculated by path analysis. By utilizing MODEL 4 from PROCESS, the analysis decomposes the total effect of teachers' characteristics into its direct and indirect components. The measurement model showed good fit to the data (R^2=.396, $0 < R^2 < 1$). Table 3 below declared that teachers' characteristics had a positive effect on teacher leadership readiness (β=0.543, t-value=12.017, $p < .001$). When brought teacher leaders as mediator, teachers' characteristics still had a positive effect on teacher leadership readiness (β=0.456, t-value=10.618, $p < .001$). In consequence, teacher leaders as a partial mediator positively affects teacher leadership readiness (β=0.254, t-value=8.075, $p < .001$).

The Figure 2 shows that the direct effect of teachers' characteristics on teacher leadership readiness was significant (β=.456, $p < .001$, 95% CI=0.37 to 0.54). Moreover, the indirect effect of teacher leaders in the relation between teachers' characteristics and teacher leadership readiness was significant (β=.009, $p < .001$, 95% CI=0.02 to 0.05). This pattern indicates that teacher leaders serves as a partial mediator in the relationship between teachers' characteristics and teacher leadership readiness, suggesting that teacher characteristics enhance readiness both directly and indirectly by fostering engagement with existing teacher leaders.

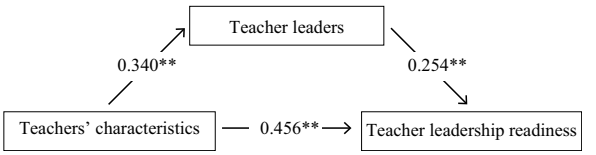


Figure 2 The partial mediating role (Teachers' characteristics)

The mediating effects of teacher leaders as the mediator in the relationship between colleagues' relationships and teacher leadership readiness was calculated by path analysis. By adopting MODEL 4 from PROCESS, the analysis decomposes the total effect of colleagues' relationships into its direct and indirect components. The measurement model showed good fit to the data (R^2=.428, $0 < R^2 < 1$). Table 4 below posted that colleagues' relationships had a positive effect on teacher leadership readiness (β=0.581, t-value=14.219, $p < .001$). When brought roles of teacher leaders as mediator, colleagues' relationships still had the positive effect on teacher leadership readiness (β=0.487, t value=11.809, $p < .001$). Consequently, teacher leaders as a partial mediator positively affects teacher leadership readiness (β=0.208, t value=6.570, $p < .001$).

Table 3 Path analysis (Teachers' characteristics)

Structural path relationship	*R*	R^2	*F*	β	*t*
Ts_C to TL_readiness	0.535	0.286	144.401***	0.543	12.017***
Ts_C to TLs	0.250	0.062	23.889***	0.340	4.888***
Ts_C to TLs to TL_readiness	0.629	0.396	117.684***	0.456	10.618***
				0.254	8.075***

Note: Ts_C = Teachers' characteristics, TL_readiness = Teacher leadership readiness, TLs = Teacher leaders.
***$p < .001$.

Table 4 Path analysis (Colleagues' relationships)

Structural path relationship	*R*	R^2	*F*	β	*t*
Collg_R to TL_readiness	0.600	0.360	202.191***	0.581	14.219***
Collg_R to TLs	0.348	0.121	49.443***	0.453	7.031***
Collg_R to TLs to TL_readiness	0.655	0.428	134.521***	0.487	11.809***
				0.208	6.570***

Note: Collg_R = Colleagues' relationships, TL_readiness = Teacher leadership readiness, TLs = Teacher leaders. ***$p < .001$.

Figure 3 presents the partial mediating role of teacher leaders in the relationship between colleagues' relationships and teacher leadership readiness. The direct effect of colleagues' relationships on teacher leadership readiness is significant (β =.487, $p < .001$, 95% CI = 0.41 to 0.57). Moreover, the indirect effect of teacher leaders as a partial mediator in the relation between colleagues' relationships and teacher leadership readiness is significant (β =.009, $p < .001$, 95% CI = 0.06 to 0.14). These results collectively indicated that colleagues' relationships not only have a direct positive impact on teacher leadership readiness but also exert an additional influence through the mediating role of teacher leaders.

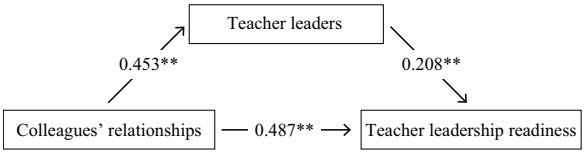


Figure 3 The partial mediating role (Colleagues' relationships)

Perceptions of Backbone Teachers

Theme 1: the roles of teacher leaders

All key informants believed that the definition of teacher leaders is primarily being rooted in the position-appointment. Furthermore, all participants expressed that informally, teacher leaders are those who serve as connectors between administrators and teachers, as well as influencers who take the lead in organizing activities.

Theme 2: motivation and inhibitors to teacher leadership readiness

The organizations adequate supply in leader opportunities is in the first place to assist the progress of teacher leadership readiness (*T1 & T4: I discovered that the personnel structure at my school is somewhat unique, in that many senior staff members are nearing retirement, creating a pressing need for young teachers to fill the void; It's really stressful and tiring to become qualified when there are vacancies to fill, but it's worth it to strive for since a vacancy is hard to come by*). Subsequently, the occupational benefits (*T3: When you get promoted, you get a raise and better benefits, like bigger bonuses for housing and medicine, the fewer classes you have to teach.*), social status (*T2: They might even drop the "vice-" and just use the main title to show you a lot of respect.*) and personal development (T6: *I think the motivation is that your personal qualities would get strengthened. Once you are in a different position, you are in a different standpoint.*) gradually make fewer advantages for motivation in leadership operations.

The negative attitudes focused on three aspects; first is the required duties bound to the teacher leaders' occupations (*T5: I simply do not have enough time to fulfill any formal duties, such as meetings, training, discussions related to team activities, and personal growth.*), then, the pressure and responsibility from management (*T1: It is quite a daunting and fearful matter for you don't know what pressure you might face, or what consequence would be there waiting for you to shoulder the responsibility to complete tasks.*) and lastly is personal capability (*T2: If my members are more experienced than me, I would be very cautious for every step so as not to let them feel that I am putting pressure on them with my leadership role*).

Discussion

The levels of Teacher Leadership Readiness

The current levels of teacher leadership readiness exhibit a disparity in its three dimensions. Specifically, teacher leadership demand attained the highest score, whereas teacher leadership supply had the lowest score. A highest score in teacher leadership demand implies that there is a significant need for teacher leaders to spearhead efforts in curriculum development, instructional practices, professional growth, mentoring, evaluative processes, and administrative tasks. Conversely, a lowest score in teacher leadership supply suggests that teachers may lack interest or motivation in assuming leadership roles. To be more specific, the study indicated a gap between the recognized need and the actual availability of

leadership positions. This aligns with previous research on Chinese teacher leaders who are expected to involve a wider range of roles, including curriculum development, teamwork, and communication and coordination with principals beyond teaching (Wang, et al., 2017).

Full Leverage on Teachers' Characteristics through teacher leaders

Teachers are the promising power to school improvement by their roles functions both in profession and personal abilities. Regarding the professionalism category of teachers' characteristics, the study revealed that through their informal roles, they can effectively lead in organizing activities. They can facilitate the sharing and exchange of knowledge for improving of course teaching (Wang, et al., 2017). Additionally, they bridge the generation gap, mediate conflicts between experienced and novice teachers (Fairman & Mackenzie, 2015). Furthermore, by taking responsibility in the face of failure, risk, and crisis, teacher leaders model resilience and accountability, thereby shaping a positive example for others to pattern.

For personal abilities category of teachers' characteristics, the study exposed that not all teachers crave for only informal leader labels, as they feel competitive and believe formal appointment would better showcase their abilities and commitment in interview section. They firmly believed that with formal appointment, their personal abilities would display their full potential. This is particularly true for those teacher leaders who acknowledge their own lack of experience and skills in leading more senior and experienced colleagues. Additionally, the process of achieving collaboration and cooperation through empowerment and authority of formal roles translates to a degree of efficiency and effectiveness (York-Barr & Duke, 2004).

Encouraging Collaboration among Colleagues via Teacher Leaders

In practices, teacher leaders would optimized their collaboration through formal or informal roles. On the one hand, the authority, sharing and support performances can be conveyed by the routine of formal structure (Hu & Gu, 2012). First, teachers are put into a hierarchical structure, where the authorities are stratified. In such bureaucratic framework, some bonds happened as obligations. An enabling collaborative structure is that teachers are under controlled as necessary, thus their behaviors and benefits are strongly supported by authority. Second, the advancement of school and team capacity claim a formal culture to implement normally and regularly to support and mentor each other. Under formalized and standardized requirements, teacher leaders produce the meditating mechanism to bridge colleagues' relationships and teacher leadership readiness.

On the other hand, the authority, sharing and support performances can be presented by the routine of voluntary form (Hu & Gu, 2012). In fact, the interactions with colleagues come up on any occasion and at any time, which cannot be predicted or arranged as duties or tasks. The feedback, critique, evaluation, assessment, correction, encouragement, inspiration can occur at any communication in informal dialogues from someone external, like peers or principals (where principals are viewed more like colleagues) to the self and teacher improvement requires efforts from external standard. This is accelerated by casual, spontaneous and improvised feedback, and guidance from the informal role of teacher leaders. This description fully matches the connotation of teacher leadership, that a crucial element of teacher leadership involves the capacity to guide and work in cooperation with colleagues (Wills, 2015).

Guideline for Improving Teacher Leadership Readiness

Personal-based guideline for teachers

This study focused on teachers and found that teachers' characteristics play a crucial role in enhancing their readiness in leading performance. The most important qualification is that teachers are ready to influence when they gain ample knowledge, skills and experience teaching. Teaching expertise is a perpetual and fundamental requirement for every teacher. Then, undeniably, teachers are ready to influence when they are personally well prepared as a teacher leader in identity. They are ready to lead when they are confident and comfortable in leading without the fear of frustration, disappointment, rebuke, contempt, mistrust, negative attitudes and being viewed as the enemy by colleagues, students or headteachers. Furthermore, when they are capable of taking responsibility, making sacrifice and adhering to morality in career, they are ready to take teaching more as a self-proud career than a self-profit working life. Ultimately, teachers are ready to influence when they are able to welcome criticisms, make reflections, embrace valuable evaluation and make progress keeping their minds innovative and refreshing.

School-based guideline for principals

For reshaping colleagues' relationships, the principal should, first and foremost, offer time and space for his subordinates to share and help providing teachers with dedicated time for leading, learning, or any other time they need to complete anything. Such time can be achieved with lower teaching load or increased compensation (Tahir et al., 2020). Subsequently, sufficient physical platform support is needed, such as a designated meeting room or a casual gathering place to exhibit high skills, to exchange experiences through teamwork and group work. Lastly, the principal serves as an example for his supporters to influence, to lead, to accept and to recognize their outstanding, mastery, proficient, experienced colleagues. By reinforcing the mindset that all teachers are the responsible parties in running the school toward a common goal, the principal propagates that the principal is also one of their colleagues within a community-based relationship (Bhayo, 2021).

Governance-based guideline for policy-makers

In creating a variety of formal and informal roles of teacher leaders in public compulsory schools (Jin, 2008; Chen & Lu, 2010), policy intervention stands as the optional means of fostering chances for teachers to assume leadership roles, given that policy essentially pertains to resources allocation. Conventionally, leadership for teachers has typically emerged in formal forms, thereby leaving scant recognition for the efforts from informal leaders. Thus, the study recommended to keep the staying roles and create more actions for formal and informal roles to flourish at policy level: to encourage teachers mobility within counterpart districts, regions; to set up inspire-system for novice teachers, award-system for competent teachers and assistant system for backbone teachers to lead; to offer sufficient learning opportunities in degree, in courses, in seminars, in campaigns; to create formal positions for teachers to execute distributed power, like office heads, unions heads, subject heads, grade heads; to create informal occasions for teachers to practice leadership abilities, like teacher mentor, academic coordinator, examination analyst, curricular supervisor, first aid instructor, logistics supporter, media and Internet instructor.

Conclusion and Recommendation

Increasing teachers' quality is in the content of every school development. Teacher leadership is the theory for every teacher to flourish with strong advantages. And teacher leaders are the core brokerages to connect, to link, to lead all concerning parties for the effectiveness of any operational and managerial activities. Therefore, the demand for a larger group of capable and qualified teachers is badly-needed. The study made inquiries on the mediating role of teacher leaders in relation between conditioning factors and teacher leadership readiness on the purpose of bringing importance to teacher leadership in quantitative portion and explored the ways to empower teachers as reliable agents in qualitative portion. The findings implied that teachers' characteristics are elevated, the roles of teacher leaders are more effectively fulfilled, ultimately positively enhancing the overall teacher leadership readiness and that colleagues are in agreeable relationships, the roles of teacher leaders are more effectively played out, conclusively positively upgrading teacher leadership readiness. The guideline was proposed for teachers to execute effective leadership practices within their characteristics realm, for principals to harness the mediating role of teacher leaders in facilitating teacher leadership readiness and for policy makers in ensuring adequate resource allocation to support the growth and impact of teacher leadership initiatives.

Still, the current research has limitations. The recommendations are presented for future research to produce more scientific and practical studies for lessening the possible errors in limitations. Firstly, further assimilation or absorption is necessary, especially the intention to generalize to other regions that require further attention. It includes research to conduct a comparative study between teachers in formal roles and in informal roles to get a clear picture of facilitating and inhibiting factors, and to conduct a research to explore more variables in affecting teacher leadership readiness, like leadership of villagers in rural area schools. Secondary, the guidelines for improving teacher leadership readiness should be evaluated in experiment program to test its effectiveness in impacting student achievement, professional development, and school improvement.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

Ajzen, I., & Fishbein, M. (2005). The influence of attitudes on behavior. In D. Albarracín, B.T. Johnson, M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 173–221). Erlbaum.

Bhayo, N. H. (2021). *Investigating teacher leadership practices, promotion and challenges in context of Pakistan: A study of public schools in Sindh Province*. https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CDFDLAST2021&filename=1021631758.nh

Chen, Z., & Lu, N.G. (2010). *正式与非正式的教师领导对教师专业发展的影响* [Formal and Informal Teacher Leadership and Their Impact on Teacher Professional Development]. *教师教育研究*, *22*(1), 12–16. [in Chinese]

Cowana, J., & Goldhaber, D. (2016). National Board Certification and Teacher Effectiveness: Evidence from Washington. *Journal of Research on Educational Effectiveness*, *9*(3), 233–258. https://doi.org/10.1080/19345747.2015.1099768

Fairman, J., & Mackenzie, S. (2015). How teacher leaders influence others and understand their leadership. *International Journal of Leadership in Education: Theory and Practice*, *18*(1), 61–87. https://www.tandfonline.com/doi/full/10.1080/13603124.2014.904002

Finster, M. (2016). *Teacher Leadership Program Readiness Surveys Toolkit / Guide* (Research report). Teacher Incentive Fund, US Department of Education. https://www.researchgate.net/publication/343555945_Teacher_Leadership_Program_Readiness_Surveys_Toolkit_Guide

Gülmez, D. (2022). Teacher leadership and the Turkish context: the impact of the structural characteristics of the school and teacher leadership culture. *International Journal of Educational Management*, *36*(4), 515–526. https://doi.org/10.1108/IJEM-02-2022-0061

Hair, J. Jr., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis (7th edition)*. Pearson Prentice Hall.

Harris, A., & Muijs, D. (2004). *Improving schools through teacher leadership*. Open University Press.

Hoy, W. K., & Sweetland, S. R. (2001). Designing better schools: The meaning and measure of enabling school structures. *Educational Administration Quarterly*, *37*(3), 296–321. https://doi.org/10.1177/001316101219693

Hu, J. F., & Gu, L. X. (2012). *教师领导力现状及其影响因素的调查研究——以广东省为例* [An investigation into the current state of teacher leadership in China and its affecting elements-Taking Guangdong Province as an example]. *Teaching Material and Method*, *32*(5), 111–116. [in Chinese]

Jin, J. S. (2008). *教师领导的实践风格与动力分析* [Practical styles and motivation of teacher leadership]. *Teacher Development Research*, 10, 33–36. [in Chinese]

Katzenmeyer, M., & Moller, G. (2009). *Awakening the giant: helping teachers develop as leaders (3rd edition)*. Corwin Press.

Lichtman, M. (2010). *Understanding and evaluating qualitative educational research*. Sage Publications.

Liu, Y. (2021). Contextual influence on formal and informal teacher leadership. *International Journal of Educational Research Open*, 2, 100028. https://doi.org/10.1016/j.ijedro.2020.100028

Sinden, J. E., Hoy, W. K., & Sweetland, S. R. (2004). An analysis of enabling school structure: Theoretical, empirical, and research considerations. *Journal of Educational Administration*, *42*(4). 462–478. https://doi.org/10.1108/09578230410544071

Spillane, J. P., & Diamond, J. B. (2007). *Distributed leadership in practice*. Teachers College, Columbia University.

Tahir, L. M., Musah, M. B., Al-Hudawi, S. H. V., & Daud, K. (2020). Becoming a teacher leader: exploring Malaysian in-service teachers' perceptions, readiness and challenges. *Education and Science*, *45*(202), 283–310. https://doi.org/10.15390/EB.2020.7362

Wang, F.Y., & Hong, C.W. (2019). *骨干教师对教师群体的作用和影响——基于教师领导力视角的个案探讨* [The role and influence of backbone teachers on teacher groups - a case study from the perspective of Teacher Leadership]. *Journal of Capital Normal University (Social Sciences Edition)*, 4, 168–177. [in Chinese]

Wang F.Y., Hong, C.W., & Zepeda S. (2017). *骨干教师领导角色的认知研究* [Research on Teachers' Perceptions on Backbone Teachers' Leading Roles]. *Teacher Education Research*, *29*(5), 58–63, 80. [in Chinese]

Wang, J. K., & Xu, J. C. (2021). *西方教师领导力发展的实践模式、理论模型及对我国的启示* [The Practical Modes and Theoretical Models of Western Teacher Leadership Development and Its Implications to China]. *Journal of Comparative Education*, 3, 105–121. [in Chinese]

Wenner, J. A., & Campbell, T. (2017). The theoretical and empirical basis of teacher leadership: A review of the literature. *Review of Educational Research*, *87*(1), 134–171. https://doi.org/10.3102/0034654316653478

Wills, A. (2015). A case study of teacher leadership at an elementary school. Unpublished Certificate of Advanced Study Thesis, Sacred Heart University, http://digitalcommons.sacredheart.edu/edl/6

York-Barr, J., & Duke, K. (2004). What do we know about teacher leadership? Findings from two decades of scholarship. *Review of Educational Research*, *74*(3), 255–316. https://doi.org/10.3102/00346543074003255

Zheng, X. J., & Yin, H. Y. (2024). *基于共词分析法的我国教师领导力研究热点及发展趋势* [Research hotspots and development trends of teacher leadership in China based on co-word analysis method]. *Journal of Guangxi Vocational and Technical College*, 2024, *17*(2): 70–77. [in Chinese]

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Psychomotor evaluation model for 21st century skills in the Industrial Revolution 4.0 Era

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techniques

Abstract

The objective of this research is to examine the application of psychomotor evaluation instruments and techniques in facilitating the development of 21st century skills specifically critical thinking, communication, collaboration, and creativity among educators and learners in Indonesia at the secondary school level. The sample comprised 35 teachers and 88 students from the Jombang, Mojokerto, and Gresik regions. A questionnaire employing a four-point Likert scale was disseminated via Google Forms and WhatsApp to collect data, with the reliability and validity of the instruments established through expert judgment and pilot testing. Data analysis was conducted using the Partial Least Squares (PLS) Program version 3.0. The principal findings indicate that certain psychomotor evaluation techniques, such as performance appraisal and project evaluation, significantly influence students' acquisition of these skills ($p < .05$). The innovation of the proposed psychomotor evaluation model lies in the combination of continuous tracking and a variety of assessment techniques in order to measure students' skills more effectively. This study provides a foundation that this model can be adapted by educational stakeholders in order to improve assessment for effective skills training in students. It should also be noted that the application of the model could vary in effectiveness depending on the educational context, in particular, hands-on learning environments and collaborative educational contexts. Future research should explore interdisciplinary and cross-disciplinary applications of the model to increase its relevance and effectiveness in improving student success in the 21st century educational landscape.

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Introduction

The term "Industrial Revolution 4.0" denotes a transformative era marked by significant technological advancements, particularly in the fields of digital technologies, artificial intelligence, and automation (Lau et al., 2019). This revolution is fundamentally transforming industries and redefining the skill sets requisite for professional efficacy in the modern workplace. Consequently, educational systems worldwide are compelled to adapt to these changes to ensure that both educators and learners can thrive within a sophisticated and perpetually evolving educational landscape. This transformation necessitates the integration of essential knowledge, attitudes, and skills for effective functioning within a multifaceted global context (Putnik et al., 2023).

The implementation of innovative pedagogical methods promotes social development and catalyzes sustainable innovation, which is crucial for societal progress. Educational institutions are tasked with providing holistic and pertinent learning experiences to adequately prepare learners for the complexities of contemporary society (Ramírez-Montoya et al., 2022). Achieving this objective requires collaborative efforts among youth, academia, industry, and business sectors. Educators play a pivotal role in the execution of strategies aimed at enhancing innovation within educational frameworks. However, the dynamic and evolving nature of global challenges mandates adaptive pedagogy, relevant curricula, and robust assessment systems. To satisfy these demands, future generations must be equipped with the requisite skills to effectively and competitively address global issues (Anis, 2024).

An educational transformation invariably emphasizes modifications in assessment practices and methodologies within an institution, rendering assessment one of its primary focal points. A critical component of this assessment process involves educators' evaluations of students' achievements across cognitive, affective, and psychomotor domains (Akimov et al., 2023). While traditional assessment modes have predominantly concentrated on the cognitive aspect, there is a growing acknowledgment of the importance of psychomotor skills and their assessment. These skills facilitate the integration of physical movement with cognitive processing and coordination. The significance of psychomotor assessment resides in its ability to evaluate students' competencies in executing practical tasks and to foster the application of theoretical knowledge in real-world contexts beyond the classroom (Borrego-Balsalobre et al., 2021).

While previous studies have examined psychomotor assessment and the Critical Thinking, Communication, Collaboration, and Creativity (4C skills) in isolation, there exists a compelling need to integrate these concepts within pedagogical frameworks. Critical Thinking, Communication, Collaboration, and Creativity, collectively known as the 4Cs, are increasingly recognized as essential competencies for the 21st century, as these skills prepare students to navigate the numerous challenges present in both everyday life and professional environments (Stanikzai, 2023). Critical Thinking involves the evaluation of information, the scrutiny of arguments, and the processes of decision-making. Communication entails the articulation of thoughts through speech or writing in a coherent and comprehensible manner. Collaboration promotes the practice of working cooperatively with others while valuing diverse perspectives. Creativity refers to the capacity to devise innovative solutions in response to an ever-evolving world (Dung, 2024).

The integration of 4C skills and psychomotor assessment is crucial for enhancing student competencies. By employing psychomotor evaluation, students' abilities are assessed comprehensively, moving beyond rote learning and theoretical understanding. This approach facilitates the development of practical skills while simultaneously fostering critical thinking, effective communication, collaboration, and innovative problem-solving among students (Rudianto et al., 2022).

The purpose of this study is to examine various psychomotor assessment techniques and tools, including observation, performance assessments, and project assessments. These methodologies facilitate a comprehensive evaluation of student development by considering both the learning process and the outcomes. For instance, observation allows educators to monitor and evaluate students' performance over extended periods, which provides opportunities for assistance and feedback. In performance assessments, students are required to execute specific tasks, while project assessments involve students engaging in collaborative problem-solving or product development activities (Rahayu & Munadhiroh, 2020).

This study employs the previously mentioned assessment techniques, including rubrics, anecdotal notes, and checklists. The rubrics establish clearly defined criteria for student performance, thereby ensuring that assessments are conducted in an unbiased and explicit manner. Educators can integrate their observations of student behavior and progress through the documentation of anecdotal notes. Additionally, checklists facilitate the

tracking of individual skills and competencies, allowing for the monitoring of student skill development over time (Bräuninger & Röösli, 2023).

The contribution of this research resides in its objective to inform the development of educational policies that align with the expectations of the Fourth Industrial Revolution. This study aims to investigate the necessity and relevance of psychomotor assessments in promoting the essential 4C skills—namely, higher-order thinking, critical thinking, creativity, collaboration, and communication—thereby enabling the design of effective teaching and learning strategies (Heriyanto et al., 2019). Furthermore, the findings of this study may be pertinent to the discourse surrounding the critical balance between practical skills and the domains of critical thinking and creativity within the education system.

In summary, the integration of psychomotor assessments with 21st century skills is essential to ensuring that learners are adequately prepared to navigate the complexities of contemporary society (Shoval & Shachaf, 2023). As the educational landscape continues to evolve, it is imperative that educators adopt innovative assessment practices that align with the needs of learners and the demands of the job market. Accordingly, this research endeavors to achieve this aim by exploring suitable psychomotor evaluation methods and their role in fostering the development of learners' 21st century skills. In doing so, it seeks to contribute to the establishment of a responsive and adaptable educational system that equips students for success in an increasingly complex and globally interconnected world (Afzal et al., 2023).

Literature Review

Psychomotor Evaluation

The results of the study showed that the effectiveness of teaching has a strong relationship with teacher attitudes and teacher abilities in secondary schools. Teachers have professional and technical responsibilities, and teachers must be able to adapt to changes in the world to improve student learning outcomes. One thing that needs to be considered is the teacher's ability to carry out psychomotor evaluations. Evaluation is the process of collecting and processing information to determine the learning needs and learning outcomes of students so that the assessment must be fair, objective, educational, measurable, and have clear criteria (López-Martín et al., 2023).

Psychomotor evaluation is an assessment carried out by teachers to obtain learning outcomes by identifying, observing, and concluding student activities in doing something. Students take tests of performance and performance on skills mastered by students from cognitive learning. Psychomotor learning outcomes are achievements that involve students' muscles and physical strength, for example, drawing, painting, running, writing, practicing, jumping, and others. Psychomotor learning outcomes can be concluded qualitatively (narrative statements) and quantitatively (numbers). Osiesi (2023) stated that the importance of teachers in evaluation and implementation, having a positive attitude, and providing regular feedback is to improve the quality of learning.

Psychomotor evaluation techniques have 3 approaches, namely, projects, products, practices, and observations have different characteristics, so that the stages that will be integrated with 4C are different. Psychomotor evaluation with project techniques is an activity to determine students' ability to apply their knowledge through the completion of a project instrument in a certain period/time with the stages of planning, implementation, and reporting. Psychomotor evaluation with product techniques is an assessment of students' skills to apply their knowledge in the form of products according to the criteria. Product assessment is determined by the quality of the products produced by students. Practice techniques are an assessment of the skills of carrying out activities according to competency demands, the aspects assessed in practical assessments are the quality of completing a task supported by observation techniques which are assessments that are carried out continuously through student behavior in routine tasks or activities periodically (Angskun et al., 2024).

21st Century Skills

4C skills are important skills that students need to face the contemporary world and are needed to succeed in the working world, hence schools must provide support for the development of 4C. Celik (2021) stated that teachers need to improve students' skills, including: solving problems (critical thinking), and improving collaboration with peers. Zulkifli et al. (2022), agree that 21st century learning is very important to integrate creativity, which is an important skill for life success and is needed in the world of work. Students' creativity needs to be developed in the education system so that students are able to have creative ideas, solutions, and produce products according to learning needs.

Weng et al. (2022) creativity is believed to contribute in increasing students' self-confidence, helping to solve complex problems in the real world, so that students are successful outside of school with a dynamic life. Moreover, collaboration is an important skill for the 21st century. Collaboration has three dimensions, namely, negotiation, guidance, and cooperation.

The theory used to analyze the 4C skills developed in the psychomotor evaluation model is adapted from Irham et al. (2022). The elements of 4C include: (1) Critical Thinking is the ability to think critically, which is identified from the skills of comparing, classifying, inductive and deductive reasoning, error analysis, and decision making, (2) Communication is the ability to express thoughts, articulate clearly, communicate coherent instructions, and motivate others through strong speech, (3) Collaborative is the ability to work in a team by helping each other, working together, and taking shared responsibility for common goals, and (4) Creative is the ability to use various new ideas that are useful, with creative efforts being able to describe, perfect, and evaluate original ideas.

Psychomotor Evaluation Model for 21st Century Skills Development

Quality education can be achieved by improving teacher professionalism because the world continues to experience transformation, digital-based education, and education problems are more complex and dynamic (Osiesi et al., 2024). Thus, professional teachers must adapt to the contemporary world. Teachers need to innovate in learning (planning, implementation, and evaluation) that integrates with world transformation. 4C skills are currently important for the needs of the world of work, students need services to meet these needs. The psychomotor evaluation model is oriented towards students' 4C skills.

The psychomotor evaluation model is a way to make students able to actualize cognitive learning objectives. Collaborative skill development is a pedagogical practice, so teachers need to use a very effective game-based learning approach to stimulate collaboration development (Li et al., 2023). Thus, the implementation of evaluations related to psychomotor can be determined through student performance. Psychomotor evaluation by integrating 4C as an effort to solve problems faced by junior high school teachers in conducting psychomotor evaluations and researchers want to contribute to solving problems at the national level at the Ministry of Education and Culture, namely, the low learning outcomes at the middle level, which have an impact on students having a low mindset. Psychomotor evaluation is constructed based on the Learning and Assessment Guidelines in the independent curriculum. Psychomotor evaluation includes project, product, practice, and observation techniques.

The psychomotor evaluation model is designed to be fair, proportional, valid and reliable to explain students' learning progress. In line with Wood and Doğan (2024), their study stated that evaluation is a way to collect and analyze relevant information through appropriate techniques; psychomotor evaluation as a demonstration of student performance based on written reports because the teacher's duties in the psychomotor domain are more directed at behavioral tests and performance tests of observation results, presentations, and others. The psychomotor evaluation model applies to all subjects because teachers can develop their own cognitive and psychomotor learning objectives. In this study, psychomotor evaluation was carried out in groups. The instrument used was a rubric, a guideline compiled to assess the quality of work achievement and competencies that must be achieved by students. Performance achievement in the form of criteria is assessed in stages from poor to good.

The evaluation model provides rational steps according to the psychomotor techniques and evaluations integrated with 4C. Psychomotor evaluation is also equipped with clear instructions, rubrics, and criteria according to the evaluation techniques chosen by the teacher and the 4C competencies to be measured. Teachers must be able to measure student learning outcomes to get feedback from learning practices and diagnose student learning difficulties. The results of the study focused on physics learning and recommended that teachers must be able to develop continuously in implementing evaluations to improve student learning outcomes (Zakirman et al., 2023). In line with Williams (2024), their study concluded that evaluation has a strong effect on what students do and how they act. Evaluation practices must involve students and provide feedback on student actions. Evaluation includes systematic and measurable work methods, providing space for students to demonstrate their abilities with clear criteria. The integrity of evaluation results is very important because it can be used by stakeholders as evidence of student achievement and potential.

Methodology

Research Design

The research adopted a quantitative approach, employing a cross-sectional survey design to collect

data from teachers and students regarding psychomotor evaluation techniques and their influence on the development of 21st century skills, specifically the 4C skills: Critical Thinking, Communication, Collaboration, and Creativity. This design was selected to facilitate the acquisition of data at a singular point in time, thereby enabling an analysis of the relationships between variables without necessitating longitudinal tracking (Pirzada, 2023).

Participants and Sampling Method

The study comprised a total of 30 teachers and 89 students from three junior high schools situated in Jombang, Mojokerto, and Gresik, Indonesia. Participants were selected through an accidental sampling method, which entails choosing individuals who are readily available and willing to take part. This approach was justified given the exploratory nature of the research, which aimed to yield preliminary insights into the effectiveness of psychomotor evaluation techniques in enhancing 4C skills. While accidental sampling may inherently limit the generalizability of the findings, it was deemed suitable for this initial investigation, permitting the collection of data from a diverse array of respondents within the defined educational context.

It is noteworthy that a minor discrepancy exists in participant numbers between sections. The methodology section reports 30 teachers and 89 students, whereas the results section indicates 35 teachers and 88 students. This inconsistency arose from the inclusion of additional respondents during the data collection phase. To ensure clarity, the final participant count for the analysis has been adjusted to reflect a total of 35 teachers and 88 students.

Data Collection Method

Data were collected utilizing a structured questionnaire specifically designed to evaluate psychomotor assessment techniques and their impact on the development of 4C skills. The questionnaire employed a four-point Likert scale, with endpoints defined as follows: “Always = 4,” “Often = 3,” “Sometimes = 2,” and “Never = 1.” This scale enabled respondents to convey the frequency of their experiences or perceptions regarding the effectiveness of various assessment techniques.

The questionnaire was disseminated electronically via Google Forms and WhatsApp, ensuring accessibility for all participants. Prior to distribution, the questionnaire underwent a pilot test with a small cohort of educators to ascertain the clarity and relevance of the items. Feedback obtained from the pilot test was utilized to refine the questionnaire, thereby enhancing its validity and reliability.

Data Analysis Method

Data analysis was conducted using Partial Least Squares (PLS) analysis, a statistical technique suitable for exploring complex relationships among variables. PLS was selected over alternative methods, such as Structural Equation Modeling (SEM), due to its capacity to handle small sample sizes and its flexibility in modeling latent constructs. This approach is particularly advantageous in exploratory research, where the objective is to identify relationships and patterns rather than to confirm pre-existing theories. The analysis process consisted of several key steps.

Reliability and Validity Testing

Prior to conducting the PLS analysis, the reliability and validity of the constructs were assessed. Reliability was evaluated using Cronbach’s alpha, with a threshold of .70 indicating acceptable reliability. Items that did not meet this threshold were excluded from the analysis. For instance, any item with a Cronbach’s alpha value below .70 was removed to enhance the overall reliability of the construct.

Convergent validity was examined by assessing the loadings of each item on its corresponding construct. Items with loadings below .50 were considered for removal, as they did not significantly contribute to the construct. Discriminant validity was evaluated using the Fornell-Larcker criterion, which requires that the square root of the average variance extracted (AVE) for each construct exceeds the correlations between that construct and other constructs.

Common Method Bias (CMB) Assessment

To address potential Common Method Bias, which can arise from using self-reported measures, the study employed Harman’s single-factor test. This involved conducting an exploratory factor analysis to ascertain whether a single factor accounted for the majority of the variance in the data. The emergence of a single factor would suggest a potential bias in the responses; conversely, the identification of multiple factors would imply that CMB was not a significant concern.

PLS Path Modeling

The PLS analysis entailed estimating the relationships among the constructs through path modeling. This analysis produced R-squared values for each dependent variable, indicating the proportion of variance explained by the independent variables. The Goodness of Fit (GoF) index was also calculated to evaluate the overall fit of the model.

Hypothesis Testing

The significance of the relationships between constructs was tested using bootstrapping, a resampling technique that generates confidence intervals for the path coefficients. This methodology facilitated the determination of whether the relationships were statistically significant.

Interpretation of Result

The results of the Partial Least Squares (PLS) analysis were interpreted within the framework of the research questions. The findings were examined in relation to the extant literature on psychomotor assessment and 4C skills, elucidating their implications for educational practice and prospective research endeavors.

In summary, this methodology section offers a comprehensive account of the research design, participant sampling, data collection methods, and data analysis techniques employed in the study. By clearly articulating the endpoints of the Likert scale, justifying the use of purposive sampling, and elaborating on the procedures for evaluating reliability and validity, this section seeks to enhance the transparency and rigor of the research process. The application of PLS analysis, along with the procedures outlined for testing constructs and hypotheses, further bolsters the robustness of the findings and their applicability to the field of education (Hair & Alamer, 2022).

Results and Discussion

External model evaluation is the evaluation of convergent validity and discriminant validity, as well as model reliability, which is evaluated using Cronbach's alpha indicator block.

Convergent Validity

Convergent validity tests are tested for each construction indicator. According to Chin (2015), an indicator is valid if its value exceeds 0.70, and it can be said that the load factor between 0.50 and 0.60 is sufficient. According to this criterion, if there is a load factor lower than 0.50, it will be removed from the model describe in Figure 1.

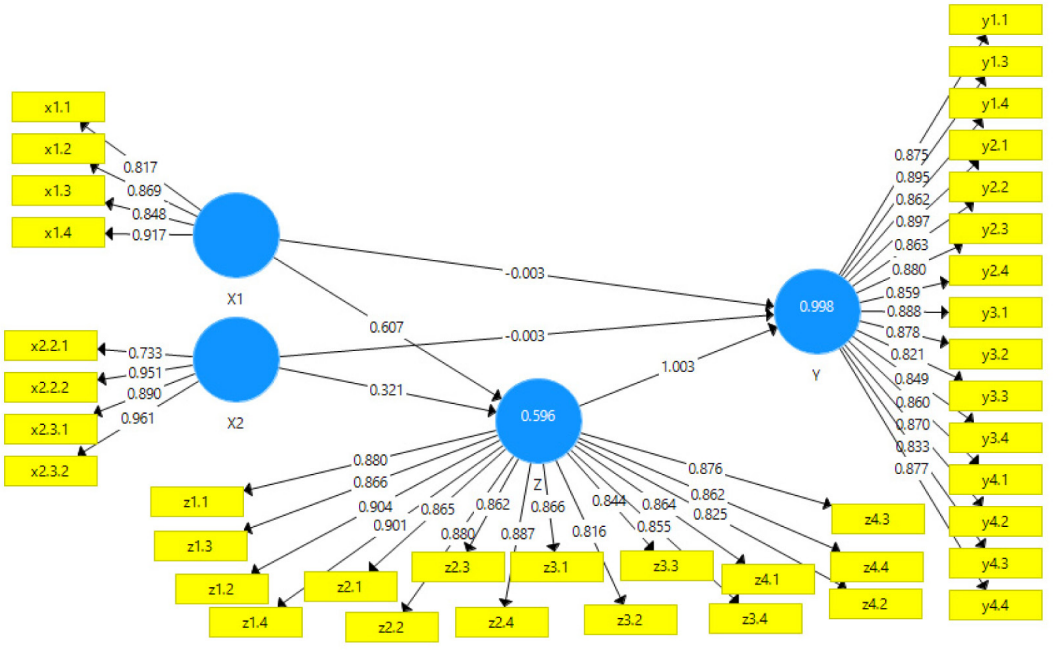


Figure 1 SmartPLS 3.0 algorithm results

Discriminant Validity

The measurement model demonstrates good discriminant validity if the square root of the Average Variance Extracted (√AVE) for each construct is greater than the correlations between that construct and other constructs, as shown in Table 1.

Table 1 Discriminant validity results

Construct	X1	X2	Y	Z
X1	0.863	–	–	–
X2	0.318	0.889	–	–
Y	0.708	0.512	0.867	–
Z	0.710	0.514	0.999	0.866

Note: X1 = Learning environment, X2 = Teaching strategy, Y = Student engagement, Z = Learning outcomes. The diagonal values represent the square root of the Average Variance Extracted (√AVE). A dash (–) indicates that data were intentionally omitted (due to symmetry).
Source: Prepared by the author (2024)

From Table 1 above, it can be concluded that the square root of the average variation of the resulting degrees for each builder is greater than the correlation between a building and the rest of the builders in the model. The value based on the above statement means, in an estimated model of the building, it meets discriminatory value criteria.

Average Variance Extracted (AVE)

The least optional AVE value is 0.50. The AVE production found from Smart PLS 3.0 is the variables X1: 0.746, X2: 0.789, Z: 0.750 and Y: 0.752, all values meet the predetermined criteria, namely, 0.50 as shown in Table 2.

Table 2 AVE results

Construct	Average Variance Extracted (AVE)
X1	0.746
X2	0.789
Y	0.752
Z	0.750

Source: Prepared by the author (2024)

Composite Reliability dan Cronbach's Alpha

Compound dependability value X1: 0.921, X2: 0.937, Z: 0.980, Y: 0.978, y alpha X1: .887, X2: .914, Z: .978, Y: .976 Composite reliability and Cronba alpha ≥ch, .70. Therefore, it can be decided that the questionnaire used as a investigate device is reliable or robust as described in Table 3.

Table 3 Composite reliability dan Cronbach's Alpha

Construct	Cronbach's Alpha	Reliability of composite materials
X1	.887	0.921
X2	.914	0.937
Y	.976	0.978
Z	.978	0.980

Source: Prepared by the author (2024)

Structural Model Testing (Inner Model)

R-Square value (R2)

Based on the R-Square worth, which is a model Goodness of Fit test, 4C teacher (Z) can explain approximately 59.6 percent of the variation in the 4C teacher variable. After adjusting for the number of variables and samples, the Adjusted R-Square is 57.1 percent. 4C Student (Y) can explain approximately 99.8 percent of the difference in the 4C Student mutable. After adjustment, the Adjusted R-Square is 99.8 percent.

Q-Square (Goodness of fit model)

The goodness-of-fit of the structural (inner) model was assessed using the predictive relevance value (Q^2). The Q^2 value for variable Z is 0.421, indicating that the model explains 42.1 percent of the variance in students' 4C skills. Meanwhile, the Q^2 value for variable Y is 0.733, which indicates that the model explains 73.3 percent of the variance in students' 4C skills, as shown in Table 4.

Table 4 Q-Square results

Construct	Q^2 (=1-SSE/SSO)
X1	–
X2	–
Y	0.733
Z	0.421

Note: X1 = Learning Environment, X2 = Teaching Strategy, Y = Student Engagement, Z = Learning Outcomes. Q^2 values greater than zero indicate that the structural model has predictive relevance for the endogenous constructs (Y and Z). A dash (–) indicates that the value is not applicable because Q^2 is not calculated for exogenous (independent) constructs X1 and X2.
Source: Prepared by the author (2024)

Hypothesis Testing Results (Path Coefficient Estimates)

The projected worth of the tour must be important. This important worth can be got through the demolition process. The theory is based on the importance of analyzing in the retrospective report algorithm the significant values of the statistical parameter t and the values of the coefficient. To discover if it is important or not, look at the table t alpha 0.05 (5) = 1.96. The *t*-table is then likened with the total.

The results of hypothesis testing using the SEM PLS 3.0 application are shown in Table 5 below.

The study shows that Engineering variable did not have a direct significant influence on students' 4C skills (O = -0.003; T-Statistic = 0.249; p = .803). However, Engineering variable had a significant influence on teachers' 4C skills (O = 0.607; T-Statistic = 6.719; p = .000), which can then contribute indirectly to improving students' 4C skills through teachers (O = 0.609; T-Statistic = 6.599; p = .000). This shows that teachers' 4C skills act as a strong mediator in the relationship between Engineering and students' 4C skills.

On the other hand, the Instrument variable also did not have a significant direct influence on students' 4C skills (O = -0.003; T-Statistic = 0.317; p = .751); however, it had a significant influence on teachers' 4C skills (O = 0.321; T-Statistic = 3.492; p = .001). Furthermore, the indirect effect of the Instrument on students' 4C skills through teachers was also significant (O = 0.322; T-Statistic = 3.482; p = .001). In addition, teachers' 4C skills variable directly had a positive influence on students' 4C skills significantly (O = 1.003; T-Statistic = 89.282 ; p = .000), confirming the importance of the role of teachers in developing students' 4C skills.

Referring to Figure 2, it can be seen that the form of indicator that has a significant influence on the technique in psychomotor assessment is directed at the product. The assessment techniques selected must ensure that they accurately reflect the skills being evaluated (Amorim et al., 2022; Dahlia et al., 2020). For example, in a physical

Table 5 Hypothesis testing results

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (SD)	T Statistics ($\|O/SD\|$)	P Values
X1 -> Y	-0.003	-0.007	0.012	0.249	.803
X1 -> Z	0.607	0.606	0.090	6.719	.000
X2 -> Y	-0.003	-0.005	0.009	0.317	.751
X2 -> Z	0.321	0.336	0.092	3.492	.001
Z -> Y	1.003	1.007	0.011	89.282	.000
X1 -> Z -> Y	0.609	0.611	0.092	6.599	.000
X2 -> Z -> Y	0.322	0.339	0.092	3.482	.001

Source: Prepared by the author (2024)

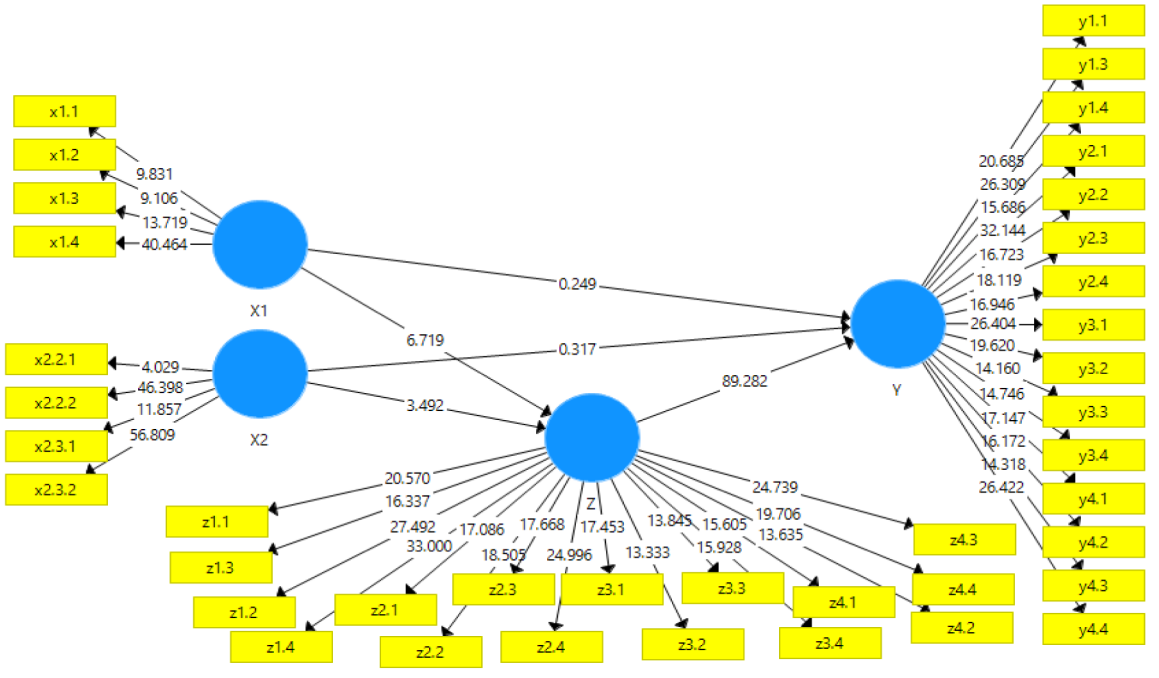


Figure 2 Bootstrapping test results

skills test, the use of a camera to record and observe actions can increase validity, as it allows for more in-depth reassessment and analysis. The product or outcome of psychomotor performance can provide insight into an individual's proficiency (Martínez-Comesaña et al., 2023).

However, its validity depends on the extent to which the product reflects actual skills. For example, in the case of works of art, the quality of the final result can provide clues to an individual's artistic proficiency. The resulting product must be able to be analyzed consistently by different assessors. This means that the evaluation criteria must be clear and objective so that all assessors can interpret them in a similar way, a combination of techniques and products to ensure a comprehensive psychomotor assessment. For example, the use of direct observation techniques along with final product evaluation can provide a more complete picture of an individual's proficiency. It is important to remember that choice of techniques and products in psychomotor assessment must be tailored to the specific evaluation context, objectives, and population being evaluated (Jaakma & Kiviluoma, 2019).

On one hand, consistency, validity, and relevance to the assessment objectives are key in selecting the right techniques and products. On the other hand, practice indicators on technical variables have a low significance effect. Anecdotal record indicators have the greatest influence on instrument variables for psychomotor assessment. Anecdotal notes usually record behavior or actions in depth and descriptively (Kurniawan et al., 2021). The use of anecdotal notes can provide a rich and comprehensive account of an individual's psychomotor skills, as they capture contextual factors, responses, and skill development over time. However, it is important to recognize that anecdotal notes can be biased by the interpretation and understanding of the person documenting them. Therefore, it is important to develop a detailed and standardized scoring system to mitigate such biases (Suherman & Vidákovich, 2022). In practice, anecdotal notes are often used in conjunction with other assessment tools, including checklists, rating scales, and direct observations. This holistic approach increases the accuracy of psychomotor skill assessments.

Similarly, the application of checklists shows low efficiency of variables related to psychomotor assessment tools. Checklists are widely used to assess the presence or absence of specific psychomotor components, thereby reducing the subjectivity inherent in the assessment process, since the assessment criteria are predetermined. They are usually used in initial assessments or as screening tools to identify developmental problems related to psychomotor skills (Liang & Fung, 2020). To increase the depth of the assessment, checklists are often integrated with additional methodologies, such as direct observation, interviews, or project-based assessments. This combination increases the validity and reliability of the assessment process. Although checklists provide standardization and objectivity, they may not provide a comprehensive understanding of an individual's psychomotor abilities. Consequently, the choice of assessment tools should be carefully tailored to meet the specific objectives of the assessment (Nafiati, 2021).

In addition, indicators of creativity are likely to have a significant impact, especially among students proficient in psychomotor assessment. From a psychomotor assessment perspective, creativity can significantly enhance the interpretation and skillful application of assessed information (Hamid & Kamarudin, 2021). Creativity enables students to address challenges associated with tasks requiring psychomotor skills in an innovative manner. Such challenges may encompass physical exercise or artistic endeavors, wherein creativity affects both the completion of assigned tasks and the creative process itself. Students exhibiting above-average levels of creativity may demonstrate their psychomotor skills in more innovative and original ways. Rather than relying on conventional techniques employed by many of their peers, they may express themselves in more imaginative manners (Yumelking & Sina, 2024).

Psychomotor assessment can sometimes show subjectivity (Setiawan et al., 2021). Students who demonstrate high levels of creativity often engage in fusion and integration in their performances, which can influence observers about the way they perform a task, regardless of their actual skill level. Students' creativity can be positively shaped, especially when the assessment of skills is multidimensional, encompassing both technical skills and creative expression (Sigit et al., 2024). Creativity is relevant to the development and demonstration of psychomotor skills in areas such as art and technology projects (Jima'ain et al., 2024). Many of these projects require students to demonstrate some creativity and innovation along with technical skills (Zana et al., 2024).

It is important to understand that the objectivity and accuracy of assessments are significantly influenced by the assessment methods used, the explicit assessment schemes and the scoring rubrics used by the assessors. The relationship between psychomotor assessment and 4C skills (Critical Thinking, Communication, Collaboration, and Creativity) lies in the ability of psychomotor techniques to encourage practice-based

learning involving physical and mental activities (Muhammad et al., 2018). Psychomotor techniques such as demonstrations, simulations, or hands-on experiments allow students and teachers to integrate motor skills with problem solving, critical thinking, and teamwork.

Psychomotor exercises such as laboratory experiments or educational games can strengthen students' ability to think critically when analyzing results, collaborate with peers, and develop creativity in finding solutions (Andersen & Rustad, 2022). Moreover, mastery of psychomotor techniques helps teachers in designing interactive learning activities and support effective communication with students (Ferrara et al., 2019; Morales-Obod et al., 2020; Rifdarmon, 2020). Creativity itself can be an additional factor that enriches psychomotor evaluation, especially in understanding students' potential and uniqueness in expressing and applying the skills that students have.

Although this study has limitation in data collection with a small sample size, the study indicates psychomotor-based assessments encourage teachers to identify and develop students' individual potential, thereby creating a more conducive learning environment for building 4C skills.

Conclusion

The psychomotor evaluation model that uses techniques and instruments has an influence on students' 4C skills (Critical Thinking, Communication, Collaboration, Creativity). The form of indicator that has a significant influence on the technique in psychomotor assessment is directed at the product. Practice indicators on technical variables have a low significance effect. Anecdotal record indicators have the greatest influence on instrument variables for psychomotor assessment. Meanwhile, the checklist indicators have a small influence on the psychomotor evaluation instrument variables. Indicators of creative abilities have the greatest influence, especially on students' skills using psychomotor evaluation. These findings indicate that the development of an efficient psychomotor evaluation model supports the improvement of skills relevant for the Industrial Revolution 4.0 era, including 21st century skills. This model can be widely adopted in the educational context to improve the quality of learning by combining valid and reliable evaluations of critical skills, communication, collaboration, and creativity.

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Conflict of Interest

The authors declare that there is no conflict of interest.

References

Afzal, A., Kamran, F., & Naseem, A. (2023). The role of teachers in fostering critical thinking skills at the university level. *Qlantic Journal of Social Sciences and Humanities*, *4*(3), 202–214. https://doi.org/10.55737/qjssh.409505257

Akimov, N., Kurmanov, N., Uskelenova, A., Aidargaliyeva, N., Mukhiyayeva, D., Rakhimova, S., Raimbekov, B., & Utegenova, Z. (2023). Components of education 4.0 in open innovation competence frameworks: Systematic review. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(2), 100037. https://doi.org/10.1016/j.joitmc.2023.100037

Amorim, N. D., Parreiral, J., & Santos, S. (2022). The assessment of the psychomotor profile in children: Preliminary psychometric analysis of the Portuguese version of the Batterie d'Evaluation des Fonctions Neuropsychomotrices de L'enfant (NPmot.pt). *Children*, *9*(8), 1195. https://doi.org/10.3390/children9081195

Andersen, R., & Rustad, M. B. (2022). Using Minecraft as an educational tool for supporting collaboration as a 21st century skill. *Computers & Education Open*, *3*, 100094. https://doi.org/10.1016/j.caeo.2022.100094

Angskun, T., Na Sritha, K., Srithong, A., Khopolklang, N., Kamollimsakul, S., Phithak, T., & Angskun, J. (2024). Using big data to assess an affective domain for distance education. *Future Generation Computer Systems*, *160*, 131–139. https://doi.org/10.1016/j.future.2024.05.057

Anis, M. (2024). Teacher professional development in the digital age: Addressing the evolving needs post-COVID. *International Journal for Multidisciplinary Research*, *6*(1), 1–14. https://doi.org/10.36948/ijfmr.2024.v06i01.12386

Borrego-Balsalobre, F. J., Martínez-Moreno, A., Morales-Baños, V., & Díaz-Suárez, A. (2021). Influence of the psychomotor profile in the improvement of learning in early childhood education. *International Journal of Environmental Research and Public Health*, *18*(23), 12655. https://doi.org/10.3390/ijerph182312655

Bräuninger, I., & Röösli, P. (2023). Promoting social-emotional skills and reducing behavioural problems in children through group psychomotor therapy: A randomized controlled trial. *The Arts in Psychotherapy*, *85*, 102051. https://doi.org/10.1016/j.aip.2023.102051

Celik, S. (2021). Teacher education program supporting critical thinking skills: A case of primary school teachers. *Revista Amazonia Investiga*, *10*(41), 188–198. https://doi.org/10.34069/ai/2021.41.05.19

Chin, W. W. (2015). Partial least squares structural equation modeling (PLS-SEM) using SmartPLS. *In H. Latan & R. Noonan (Eds.), Partial least squares path modeling: Basic concepts, methodological issues and applications* (pp. 171–193).

Dahlia, D., Maison, M., & Nehru, N. (2020). Developing authentic assessment instruments of psychomotor domain for the physics learning on measurement materials in class X SMA. *Journal of Science Education Research*, *4*(2), 44–48. https://doi.org/10.21831/jser.v4i2.35713

Dung, L. Q. (2024). A study on the effects of critical thinking on the development of speaking ability. *International Journal of Scientific and Research Publications*, *14*(3), 375–384. https://doi.org/10.29322/ijsrp.14.03.2023.p14733

Ferrara, S., Maxey-Moore, K., & Brookhart, S. M. (2019). Guidance in the standards for classroom assessment: Useful or irrelevant? In S. M. Brookhart & J. H. McMillan (Eds.), *Classroom assessment and educational measurement* (pp. 97–119). Routledge. https://doi.org/10.4324/9780429507533-7

Hair, J. F., Jr., & Alamer, A. (2022). Partial least squares structural equation modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics*, *1*(3), 100027. https://doi.org/10.1016/j.rmal.2022.100027

Hamid, N. H. A., & Kamarudin, N. (2021). Assessing students' mathematics achievement and mathematical creativity using mathematical creative approach: A quasi-experimental research. *Asian Journal of University Education*, *17*(2), 100–112. https://doi.org/10.24191/ajue.v17i2.13399

Heriyanto, S., Satori, D., Komariah, A., & Suryana, A. (2019). Character education in the era of industrial revolution 4.0 and its relevance to the high school learning transformation process. *Utopía y Praxis Latinoamericana*, *24*(5), 327–340. https://www.redalyc.org/journal/279/27962050036/html/

Irham, I., Tolla, I., & Jabu, B. (2022). Development of the 4C teaching model to improve students' mathematical critical thinking skills. *International Journal of Educational Methodology*, *8*(3), 493–504. https://doi.org/10.12973/ijem.8.3.493

Jaakma, K., & Kiviluoma, P. (2019). Auto-assessment tools for mechanical computer aided design education. *Heliyon*, *5*(10), e02622. https://doi.org/10.1016/j.heliyon.2019.e02622

Jima'ain, M. T. A., Mohamed, A. M., Hehsan, A., Saidalvi, A., Nasi, B. M., Faisal, M. S., & Awae, F. (2024). Embedding higher order thinking skills in Islamic history (Sirah) education in Malaysia. *International Journal of Evaluation and Research in Education*, *13*(2), 952–959. https://doi.org/10.11591/ijere.v13i2.26431

Kurniawan, T. T., Santoso, & Utaminigsih, S. (2021). Developing of 4C-based HOTS assessment to improve students critical thinking skills in Grade VI elementary schools in Kudus districts. *Jurnal PAJAR (Pendidikan dan Pengajaran)*, *5*(3), 675–683. https://doi.org/10.33578/pjr.v5i3.8319

Lau, S. E. N., Zakaria, R., Aminudin, E., Saar, C. C., Abidin, N. I. A., Roslan, A. F., Hamid, Z. A., Zain, M. Z. M., & Lou, E. (2019). Review: Identification of roadmap of fourth construction industrial revolution. *IOP Conference Series: Materials Science and Engineering*, *615*(1), 012029. https://doi.org/10.1088/1757-899x/615/1/012029

Li, S., Pöysä-Tarhonen, J., & Häkkinen, P. (2023). Students' collaboration dispositions across diverse skills of collaborative problem solving in a computer-based assessment environment. *Computers in Human Behavior Reports*, *11*, 100312. https://doi.org/10.1016/j.chbr.2023.100312

Liang, W., & Fung, D. (2020). Development and evaluation of a WebQuest-based teaching programme: Students' use of exploratory talk to exercise critical thinking. *International Journal of Educational Research*, *104*, 101652. https://doi.org/10.1016/j.ijer.2020.101652

López-Martín, E., Gutiérrez-De-Rozas, B., González-Benito, A. M., & Expósito-Casas, E. (2023). Why do teachers matter? A meta-analytic review of how teacher characteristics and competencies affect students' academic achievement. *International Journal of Educational Research*, *120*, 102199. https://doi.org/10.1016/j.ijer.2023.102199

Martínez-Comesaña, M., Rigueira-Díaz, X., Larrañaga-Janeiro, A., Martínez-Torres, J., Ocarranza-Prado, I., & Kreibel, D. (2023). Impact of artificial intelligence on assessment methods in primary and secondary education: Systematic literature review. *Revista de Psicodidáctica (English Ed.)*, *28*(2), 93–103. https://doi.org/10.1016/j.psicoe.2023.06.002

Muhammad, A., Lebar, O., & Mokshein, S. E. (2018). Rubrics as assessment, evaluation and scoring tools. *International Journal of Academic Research in Business and Social Sciences*, *8*(10), 1417–1431. https://doi.org/10.6007/ijarbss/v8-i10/5309

Morales-Obod, R., Santos, A. L., & Dela Cruz, M. J. (2020). The role of teachers' 4C skills in fostering student creativity and collaboration in STEM classrooms. *International Journal of Education and Learning*, *9*(3), 145–158.

Nafiati, D. A. (2021). *Revisi taksonomi Bloom: Kognitif, afektif, dan psikomotorik* [Revision of Bloom's taxonomy: Cognitive, affective, and psychomotor]. *Humanika: Kajian Ilmiah Mata Kuliah Umum*, *21*(2), 151–172. https://doi.org/10.21831/hum.v21i2.29252 [in Indonesian]

Osiesi, M. P. (2023). Assessment, evaluation and monitoring of teaching and learning in Nigeria primary schools: Challenges and implications for teachers. *Utamax: Journal of Ultimate Research and Trends in Education*, *5*(1), 70–81. https://doi.org/10.31849/utamax.v5i1.12571

Osiesi, M. P., Ayanwale, M. A., Akomolafe, O. D., Olayiwola-Adedoja, T. O., Olatunbosun, S. O., & Ariyo, S. O. (2024). Transforming classrooms: How professional development and teacher attitudes drive primary school teaching effectiveness. *Social Sciences & Humanities Open*, *10*, 101099. https://doi.org/10.1016/j.ssaho.2024.101099

Pirzada, G. (2023). Fostering 21st century skills development in specially-abled learners: Teachers' strategies and approaches. *Global Educational Studies Review*, *VIII*(III), 1–11. https://doi.org/10.31703/10.31703/gesr.2023(VIII-III).01

Putnik, G., Alves, C., Varela, L., Pinheiro, P., Victor, M., & Manuel, Z. (2023). A contribution to the definition of students group agility measures within the Social Network based Education in the context of evaluation of students effective learning of Industry 4.0 skills. *Procedia CIRP*, *118*, 1050–1055. https://doi.org/10.1016/j.procir.2023.06.180

Rahayu, W. P., & Munadhiroh, S. (2020). Project-based psychomotor assessment instruments to increase student competencies in the 21st century. *Proceedings of the 5th Padang International Conference on Economics Education, Economics, Business and Management, Accounting and Entrepreneurship (PICEEBA-5 2020)*. https://doi.org/10.2991/aebmr.k.201126.038

Ramírez-Montoya, M. S., Castillo-Martínez, I. M., Sanabria-Z, J., & Miranda, J. (2022). Complex thinking in the framework of Education 4.0 and open innovation—A systematic literature review. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(1), 4. https://doi.org/10.3390/joitmc8010004

Rifdarmon, R. (2020). Psychomotor assessment needs analysis based on video tutorial based on manualbook in vocational education to improve learning target achievement. *INVOTEK: Jurnal Inovasi Vokasional Dan Teknologi*, *20*(3), 89–96. https://doi.org/10.24036/invotek.v20i3.738

Rudianto, R., Diani, R., Subandi, S., & Widiawati, N. (2022). Development of assessment instruments 4C skills (critical thinking, collaboration, communication, and creativity) on parabolic motion materials. *Journal of Advanced Sciences and Mathematics Education*, *2*(2), 65–79. https://doi.org/10.58524/jasme.v2i2.115

Setiawan, J., Sudrajat, A., Aman, & Kumalasari, D. (2021). Development of higher order thinking skill assessment instruments in learning Indonesian history. *International Journal of Evaluation and Research in Education*, *10*(2), 545–552. https://doi.org/10.11591/ijere.v10i2.20796

Shoval, E., & Shachaf, M. (2023). Psychomotor skills necessary for the success of young children in the 21st century. *Journal of Positive Psychology and Wellbeing, 7*(1), 900–913. https://journalppw.com/index.php/jppw/article/view/15778

Sigit, D. V., Ristanto, R. H., Komala, R., Nurrismawati, A., Prastowo, P., & Katili, A. S. (2024). Analysis of ecological literacy level and creative thinking skills of college students. *International Journal of Evaluation and Research in Education*, *13*(3), 1434–1443. https://doi.org/10.11591/ijere.v13i3.25573

Stanikzai, M. I. (2023). Critical thinking, collaboration, creativity and communication skills among school students: A review paper. *European Journal of Theoretical and Applied Sciences*, *1*(5), 441–453. https://doi.org/10.59324/ejtas.2023.1(5).34

Suherman, S., & Vidákovich, T. (2022). Assessment of mathematical creative thinking: A systematic review. *Thinking Skills and Creativity*, *44*, 101019. https://doi.org/10.1016/j.tsc.2022.101019

Weng, X., Chen, L., & Li, Y. (2022). Creativity and collaboration in 21st-century education: Frameworks for student innovation and problem-solving. *Journal of Educational Research and Innovation*, *12*(4), 233–247.

Williams, A. (2024). Delivering effective student feedback in higher education: An evaluation of the challenges and best practice. *International Journal of Research in Education and Science*, *10*(2), 473–501. https://doi.org/10.46328/ijres.3404

Wood, P. C., & Doğan, C. D. (2024). A comparative study on assessment methods used by high school teachers in Uganda and Turkey. *Research in Comparative and International Education*, *19*(3), 352–370. https://doi.org/10.1177/17454999241256447

Yumelking, M., & Sina, M. W. (2024). Cultivating critical thinking skill in industry revolution 4.0 through debating strategy: An action research based on reflective research. *Indo-MathEdu Intellectuals Journal*, *5*(3), 4197–4216. https://doi.org/10.54373/imeij.v5i3.2080

Zakirman, N., Widiasih, W., Sukmayadi, D., Aprianti, R., & Nadiyyah, K. (2023). A new pattern to improving student physics learning outcomes. *Jurnal Penelitian Pendidikan IPA*, *9*(9), 7439–7444. https://doi.org/10.29303/jppipa.v9i9.3324

Zana, F. M., Sa'dijah, C., & Susiswo, S. (2024). The cognitive alignment of mathematics teachers' assessments and its curriculum. *International Journal of Evaluation and Research in Education* , *13*(3), 1561–1575. https://doi.org/10.11591/ijere.v13i3.26814

Zulkifli, H., Tamuri, A. H., & Azman, N. A. (2022). Understanding creative teaching in twenty-first century learning among Islamic education teachers during the COVID-19 pandemic. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.920859

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Examining historical thinking skills in pre-service history teachers: Challenges in Bridging theory and practice in Indonesia

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Abstract

Historical thinking skills (HTS) are an important component of history education, yet their application in pre-service teachers' training remains challenging. This study aims to assess the level of HTS among pre-service teachers and identify the challenges they face in bridging theory and practice. This research used a qualitative method with a case study approach. The participants consisted of 65 pre-service teachers from the History Education Study Programme of Nusa Cendana University, who took a final exam with written assignments relating to analysing historical sources and applying HTS. The results showed that the majority of participants (63.08%) only reached the declarative level, while only 24.62 percent managed to reach the applicative level in HTS. The successful integration of these skills was strongly influenced by the participants' educational background and ability to connect theory with practice. The findings show that although the participants had declarative knowledge of HTS, only a tiny proportion achieved advanced competencies. The participants reported that time constraints and lack of guidance were significant obstacles to applying skills during teaching practice. This research offers practical insights into the limitations of traditional teaching methods in fostering HTS and recommends expanding practice placements and strengthening mentorship programmes to align teacher training with the *Merdeka Belajar-Kampus Merdeka* (MBKM) curriculum. The research highlights the need to integrate theory and practice to develop history teachers who effectively teach HTS in Indonesia.

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Introduction

Historical thinking skills (HTS), which pre-service teachers should possess to critically analyse and interpret past events while fostering a deeper understanding of historical context, are essential in history education (Chang et al., 2023; Saigal, 2023). These skills include working with primary and secondary sources, identifying cause-and-effect relationships between events, and applying historical knowledge to contemporary issues (Bunari et al., 2023; Luque et al., 2024). Mastering these competencies will strengthen pre-service teachers' understanding of history as a discipline and enhance their broader critical thinking skills (Gestsdóttir et al., 2018; Lesh & Ayers, 2023).

Globally, many countries have recognised the importance of HTS by incorporating such into the education curriculum to prepare history teachers for competency-based education (Saefudin et al., 2024a). However, there still seems to be a gap between theory and practice in curriculum implementation. Traditional pedagogical methods, such as memorisation, continue to dominate, limiting opportunities to develop applicative skills (Keddie et al., 2022; Rüsen, 2005; Yoon, 2022). In addition, time constraints and inadequate guidance during the teaching practicum have left many pre-service teachers with only declarative competencies and needing more applicative competencies for classroom application (Kropman et al., 2021; Parra-Monserrat et al., 2021).

Declarative competence refers to understanding and knowledge of historical concepts, such as the ability to describe historical events or explain their significance. However, these competencies do not extend to active use in teaching or problem-solving scenarios. Applicative competencies, on the other hand, involve applying historical knowledge in practical contexts, such as designing lesson plans, encouraging analytical discussions, or creating evaluation rubrics aligned with educational objectives (Van Boxtel et al., 2020; van Boxtel & van Drie, 2018). These competencies are essential for history teachers to bridge the gap between theoretical learning and practical teaching. Bridging the gap between theory and practice remains an ongoing challenge.

Implementing the *Merdeka Belajar-Kampus Merdeka* (MBKM) curriculum in Indonesia reflects efforts to promote competency-based learning. The MBKM curriculum, launched in the 2020/2021 academic year by the Ministry of Education and Culture, aims to give students greater autonomy in designing their educational path. This curriculum is intended for practical programme students involved in the world of work in various majors. The programme generally lasts for one semester (6 months) with an allocation of four–five credits, covering the main programme groups such as internships, independent projects, and education majors teaching practice in schools. For example, students can participate in teaching practice for a full semester at a partner school, where they practice pedagogical and classroom management skills directly. This activity aims to integrate theory with practice while developing applicative competencies such as teamwork, problem-solving and adaptability (Saefudin et al., 2024c). In the context of history teacher education, the MBKM curriculum does not only encourage the acquisition of declarative skills but seeks to develop HTS by encouraging pre-service teachers to have applicative skills, i.e. engaging directly with real-world historical issues, designing innovative teaching models, and applying critical thinking in learning (Alphen, 2019; Gracová & Labischová, 2017). This approach aligns with the global shift towards competency-based education and aims to bridge the continuing gap between theoretical knowledge and classroom application.

Previous research on HTS has been conducted in various countries around the world. Research in Western countries, such as the United States and the Netherlands, shows that the integration of HTS in the curriculum can improve students' analytical skills, particularly in evaluating historical sources and understanding cause-and-effect relationships (Sheppard, 2023; Tuithof et al., 2023; Wineburg, 1999). Models such as the Anglo-American approach emphasise developing evidence-based skills (Lévesque & Clark, 2018; Sandwell & von Heyking, 2014), while the German approaches emphasise historical awareness and moral reflection (Körber, 2021; Rüsen, 2005). While these approaches provide a rich framework, their implementation in non-Western countries, including Indonesia, is poorly understood. This is evidenced by research showing that pre-service teachers often only reach declarative competence and face difficulties in connecting theory with practice (Bunari et al., 2023; Saefudin et al., 2024c).

Most previous research has focused on the theoretical aspects of HTS or its evaluation in developed countries, with little attention to implementation challenges in developing countries. This research seeks to fill that gap by exploring the development and application of HTS among pre-service teachers in Indonesia and how teacher training programmes can bridge the gap between theory and practice. As such, it offers new insights into how the global model of HTS can be adapted to unique local contexts.

Therefore, this study answers the following research questions: (1) What level of HTS competence (in declarative and applicative competence) do pre-service teachers achieve after completing theory and practice courses? (2) How do these pre-service teachers perceive the challenges of implementing HTS in the classroom?

This study aims to answer these research questions by examining the level of HTS among pre-service teachers and identifying the challenges they face in bridging theory and practice. The research offers valuable insights into how pre-service teachers' education programmes can be improved to align more with the MBKM curriculum framework by focusing on these aspects.

Literature Review

Historical thinking skills (HTS) are important competencies in contextually analysing, evaluating and interpreting historical events to foster reflective and critical thinking (Wineburg, 1999, 2007). These skills include interaction with primary and secondary sources, understanding cause-and-effect relationships between events, and developing historical empathy, which is the ability to understand past events from the perspective of the people who experienced them (Retz, 2017; Seixas, 2004). As Lesh and Ayers (2023) emphasised, HTS is about remembering historical facts and equipping pre-service teachers with competencies to face contemporary social challenges through historical understanding. These competencies align with competency-based learning that emphasises knowledge acquisition and its application in real-world contexts.

Research shows that pre-service teachers with HTS can develop better analytical skills, preparing them to deal with complex historical and contemporary issues (Adu-Gyamfi & Anderson, 2021; Calanca, 2019; Chapman et al., 2018). A theoretical understanding of HTS provides an important foundation for exploring how these skills are applied in various education systems worldwide. Such global approaches provide insights into how different educational models address challenges and opportunities in developing HTS, especially in diverse cultural and educational contexts. However, despite their theoretical importance, many education systems need help implementing HTS due to the gap between theory and practice (Grant, 2018).

Global education systems adopt different approaches in developing HTS. The Anglo-American approach focuses on evidence-based learning and practical competence, encouraging students to analyse historical documents critically, interpret conflicting sources and develop independent narratives (Esterling & John-Hopkins, 2018; Wineburg, 2007). Meanwhile, the German approach emphasises historical awareness (*historisches bewusstsein*), linking the past, present and future to form personal and social orientations, with the integration of cognitive and moral dimensions to help students reflect on social responsibility (Edling et al., 2020; Rüsen, 2005). On the other hand, the Dutch approach combines theory and practice through project-based learning that emphasises the interdisciplinary nature of HTS, allowing students to relate these skills to other academic fields (Van Boxtel & Van Drie, 2018; Van Boxtel et al., 2020).

All three approaches provide relevant frameworks for developing HTS, but their application in non-Western contexts such as Indonesia presents unique challenges and opportunities. For example, education in Indonesia, with its diversity of historical and cultural narratives, requires adaptations that integrate local perspectives within a global framework. The Anglo-American focus on source analysis is highly relevant for Indonesian classrooms, especially in dealing with the complexities of colonial legacies. The German approach that emphasises moral responsibility through historical awareness resonates with Indonesia's efforts to promote the values of Pancasila. Meanwhile, the Dutch balance of theory and practice aligns with the MBKM curriculum, which prioritises theoretical mastery and practical application.

The dominance of rote learning that still dominates the history education system in Indonesia today results in the limited acquisition of factual knowledge without developing analytical, evaluative and creative skills. This reduces students' critical thinking and narrows their ability to handle complex real-world situations (Körber, 2021; Rüsen, 2005). Memorised learning emphasises the retention of facts often divorced from context, hindering the development of higher-order thinking skills, such as in the context of HTS, which enhance applicative skills (Van Boxtel et al., 2020). In addition, intensive interaction with mentors in the field provides professional guidance that is not always available in conventional education systems. Thus, adapting this global approach to Indonesia's specific challenges can effectively develop HTS in non-Western contexts.

Methodology

This study employed qualitative research methods using a case study approach to explore pre-service teachers' experiences integrating historical thinking skills (HTS) into their practice. As applied by Chang et al. (2023) and Claravall and Irey (2022), this approach enabled a deeper understanding of participants' knowledge acquisition and reflection on their challenges during practical teaching.

This method allows for a detailed analysis of the interactions between individual, institutional and curriculum factors that influence the development of HTS (Yin, 2016). By focusing on a single research topic, this approach provides deep contextual insights that are difficult to achieve through quantitative or experimental designs. This choice also supports the research objective of exploring the declarative and applicative competencies of HTS and the challenges that pre-service teachers face during training.

Participants

This research was conducted at the History Education Study Programme of Nusa Cendana University, East Nusa Tenggara, Indonesia. The programme prepares future history teachers with the *Merdeka Belajar-Kampus Merdeka* (MBKM) national curriculum, integrating competency-based learning and practical experience through teaching practicums and community projects. The course 'History Learning Innovation,' which is involved in this research, is designed to encourage critical thinking and pedagogical innovation, which aligns with the programme's aim to develop educators capable of applying HTS in the classroom.

The participants of this study consisted of 65 pre-service teachers enrolled in the Bachelor of History Education programme. The sample consisted of 27 males and 38 females from three consecutive academic years (2020/2021, 2021/2022, and 2022/2023). As part of the final assessment, each history teacher candidate was required to complete a written assignment after undergoing teaching practice in a secondary school. The participants' educational backgrounds were distributed as follows: 80 percent (52 participants) had a Social Science background, 13.85 percent (9 participants) came from Natural Science, and 9.23 percent (4 participants) had a Language education background. The sampling technique was non-probabilistic, using convenience sampling based on the availability and accessibility of the participants. Although convenience sampling offers accessibility, it has limitations in generalisability, which were managed by following Flick's (2014) guidelines on the principles of accessibility.

Although convenience sampling was used due to accessibility limitations, strategies were implemented to minimise potential bias and ensure the reliability of findings. Triangulation was applied by comparing data from multiple sources, including participants' written assignments across the three academic groups and reflective responses. This approach enabled the identification of consistent patterns and themes, thus enhancing the validity of the research results (Denzin & Lincoln, 2018). In addition, participant validation was conducted by sharing preliminary findings with selected participants to ensure the accuracy and relevance of interpretations. These steps were designed to reduce the biases inherent to convenience sampling and to strengthen the credibility of the research conclusions.

Data Collection

The data collection instrument consisted of two parts: a written exam and reflective questions conducted during the final session of the History Learning Innovation course between October and early November. This data collection served as the main tool to measure the level of HTS competence achieved by pre-service teachers after completing the course and to determine their perceptions of challenges in implementing HTS in the classroom.

This study did not utilise classroom observations and interviews in data collection. Instead, reflective questions in the written assignment aimed to obtain information about participants' self-assessments and perceptions of the challenges of implementing HTS, thus still providing qualitative depth. This approach ensured the data collected was relevant and contextualised to the research objectives.

One part of the written test involved analysing ten short historical sources relevant to Indonesian history, consisting of:

1. Four primary sources (texts and images) on the political-ideological foundations of the New Order regime.
2. Six secondary sources report on the features of the dictatorship in terms of social support, repression and propaganda.

Pre-service teachers were asked to answer three statements:

1. Analyse the sources by identifying their nature, main ideas and historical context.

2. Explain the characteristics of the New Order dictatorship using the sources to support your answer.

3. Compare New Order democracy with Reformation democracy in contemporary Indonesia and discuss how the political regime impacted citizens' lives.

After the written exam, pre-service teachers answered additional reflective questions reflecting on their teaching experience.

1. What teaching model does this exercise reflect, and to what extent does this model represent educational innovation?

2. What historical competencies were covered, and how were they applied?

3. Design a basic evaluation rubric that aligns with this exercise.

4. Describe the challenges faced in implementing HTS during teaching practice.

These exercises aim to assess pre-service teachers' ability to integrate HTS into their teaching practice and identify challenges to teaching innovation.

Data Analysis

The data were analysed using a qualitative content analysis approach with text as the primary source. The process began with open coding to identify initial themes and categories from participants' responses, per Flick's (2014) guidelines. Yin's (2016) case study methodology was used as a coding and data interpretation framework. Axial coding was then applied to establish relationships between categories, particularly how different aspects of HTS (such as declarative and applicative competencies) are interrelated. Finally, selective coding synthesised those relationships into a coherent framework aligned with the research objectives.

To ensure reliability, multiple researchers conducted the coding independently to minimise bias, and disagreements were resolved through discussion until a consensus was reached. Triangulation was applied by comparing results across academic years and data sources (exam answers and reflections). At the same time, the validity of analyses was enhanced through transparent coding procedures and themes based on participants' responses (Denzin & Lincoln, 2018). This multi-stage approach resulted in systematic findings that provided comprehensive insights into the issues under study. Tables 1, Table 2, and Table 3 are presented as a guide for data analysis concerning Van Boxtel and Van Drie (2020; 2018).

Tables 2 and 3 show that participants' discourses were further categorised according to their reflections on teaching models and challenges encountered during practicums.

Ethical approval for this study was obtained from Nusa Cendana University's Ethics Committee. Participants provided informed consent, and their data were anonymised to protect their identities. The study adhered to ethical research principles outlined by Flick (2014), ensuring participants' rights were respected throughout the data collection and analysis process.

Table 1 Levels of historical thinking skills

Level	Description
Level 0: None	No recognition of historical thinking competencies.
Level 1: Basic declarative	Recognises some aspects of HTS but cannot effectively design rubrics or allocate marks.
Level 2: Moderate-declarative	Explains HTS but needs to develop a detailed evaluation rubric.
Level 3: Basic applicative	Design rubrics for at least one historical competency but without comprehensive evaluation.
Level 4: Complex applicative	Design rubrics with developmental levels for multiple aspects of HTS.

Table 2 Discourse on teaching models and innovation

Level	Description
Level 1: None	No information was provided on teaching models.
Level 2: Methodological discourse	Links the exercise to teaching models but with limited depth.
Level 3: Critical discourse	Provides in-depth connections between teaching models, content, and educational objectives.

Table 3 Comments on the challenges of teaching HTS

Level	Description
Level 0	No recognition of teaching challenges.
Level 1	Identifies challenges but does not link them to practical experience.
Level 2	Provides detailed reflections on challenges based on practical teaching experience.

Results

Levels and Discourses in Historical Thinking Skills

This section presents the results of analyses of historical thinking levels and qualitative insights drawn from participants' reflections. The aim is to assess the competencies achieved by the pre-service teachers and identify areas that require further development.

Table 4 provides a breakdown of the participants' level of historical thinking, showing a spread across declarative, applicative and non-achievement levels. The dominance of the declarative level indicates that most students only have theoretical understanding and limited ability to apply historical thinking in practice. Table 4 details the test results of the pre-service teachers.

The visualisation results in Figure 1 show that most participants (63.08%) could only master HTS at the declarative level. Specifically, only 24.62 percent of pre-service teachers achieved an applicative level, with a small proportion (9.23%) demonstrating higher abilities in designing rubrics and applying historical empathy. Nonetheless, the written task-based assessment format may only partially capture participants' ability to practically apply HTS in actual teaching situations.

Table 4 Knowledge level of historical thinking skills among participants

Levels of Historical Thinking Skills	Quantity	Percentage
0: None Level	8	12.31
Declarative Level (1–2)	41	63.08
Level 1: Basic declarative	26	40
Level 2: Moderate declarative	15	23.08
Applicative Level (3–4)	16	24.62
Level 3: Basic applicative	10	15.8
Level 4: Complex applicative	6	9.23
Total	65	100

The large proportion of pre-service teachers (40%) at the basic declarative level shows that although they understand the importance of historical competencies, they cannot apply them effectively within practical teaching contexts. These findings highlight the need for improved strategies to develop higher-order competencies such as historical empathy, analytical reasoning, and the use of evidence.

Table 5 and Figure 2 illustrate the trends in HTS across the three academic years (2021–2023). The data show consistent performance patterns, with a stable distribution of pre-service teachers remaining at declarative levels. This suggests that innovative teaching methods and curriculum changes have not significantly improved.

Over the years, the need for significant growth in applicative competencies has raised concerns about the effectiveness of pre-service teachers' training programmes. Figure 2 visualises this trend, showing that despite post-pandemic improvements in the educational environment, the number of pre-service teachers achieving high-level competencies still needs to be higher.

Comparative analysis of HTS levels over three academic years shows a relatively stagnant trend, with most pre-service teachers still at the declarative level. This indicates that the learning approach in the curriculum of related courses, such as History Learning Innovation, has yet to undergo significant modifications that can encourage the development of applicative competencies. To overcome this limitation, it is necessary to strengthen the direct practical experience in schools, allowing participants to implement HTS in real teaching contexts.

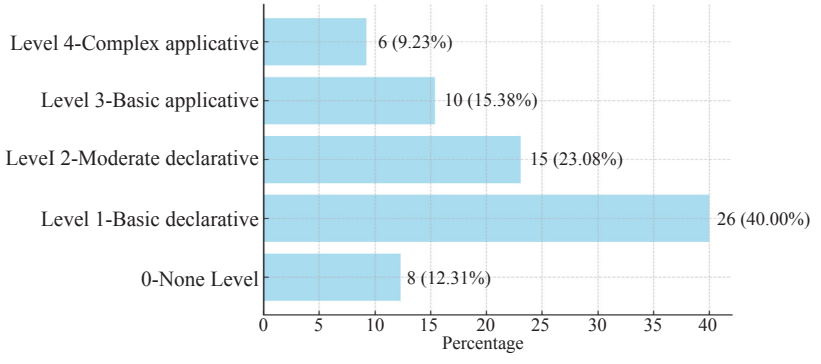


Figure 1 Distribution of historical thinking levels among participants

Table 5 Historical thinking skill levels by academic year

Levels of Historical Thinking	2021	2022	2023
0: None Level	2 (10%)	3 (13.64%)	3 (13.04%)
Declarative Level (1-2)	12 (60%)	14 (63.64%)	15 (65.22%)
Level 1: Basic declarative	8 (40%)	8 (36.36%)	10 (43.48%)
Level 2: Moderate declarative	4 (20%)	6 (27.27%)	5 (21.74%)
Applicative Level (3-4)	6 (30%)	5 (22.73%)	5 (21.74%)
Level 3: Basic applicative	3 (15%)	4 (18.18%)	3 (13.04%)
Level 4: Complex applicative	3 (15%)	1 (4.55%)	2 (8.70%)
Total	20 (100%)	22 (100%)	23 (100 %)

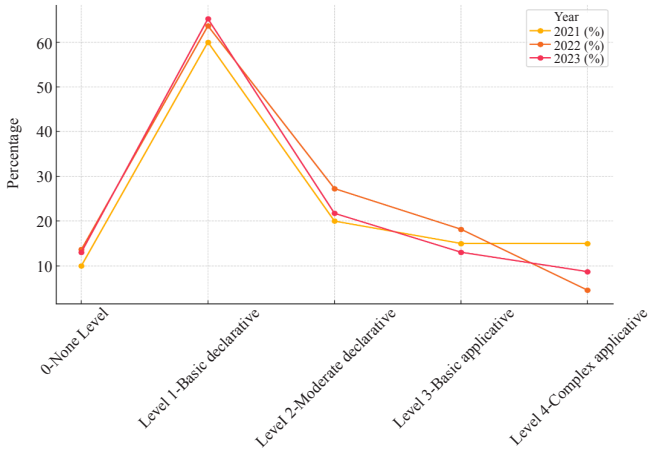


Figure 2 Trends in historical thinking skills from 2021 to 2023

The stagnant level of mastery of applicative competence indicates that participants still need help transforming theoretical knowledge into practical skills. This condition confirms the importance of more intensive guidance and integration of practice-based learning in teacher education programmes. This strategy is expected to increase participants' in-depth engagement with historical competencies. To illustrate, although the data show a slight increase in the level of applicative competence in the academic year 2023 compared to 2021, this achievement is attributed mainly to efforts to integrate historical source analysis methods in pre-service teachers' final assignments. However, limitations in implementing hands-on practice or the lack of intensive guidance during the training period remain significant obstacles that must be overcome to achieve optimal results.

Within the MBKM curriculum framework, the curriculum is designed to provide more significant space for developing practice-based competencies. However, these findings indicate that implementing the MBKM programme has yet to improve mastery of applicative skills. Thus, structural changes are needed, such as increasing the duration of practicum and strengthening intensive mentoring, to maximise the benefits of this approach. This reform is expected to bridge the gap between the mastery of theory and the application of practice in history teacher training, resulting in educators who are more competent and ready to develop HTS in learning.

Pre-service teacher's reflections on challenges

The qualitative data revealed significant insights into how pre-service teachers perceived their ability to apply historical thinking skills. Participants at the basic declarative level generally demonstrated conceptual understanding but needed help to align their knowledge with practical teaching demands. Many identified challenges integrating core competencies, such as historical empathy and causality, into their lesson plans. For example, one pre-service teacher commented:

> *"Although I understand the concepts of historical sources and empathy, it is difficult to apply them when students expect simple factual answers." (pre-service teachers A2/2021).*

Similarly, pre-service teachers at the moderate declarative level showed some progress in recognising key competencies but needed to develop effective evaluation rubrics. These pre-service teachers often relied on traditional teaching models, reflecting the persistence of rote learning practices in the classroom.

Teacher candidates who reached the applied level demonstrated a more nuanced understanding of the significance of historical thinking. These participants developed evaluation tools and were able to integrate competencies such as source analysis and empathy into their teaching. For example, one pre-service teacher reflected on the comparison between Indonesia's New Order regime and current democratic reforms:

> *"Using historical empathy helps students understand life under authoritarianism and reflect on the value of democracy today." (pre-service teachers A10/2022).*

However, pre-service teachers need help even at the complex applied level. They report resistance from pre-service teachers and colleagues who are used to traditional methods and difficulties designing activities that balance theoretical knowledge and practical application. This reflects the broader challenge of introducing innovative teaching approaches in an education system rooted in conventional practices.

Lack of mentoring and time constraints during the teaching practicum emerged as key barriers to competency development. Many participants expressed frustration at the limited mentoring they received, with one participant stating:

> *"There was not enough time during the teaching practicum to experiment with new teaching models. Most of the time, we were focused on completing the administrative requirements of the curriculum." (pre-service teachers A45/2023).*

In addition, some pre-service teachers highlighted the difficulty of changing pre-service teachers' ingrained learning habits. Traditional methods, such as memorisation and textbook-based learning, are still prevalent, limiting students' ability to engage in historical inquiry and critical thinking.

These findings suggest that while pre-service teachers possess basic declarative knowledge, the development of applicative competencies is limited. The lack of progress over three years points to the need for curriculum reform and improved mentorship programmes. The reflections of the history teacher candidates further underscore the importance of aligning theory with practice to ensure that future teachers can effectively encourage historical thinking in the classroom.

After each practice session, mentor guidance can be optimised using written reflections or group discussions. This activity allows participants to evaluate their teaching strategies, identify challenges, and seek solutions with the mentor. This reflective approach will also help participants internalise HTS applicative competencies, such as document analysis and evaluation rubric design.

Discussion

The results of this study indicate that the History Learning Innovation course needs to effectively equip pre-service teachers with the practical competencies required to implement historical thinking skills (HTS) in the classroom. These findings reflect the ongoing challenges highlighted by Tuithof et al. (2023) and (Van Boxtel et al., 2020; Van Boxtel & Van Drie, 2018), where competency-based education must often bridge the gap between theory and practice. However, participants gained declarative knowledge through the course and most needed help with advanced competencies such as historical empathy and source analysis. This supports the theoretical argument that knowledge acquisition alone is insufficient; pre-service teachers must also master didactic strategies to meaningfully apply HTS in the classroom (Rüsen, 2005; Wineburg, 1999). As such, this finding highlights the theoretical-practical gap in history teacher education, which aligns with Gracová and Labischová's (2017) research and calls for a more systematic integration of theory and practice in history education programmes.

The results also revealed that participants with a social science background showed better mastery of HTS than participants from natural sciences or languages. This advantage can be attributed to the characteristics of social science learning that emphasise critical analysis and reflection, which are relevant to the development of HTS. Pre-service teachers from the social sciences show better mastery of HTS due to elements of the social science curriculum that directly support analytical, critical and creative skills. Methods such as case study analysis, critical discussion and qualitative research provide ideal learning environments for developing these abilities. In contrast, participants from natural sciences and languages lag due to curriculum approaches that are less supportive of HTS principles (Esterling & John-Hopkins, 2018; Wineburg, 2007). Natural sciences often focus on applying theory through deductive methods and experiments. At the same time, languages tend to emphasise technical competencies, such as grammar, without encouraging critical evaluation or creativity in realistic contexts (Saefudin et al., 2024b).

However, these findings also reveal limitations in the history teacher training curriculum, particularly in supporting the implementation of *Merdeka Belajar-Kampus Merdeka* (MBKM) principles, which aim to strengthen practice-based experiences for all participants, regardless of their academic background.

The lack of practical experience and intensive guidance during training is a significant obstacle to developing HTS applicative competencies (Martínez-Hita et al., 2021; Nuraedah & Saefudin, 2024). To address this gap, pre-service teachers can be directed to design and implement lessons based on local history source analysis, which not only strengthens analytical skills but also encourages the development of historical empathy.

These challenges in history teacher education in Indonesia mirror those found in various international contexts. The Anglo-American system, for example, tends to focus on source analysis without practical application, while the German approach emphasises moral reflection through historical awareness. On the other hand, the Netherlands has successfully integrated theory and practice through interdisciplinary project-based learning. Such projects often involve students from different disciplines to solve problems like urban sustainability or community-based waste management. This approach enhances practice-based learning and equips students with interdisciplinary skills relevant to the needs of the working world (Cukurova et al., 2018). This approach offers valuable insights that can be adapted into the MBKM curriculum framework. For example, collaborating between universities and schools to develop community-based learning modules can provide future history teachers hands-on experience implementing HTS. This is because the MBKM curriculum offers a framework specifically designed to enhance practice-based learning, often lacking in older teacher education programmes. The principles of MBKM, such as curriculum flexibility, authentic learning experiences, and collaboration with the world of work, encourage students to apply pedagogical theories directly in the field (Alphen, 2019; Gracová & Labischová, 2017).

With MBKM, pre-service teachers' structured and collaborative practice-based experiences strengthen their readiness to master HTS skills. To ensure successful implementation of the MBKM, significant structural changes, such as extending the duration of the practicum and increasing the intensity of mentor guidance, are necessary. With these measures, participants understand HTS theoretically and can apply it in teaching, resulting in more competent educators ready to face challenges in the classroom (Darsono et al., 2024; Tuithof et al., 2023).

This study's findings significantly contribute to the academic discussion on theory and practice in history teacher education. Theoretically, the results corroborate the constructivist perspective that knowledge is only meaningful if actively applied. The findings also underline the limitations of traditional training models that focus too much on theory without providing adequate opportunities for practical application. The results suggest that curriculum reform is essential to improve history teacher education, mainly by enhancing practicum-based learning within the MBKM framework (Saefudin et al., 2024c). An emphasis on collaboration between universities and schools is also needed to ensure training that is responsive to the needs of the field. In addition, intensive mentorship during the training period can support the transition of pre-service teachers from theory to practice, enabling them to overcome complex classroom teaching challenges.

This study highlights the need for further research to explore how different training models impact the development of HTS in the Indonesian educational context. Future research could include comparative studies between Indonesian universities and international programmes to identify best practices in developing historical competencies. The implementation of these recommendations will not only prepare future teachers to engage pre-service teachers in history learning critically and contribute to a more inclusive citizenship education. However, it should be noted that this study has limitations in the convenience sampling method, which may affect the generalisability of the findings. Therefore, more extensive research with more representative sampling methods is needed to strengthen the validity of the findings.

Conclusion and Recommendation

This research shows that the history learning innovation course still needs to fully prepare pre-service teachers to effectively apply historical thinking skills (HTS) in the classroom. Although the course integrates theory and practice, many participants still need help to balance theory understanding and application in the field. This finding confirms that the effectiveness of teacher training largely depends on combining theoretical knowledge with practical teaching experience and adapting to participants' educational backgrounds. While some participants managed to acquire declarative knowledge, they often lacked the didactic skills to apply and assess historical competence in the classroom. This gap reflects the broader challenge of bridging the relationship between theory and practice, such as bridging the MBKM curriculum framework and a pedagogical perspective that is not only lecture-based but is crucial to fostering critical and meaningful HTS.

Inspiration from Anglo-American, German and Dutch education systems suggests that moral reflection and project-based learning can be key elements in bridging the gap between theory and practice. This approach could strengthen the practice's relevance in Indonesia if adapted to local values and national policies, such as *gotong royong* value (mutual cooperation), which can be integrated through project-based learning such as the MBKM curriculum framework.

To address these challenges, this study recommends contextualised competency-based learning, extended duration of teaching practice to two full semesters with structured mentorship, and stronger collaboration between universities and schools. Competency-based learning focuses on practical skills, such as lesson planning and formative assessment, to reduce the performance gap, especially for pre-service teachers from non-social fields. Tools such as assessment rubrics to evaluate lesson planning, implementation, and evaluation can be used to monitor participants' progress comprehensively. Collaborative mechanisms like joint curricula designed between universities and schools can bridge teaching theory and practice with field needs through local values-based projects, such as revitalising traditional culture, to develop pre-service teachers' HTS skills. Integrating competency improvement, moral reflection, and local cultural elements also strengthens HTS. It connects history learning to the Indonesian educational context while preparing pre-service teachers to meet the demands of the 21st century.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References

Adu-Gyamfi, S., & Anderson, E. (2021). History education in Ghana: a pragmatic tradition of change and continuity. *Historical Encounters*, *8*(2). https://doi.org/10.52289/hej8.201

Alphen, F. Van. (2019). Conceptualizing 'identity' in history education research. *Yearbook of the International Society for History Didactics*, *2019*(40), 81–114. https://api.elsevier.com/content/abstract/scopus_id/85096559091

Bunari, Fadli, M. R., Fikri, A., Setiawan, J., Fahri, A., & Izzati, I. M. (2023). Understanding history, historical thinking, and historical consciousness, in learning history: An ex post-facto correlation. *International Journal of Evaluation and Research in Education*, *12*(1), 260–267. https://doi.org/10.11591/ijere.v12i1.23633

Calanca, D. (2019). Fashion and cultural heritage among social imaginaries and collective practices in contemporaneity | Moda e patrimônio cultural entre imaginários sociais e práticas coletivas na comporaneidade. *Revista de Historia (Brazil)*, *178*. https://doi.org/10.11606/ISSN.2316-9141.RH.2019.139720

Chang, C.-C., Wegerif, R., & Hennessy, S. (2023). Exploring dialogic education used to teach historical thinking within the cultural context of East Asia: A multiple-case study in Taiwanese classrooms. *Learning, Culture and Social Interaction*, *41*. https://doi.org/10.1016/j.lcsi.2023.100729

Chapman, A., Burn, K., & Kitson, A. (2018). What is school history for? British student-teachers' perspectives | ¿Para qué sirve la enseñanza de la historia? Perspectivas de docentes y estudiantes británicos. *Arbor*, *194*(788). https://doi.org/10.3989/arbor.2018.788n2003

Claravall, E. B., & Irey, R. (2022). Fostering historical thinking: The use of document based instruction for students with learning differences. *Journal of Social Studies Research*, *46*(3), 249–264. https://doi.org/10.1016/j.jssr.2021.08.001

Cukurova, M., Bennett, J., & Abrahams, I. (2018). Students' knowledge acquisition and ability to apply knowledge into different science contexts in two different independent learning settings. *Research in Science and Technological Education*, *36*(1). https://doi.org/10.1080/02635143.2017.1336709

Darsono, Fahruddin, Birsyada, M. I., Judijanto, L., Muslim, A., Saefudin, A., & Saddhono, K. (2024). Environmental Exploitation in the Colonial Period: An Ecocritical Analysis of Pramoedya Ananta Toer's Buru Quartet. *Theory and Practice in Language Studies*, *14*(8), 2455–2464. https://doi.org/10.17507/tpls.1408.18

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2018). The SAGE handbook of qualitative research (5th ed.). Sage Publications.

Edling, S., Sharp, H., Löfström, J., & Ammert, N. (2020). Why is ethics important in history education? A dialogue between the various ways of understanding the relationship between ethics and historical consciousness. *Ethics and Education*, *15*(3), 336–354. https://doi.org/10.1080/17449642.2020.1780899

Esterling, S. E., & John-Hopkins, M. (2018). The creation and protection of history through the prism of international criminal justice in Al Mahdi. *Journal of International Humanitarian Legal Studies*, *9*(1–2), 1–60. https://doi.org/10.1163/18781527-00901001

Flick, U. (Ed.). (2014). The SAGE handbook of qualitative data analysis. SAGE Publications Ltd.

Gestsdóttir, S. M., van Boxtel, C., & van Drie, J. (2018). Teaching historical thinking and reasoning: Construction of an observation instrument. *British Educational Research Journal*, *44*(6), 960–981. https://doi.org/10.1002/berj.3471

Gracová, B., & Labischová, D. (2017). Undergraduate training of history teachers at czech universities and prospects for future developments. *International Journal of Research on History Didactics, History Education and History Culture*, *2017*(38), 13–31.

Grant, S. G. (2018). Teaching practices in history education. In S. A. Metzger & L. P. Harris (Eds.), *The Wiley International Handbook of History Teaching and Learning* (pp. 419–448). Wiley.

Keddie, A., MacDonald, K., Blackmore, J., Boyask, R., Fitzgerald, S., Gavin, M., Heffernan, A., Hursh, D., McGrath-Champ, S., Møller, J., Wylie, C., & Yoon, E.-S. (2022). What needs to happen for school autonomy to be mobilised to create more equitable public schools and systems of education? *Australian Educational Researcher*. https://doi.org/10.1007/s13384-022-00573-w

Körber, A. (2021). Historical consciousness, knowledge, and competencies of historical thinking: An integrated model of historical thinking and curricular implicationsi. *Historical Encounters*, *8*(1), 97–119. https://doi.org/10.52289/HEJ8.107

Kropman, M., Van Boxtel, C., & Van Drie, J. (2021). Multiperspectivity in lesson designs of history teachers: The role of schoolbook texts in the design of multiperspective history lessons. *Historical Encounters*, *8*(1), 46–69. https://doi.org/10.52289/hej8.104

Lesh, B. A., & Ayers, E. L. (2023). "Why won't you just tell us the answer?": Teaching historical thinking in grades 7-12 (2nd ed.). Routledge

Lévesque, S., & Clark, P. (2018). Historical thinking: Definitions and educational applications. In S. A. Metzger & L. P. Harris (Eds.), The Wiley International Handbook of History Teaching and Learning (pp. 117–148). Wiley

Luque, J. L. Z., Mangado, A. R., & Ruiz, C. R. G. (2024). Democratic Memory in times of populism. Historical thinking and emotions in teacher training | Memória democrática em tempos de populismo. Pensamento histórico e emoções na formação de professores | Memoria Democrática en tiempos de populismo. Pensamiento. *Acta Scientiarum - Education*, *46*(1). https://doi.org/10.4025/actascieduc.v46i1.68059

Martínez-Hita, M., Gómez-Carrasco, C. J., & Miralles-Martínez, P. (2021). The effects of a gamified project based on historical thinking on the academic performance of primary school children. *Humanities and Social Sciences Communications*, *8*(1). https://doi.org/10.1057/s41599-021-00796-9

Nuraedah, & Saefudin, A. (2024). The Dilemma of cultural commodification policy of barkcloth: A study of the Kaili Community in Pandere Village, Indonesia. *Kasetsart Journal of Social Sciences*, *45*(2), 625–632. https://doi.org/https://doi.org/10.34044/j.kjss.2024.45.2.29

Parra-Monserrat, D., Fuertes-Muñoz, C., Asensi-Silvestre, E., & Colomer-Rubio, J. C. (2021). The impact of content knowledge on the adoption of a critical curriculum model by history teachers-in-training. *Humanities and Social Sciences Communications*, *8*(1). https://doi.org/10.1057/s41599-021-00738-5

Retz, T. (2017). The Structure of Historical Inquiry. *Educational Philosophy and Theory*, *49*(6), 606–617. https://doi.org/10.1080/00131857.2015.1101365

Rüsen, J. (2005). History: Narration, interpretation, orientation. Berghahn Books.

Saefudin, A., Jumintono, & Rejokirono. (2024a). National Identity in Transnational Life: The Case of Dual Education of Indonesian Migrant Children in Sabah, East Malaysia. *Kajan Malaysia*, *42*(1), 117–138. https://doi.org/https://doi.org/10.21315/km2024.42.1.6

Saefudin, A., Utomo, S. S., Taneo, M., Rosanawati, I. M. R., Nasri, U., Amin, M. Z., Sudarto, & Andini, S. (2024b). Discourse Analysis of Conflict and Resolution in History Textbooks : Representations of the Referendum in Indonesia. *Forum for Linguistic Studies*, *06*(05), 433–446.

Saefudin, A., Wasino, Susanto, & Musadad, A. A. (2024c). Curriculum control and lesson planning: History teacher autonomy in different school contexts. *Kasetsart Journal of Social Sciences*, *45*(2), 391–400. https://doi.org/https://doi.org/10.34044/j.kjss.2024.45.2.05

Saigal, S. (2023). Historical Thinking Skills: Why It Matters in School Education. *Economic and Political Weekly*, *58*(44), 24–27.

Sandwell, R., & von Heyking, A. (2014). Becoming a history teacher: Sustaining practices in historical thinking and knowing. University of Toronto Press.

Seixas, P. (2004). Theorizing historical consciousness. University of Toronto Press.

Sheppard, M. (2023). Emotional rules in two history classrooms. *Journal of Social Studies Research*, *47*(2), 108–119. https://doi.org/10.1016/j.jssr.2022.04.003

Tuithof, H., Van Drie, J., Bronkhorst, L., Dorsman, L., & Van Tartwijk, J. (2023). Teachers' pedagogical content knowledge of two specific historical contexts captured and compared. *Educational Studies*, *49*(4), 686–711. https://doi.org/10.1080/03055698.2021.1877621

Van Boxtel, C., & Van Drie, J. (2018). Historical reasoning: Conceptualizations and educational applications. In S. A. Metzger & L. P. Harris (Eds.), The Wiley International Handbook of History Teaching and Learning (pp. 149–176). Wiley.

Van Boxtel, C., Van Drie, J., & Stoel, G. (2020). Improving teachers' proficiency in teaching historical thinking. In C. Metzger & L. P. Harris (Eds.), The Palgrave Handbook of History and Social Studies Education (pp. 97–117). Palgrave Macmillan.

Wineburg, S. (1999). Historical Thinking and Other Unnatural Acts. *Phi Delta Kappan*, *80*(7), 488–499.

Wineburg, S. (2007). Common belief and the cultural curriculum: An intergenerational study of historical consciousness. *American Educational Research Journal*, *44*(1), 40–76. https://doi.org/10.3102/0002831206298677

Yin, R. K. (2016). Qualitative research from start to finish (2nd ed.). The Guilford Press.

Yoon, J.-P. (2022). Is historical thinking unnatural? *Educational Philosophy and Theory*, *54*(7), 1022–1033. https://doi.org/10.1080/00131857.2021.1914584

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Developing measurement model of empowering leadership for administrators at public normal universities in Liaoning province

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Abstract

This research develops and validates a measurement model of empowering leadership tailored for administrators at public normal universities in Liaoning Province, China. Using a mixed-methods approach, qualitative data were collected through semi-structured interviews, followed by quantitative validation via Confirmatory Factor Analysis (CFA) with 371 participants. The model demonstrates a strong fit with empirical data, indicated by fit indices ($\chi^2/df = 1.114$, GFI = 0.953, TLI = 0.992, CFI = 0.993, RMSEA = 0.037). Convergent validity is confirmed, with Average Variance Extracted (AVE) values exceeding 0.5 and Composite Reliability (CR) values surpassing 0.7.

This research addresses a gap in existing studies by presenting an empirically validated model designed for hierarchical educational systems in China. The findings offer theoretical contributions by contextualizing empowering leadership in non-Western educational settings. Practically, the model provides tools for enhancing leadership practices in decision-making, innovation, and institutional adaptability. Additionally, the study underscores the importance of fostering participative leadership to meet contemporary educational challenges. The results have broader implications for educational leaders globally, offering adaptable strategies for diverse cultural and organizational environments. This research contributes to the ongoing discourse on effective leadership in higher education by promoting a leadership style that aligns with modern educational demands.

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Introduction

In the rapidly evolving landscape of higher education, empowering leadership has emerged as a critical approach to fostering responsive and agile management. Grounded in theories that emphasize autonomy and participative decision-making (Conger & Kanungo, 1988; Thomas & Velthouse, 1990), this leadership style enhances organizational performance and employee satisfaction across various sectors. As universities face increasing demands for innovation, empowering leadership offers a pathway to transform rigid hierarchical structures into dynamic environments that promote creativity and proactive problem-solving.

Public normal universities in Liaoning Province, like other expanding institutions, face complex challenges in decentralized decision-making, information flow, staff recruitment, and financial sustainability. The national "Double First-Class" initiative, aimed at elevating higher education quality, brings both opportunities and hurdles. Key issues include difficulties in defining institutional orientation, developing competitive academic disciplines, retaining qualified staff, and securing adequate funding (Lu et al., 2019; Lun, 2010). These factors hinder the universities' ability to meet national education goals and maintain competitiveness. Additionally, improving graduate employability requires better career guidance and alignment with labor market demands (Hou, 2014). Despite these challenges, opportunities exist for reform, particularly through strategic teacher education programs and initiatives targeting rural education (Lei & Che, n.d.).

Adopting an empowering leadership model offers a promising solution. By decentralizing decision-making and improving information flow, empowering leadership can enhance institutional responsiveness and innovation. However, there is a lack of practical frameworks tailored to university administrators operating in such dynamic environments (Yukl, 2008).

This research aims to develop and validate an empowering leadership model specifically designed for public normal universities in Liaoning Province. The findings aim to offer a robust framework that addresses their unique administrative challenges while providing insights applicable to educational leaders globally.

Literature Review

Significance of Empowering Leadership

Empowering leadership in higher education aligns with institutional goals of fostering innovation, critical thinking, and independent research. It cultivates a participatory academic community essential for advancing teaching and research productivity (Blase & Blase, 1999; Wang & Gagné, 2013). By delegating authority and encouraging autonomy, empowering leadership fosters ownership, accountability, and job satisfaction, ultimately enhancing professional development and institutional adaptability (Bolden et al., 2009; Van Ameijde et al., 2009).

Recent studies reinforce the practical implications of empowering leadership. Cheong et al. (2019) highlight its role in improving team dynamics, intrinsic motivation, and collaboration, while Sharma and Kirkman (2015) emphasize the importance of contextualizing empowering leadership within cultural and organizational settings. This study builds on these theoretical foundations by applying empowering leadership in a unique cultural setting.

Empowering Leadership and Chinese Philosophies

Empowering leadership resonates with ancient Chinese philosophies, particularly Confucianism, which emphasizes collective harmony, moral responsibility, and participative decision-making (Yang, 2014). Integrating these principles ensures cultural relevance, broadening the applicability of empowering leadership in hierarchical institutions such as Chinese universities.

Leadership in Chinese Higher Education

Leadership approaches in Chinese higher education are evolving due to globalization and educational reforms. Empowering leadership supports these reforms by fostering autonomy, innovation, and problem-solving skills (Cai, 2013; Liu et al., 2011). However, deeply ingrained hierarchical cultures pose challenges to implementing such leadership styles (Tang, 2018). Studies by Cheng (2019) and Qiao and Shen (2016) recommend leadership training and support systems to facilitate this transition.

Despite challenges, empowering leadership has demonstrated positive outcomes, including improved teaching standards, research productivity,

and student performance (Huang et al., 2010; Wang, 2018). By promoting a nurturing academic environment, empowering leaders enable students to develop critical thinking and self-directed learning skills essential for thriving in a knowledge-based economy (Li, 2016).

Key Components of Empowering Leadership

Empowering leadership encompasses several key components:

- Autonomy and Delegation: Leaders assign decision-making authority to employees, fostering ownership and motivation (Ahearne et al., 2005).
- Psychological Empowerment: Leaders enhance employees' intrinsic motivation by reinforcing significance, competence, self-determination, and influence (Spreitzer, 1995).
- Supportive Environment: Leaders create an inclusive, supportive atmosphere that nurtures trust and fairness, enhancing employee engagement (Fong, 2015; Kim, 2018).
- Information Sharing: Transparency in sharing organizational goals and information builds trust and improves decision-making (Horoub, 2022).
- Innovation and Adaptability: Leaders encourage experimentation and risk-taking, fostering a culture of continuous improvement (Vu, 2020).
- Participative Decision-Making: Involving employees in decision-making promotes collaboration and enhances engagement (Pearce et al., 2002).
- Skill Development: Leaders invest in employee growth through training and coaching, contributing to long-term professional development (Konczak et al., 2000).
- Trust and Accountability: Effective empowering leaders balance trust with mechanisms for accountability, fostering a productive and motivated workforce (Roy et al., 2020).

In summary, empowering leadership enhances institutional adaptability by promoting innovation, critical thinking, and collaboration. By integrating key components such as autonomy, psychological empowerment, and participative decision-making, empowering leaders foster an inclusive and dynamic academic environment. This leadership style, aligned with both modern educational paradigms and cultural traditions, holds promise for addressing the evolving challenges in higher education.

Methodology

This study employed a mixed-methods approach to develop and validate a measurement model of empowering leadership tailored to public normal universities in Liaoning Province. The methodology was conducted in two phases: qualitative and quantitative.

Qualitative Research

The qualitative phase involved a review of existing literature and semi-structured interviews with administrators and faculty members from public normal universities. These interviews provided in-depth insights into the key components and indicators of empowering leadership in the academic context. The interview data were analyzed using content analysis to identify recurring themes relevant to leadership practices in a hierarchical educational environment. This phase helped establish a theoretical foundation and informed the development of the survey instrument used in the quantitative phase.

Quantitative Research

In the quantitative phase, a survey instrument was developed to assess empowering leadership, specifically adapted to the cultural and organizational context of Chinese higher education. While existing scales were considered, a new instrument was designed to capture context-specific leadership dynamics. The survey was pretested to ensure validity and reliability, and data were analyzed using descriptive statistics and Confirmatory Factor Analysis (CFA) to validate the proposed model. Fit indices and reliability measures confirmed the robustness of the model.

Ethical Considerations

Ethical protocols were strictly followed. Participants were informed about the research objectives and provided written consent. Confidentiality was ensured by anonymizing responses and securely storing data. Ethical approval was obtained from the institutional review board.

Population and Sample

The target population consisted of 5,176 administrators and full-time teachers from three public normal universities in Liaoning Province. Using the Taro Yamane formula, a sample size of 371 respondents was determined. A stratified random sampling method was applied to ensure representativeness, resulting in 128 administrators and 243 teachers participating in the study.

Data Collection

Research instruments

To effectively meet the research objectives, the primary instrument utilized for data collection was a semi-structured interview form and a five-point Likert scale questionnaire. This questionnaire was meticulously designed to capture empirical data critical for validating the proposed empowering leadership model. The use of a Likert scale facilitated the quantification of respondents' attitudes and perceptions regarding the presence and effectiveness of empowering leadership practices within their institutions.

The questionnaire included a range of items that respondents rated from one (strongly disagree) to five (strongly agree), allowing for a nuanced analysis of the degrees to which various aspects of empowering leadership were implemented and valued among university administrators and faculty. This structured approach to gathering quantitative data was pivotal in assessing the alignment between the theoretical aspects of the model and the practical realities observed within the universities.

Data analysis

The data analysis process was systematically structured to address the research objectives comprehensively. Initially, descriptive statistical analysis was employed to examine the basic personal information of the 371 respondents. This analysis included the calculation of frequencies and percentages to characterize the demographic and professional profiles of the participants, such as their gender, age range, education level, job level, and professional title. This preliminary step provided a foundational understanding of the sample's composition, essential for interpreting the subsequent analytical findings.

Following the descriptive analysis, Confirmatory Factor Analysis (CFA) was conducted. CFA was pivotal in assessing the construct validity of the empowering leadership model proposed in this study. This statistical technique tested the hypothesized relationships between observed variables and their underlying latent constructs, thereby validating whether the theoretical constructs of the empowering leadership model were accurately reflected in the empirical data collected. The use of CFA ensured that the model's parameters were reliably and rigorously evaluated, providing a robust statistical basis for confirming the model's applicability and effectiveness within the context of public normal universities in Liaoning Province.

Results

The results of this research provide a detailed evaluation of the presence and effectiveness of empowering leadership practices in public normal universities in Liaoning Province. The assessment was conducted through a mixed-methods approach that integrated qualitative and quantitative analyses, ensuring a comprehensive understanding of empowering leadership dynamics.

Assessment of the Presence of Empowering Leadership Practices

The presence of empowering leadership practices was evaluated using data collected through semi-structured interviews and a newly developed survey instrument. During the qualitative phase, semi-structured interviews with administrators and faculty members provided insights into the application of empowering leadership in day-to-day operations. Themes related to key components of empowering leadership, such as participative decision-making, information sharing, and self-determination, were identified through content analysis. These themes were subsequently operationalized into survey items for the quantitative phase.

In the quantitative phase, survey responses from 371 participants were analyzed using descriptive statistics to determine the prevalence of empowering leadership practices. The survey items were designed to measure the frequency and scope of empowering behaviors across various dimensions, such as autonomy delegation, transparent communication, and participative decision-making. The results indicated a high prevalence of empowering leadership behaviors in areas such as team collaboration and transparency but revealed gaps in fostering innovation and supporting independent decision-making.

Assessment of the Effectiveness of Empowering Leadership Practices

The effectiveness of empowering leadership practices was assessed using Confirmatory Factor Analysis (CFA) and additional statistical measures. CFA validated the structural integrity of the proposed empowering leadership model, with fit indices demonstrating excellent alignment with the empirical data (e.g., χ^2/df = 1.114, GFI = 0.953, TLI = 0.992, CFI = 0.993, RMSEA = 0.037). These indices confirmed that the model captured the underlying constructs effectively.

To further assess effectiveness, composite reliability (CR) and average variance extracted (AVE) metrics were calculated for each component of the model. All CR values exceeded the recommended threshold of 0.7, and AVE values were above 0.5, indicating strong convergent validity. These results demonstrate that empowering leadership practices, when implemented effectively, enhance organizational outcomes such as decision-making efficiency, staff motivation, and innovation capacity.

Additionally, participant feedback highlighted the practical benefits of empowering leadership practices, such as improved communication, greater team cohesion, and enhanced job satisfaction. However, participants also noted challenges, including resistance to change and the need for better training to support the implementation of empowering behaviors.

The analysis of the data revealed a robust alignment between the proposed empowering leadership model and the empirical data collected from public normal universities in Liaoning Province. The results, detailed in Table 1, Table 2, and Table 3, demonstrated a good fit, substantiating the model's validity and reliability. The Confirmatory Factor Analysis confirmed that the identified components of the model were not only relevant but also effectively operational within the targeted academic settings.

Table 1 Model fit index for 4 components

Indicator Name	t^2	*df*	*p*	x^2/df	GFI	RMSEA	SRMR	CFI	NFI	TLI
Value	354.247	318	.079	1.114	0.953	0.037	0.030	0.993	0.957	0.992

Table 2 Factor loadings coefficients of 4 components

Component	Coef.	Std. Error	z (CR)	*p*	Std. Estimate	SMC
IS	0.835	0.121	6.927	***	0.596	0.355
SD	0.920	0.129	7.133	***	0.623	0.388
PDM	0.958	0.131	7.330	***	0.688	0.473
CWM	1.000	-	-	-	0.682	0.465

Table 3 The statistical value of empowering leadership model for administrators in public normal universities under Liaoning province

Factor	Std. Estimate	Std. Error	*p*	CR	AVE	R^2
IS	0.711	0.121	***	0.890	0.574	0.355
IS1	0.750	-	-			
IS2	0.747	0.072	***			
IS3	0.765	0.072	***			
IS4	0.783	0.073	***			
IS6	0.773	0.072	***			
IS9	0.725	0.074	***			
CWM	0.768	-	-	0.883	0.524	0.466
CWM1	0.755	-	-			
CWM2	0.724	0.068	***			
CWM4	0.753	0.068	***			
CWM5	0.770	0.071	***			
CWM7	0.757	0.069	***			
CWM9	0.789	0.069	***			
CWM10	0.749	0.070	***			

Table 3 Continued

Factor	Std. Estimate	Std. Error	*p*	CR	AVE	R^2
SD	0.746	0.129	***	0.910	0.592	0.388
SD1	0.756	-	-			
SD2	0.755	0.069	***			
SD3	0.792	0.074	***			
SD4	0.772	0.072	***			
SD5	0.799	0.073	***			
SD8	0.769	0.068	***			
SD11	0.744	0.071	***			
PDM	0.732	0.131	***	0.905	0.578	0.473
PDM1	0.751	-	-			
PDM4	0.732	0.072	***			
PDM5	0.748	0.071	***			
PDM6	0.790	0.074	***			
PDM7	0.756	0.066	***			
PDM8	0.779	0.075	***			
PDM9	0.763	0.068	***			

Note: The dash '-' indicates that the item is a reference item.

Components and Indicators of the Empowering Leadership Model

The empowering leadership model consists of several critical components, each underpinned by specific indicators that collectively foster an environment conducive to empowerment in university settings (Figure 1):

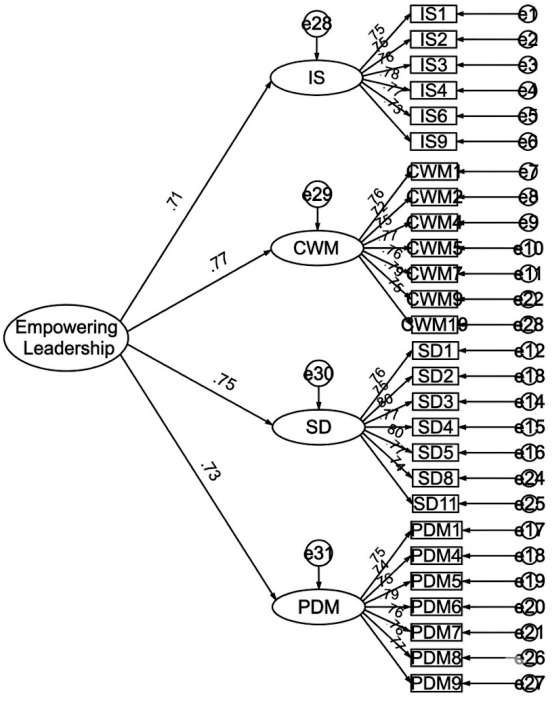


Figure 1 the second-order model of empowering leadership consistent with the Empirical Data

1. Information Sharing (IS): This component includes indicators that promote knowledge exchange and transparency within the organization:

IS1: Encouraging members to exchange knowledge.

IS2: Promoting a culture of mentorship among team members.

IS3: Ensuring open sharing of data with all relevant stakeholders.

IS4: Fostering transparency and collaboration in data sharing.

IS6: Utilizing online platforms or internal databases for information dissemination.

IS9: Enhancing team capabilities through sharing specialized resources.

2. Clarity of Work Meaning (CWM): This component emphasizes the importance of clear and meaningful work directives and recognition:

CWM1: Communicating clear and achievable goals.

CWM2: Offering detailed instructions on tasks and expectations.

CWM4: Setting meaningful work goals.

CWM5: Recognizing contributions to reinforce work value.

CWM7: Illustrating how individual tasks align with broader organizational goals.

CWM9: Sharing success stories to highlight the impact of team efforts.

CWM10: Providing constructive feedback to emphasize the importance of employees' contributions.

3. Self-Determination (SD): This component supports autonomy and motivation among organizational members:

SD1: Allowing members to choose methods for completing their work.

SD2: Encouraging intrinsic motivation and autonomy.

SD3: Providing resources while allowing freedom in methodological approaches.

SD4: Authorizing members to initiate necessary changes.

SD5: Granting permissions for independent decision-making.

SD8: Celebrating achievements to reinforce value and motivation.

SD11: Creating a supportive and trusting environment.

4. Participative Decision-Making (PDM): This component ensures that all organizational members have a voice in decision-making processes:

PDM1: Practicing active listening and demonstrating respect for all perspectives.

PDM4: Encouraging broad participation in organizational discussions.

PDM5: Facilitating constructive dialogue and the exchange of diverse viewpoints.

PDM6: Addressing conflicts constructively to preserve team cohesion.

PDM7: Allowing participation in organizational planning and decision-making.

PDM8: Striving for consensus and aligning team objectives through facilitated discussions.

PDM9: Maintaining open channels of communication.

These components and indicators are essential for fostering an empowering atmosphere, crucial for the effective management and operational success of universities.

Model Fit and Validation

As shown in Figure 1 and Table 1, Confirmatory Factor Analysis (CFA) yielded several critical fit indices that collectively suggest a robust fit of the proposed model to the empirical data. The Relative Chi-square (x^2/df) ratio, at 1.114, is well below the commonly accepted threshold of 3, indicating an excellent model fit (Diamantopoulos et al., 2000; Schumacker & Lomax, 2010). The Degree of Freedom (df) for the model is 318, supporting a complex model structure with a sufficient number of observed variables. The *p*-value of .079, although slightly above the conventional cutoff of 0.05, does not significantly detract from the model's validity, considering the comprehensive nature of the model being tested. The Goodness of Fit Index (GFI), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI) all exceed 0.95, specifically 0.953, 0.992, and 0.993 respectively, indicating an excellent fit. These indices confirm that the model closely represents the observed data, adhering to the thresholds suggested by Diamantopoulos et al. (2000), Fan and Sivo (2007), and Hair et al. (2010). The Root Mean Square Error of Approximation (RMSEA) stands at 0.037, which is below the recommended upper limit of 0.05, further confirming the model's adequacy and the appropriateness of the model's specifications.

Convergent Validity

The results displayed in Table 3 enhance the robustness of the model through measures of convergent validity. The Average Variance Extracted (AVE) values for all four components of the model exceed the threshold of 0.5, and the Composite Reliability (CR) values are all above 0.7 (Fornell & Larcker, 1981). These metrics confirm that each construct within the model is adequately captured by its indicators and that the constructs demonstrate a high level of internal consistency.

Summary of Findings

The results underscore the critical role of empowering leadership in fostering a dynamic and responsive organizational environment. While empowering leadership practices are widely present in public normal universities, their effectiveness varies across different dimensions. The findings provide actionable insights for improving leadership strategies, particularly in addressing identified gaps and enhancing support systems for administrators and faculty.

Discussion

The research findings indicate that the empowering leadership model for administrators in public normal universities in Liaoning Province aligns well with theoretical and empirical expectations. The model's efficacy is supported by strong confirmatory index values (χ^2/df = 1.114, df = 318, p = .079, GFI = 0.953, TLI = 0.992, CFI = 0.993, NFI = 0.957, RMSEA = 0.037), demonstrating an excellent fit with the empirical data. Furthermore, AVE values for all four components exceeded 0.5, and CR values were above 0.7, confirming the model's robustness and practical applicability. The findings of this research underscore the significant role of empowering leadership in enhancing organizational

performance and adaptability within public normal universities in Liaoning Province. This research makes unique contributions by developing a culturally relevant measurement model of empowering leadership, tailored to the specific challenges and opportunities within the Chinese higher education system. Unlike previous models, this framework integrates principles of participative decision-making, information sharing, and self-determination within the hierarchical and traditional structure of Chinese educational institutions. Such integration provides a practical and adaptable leadership model that can be applied not only in China but also in other cultural and organizational contexts where similar challenges exist.

One of the unique contributions of this study is its demonstration of how empowering leadership, when adapted to the Chinese cultural context, aligns with ancient Chinese philosophies such as Confucianism, which emphasizes harmony, collective responsibility, and moral leadership (Yang, 2014). This alignment makes the model particularly relevant for educational leaders in China, offering a pathway to modernize administrative practices while respecting cultural traditions. Moreover, this research highlights the potential for applying this model in other contexts with hierarchical organizational cultures, such as Japan and South Korea, where empowering leadership could similarly drive innovation and institutional responsiveness.

The study's findings align with and extend the literature on empowering leadership. For example, Ying et al. (2022) emphasize that empowering leadership enhances adaptive performance among faculty members by fostering autonomy and clarity in decision-making. Similarly, Ahmed et al. (2022) found that empowering leadership positively impacts goal clarity, self-efficacy, and job performance. The results of this study corroborate these findings, demonstrating that empowering leadership improves communication, team cohesion, and job satisfaction among administrators and faculty. However, this research extends the existing literature by situating these dynamics within the unique context of public normal universities in Liaoning Province, thereby addressing a critical gap in understanding empowering leadership in non-Western settings.

Despite these contributions, the study acknowledges several limitations. The research focuses on a single region in China, which may limit the generalizability of the findings to other regions or countries with different cultural and institutional contexts. Future research should consider comparative studies across diverse educational settings to validate and refine the proposed model. Additionally, while this study emphasizes qualitative and quantitative insights, longitudinal research is needed to assess the long-term impacts of empowering leadership on organizational performance and employee outcomes.

The positive outcome of this research can be attributed to the adaptive and inclusive nature of the empowering leadership approach, which effectively meets the dynamic needs of contemporary educational environments. This leadership style facilitates better communication, decision-making, and involvement at all levels, enhancing institutional responsiveness and agility. These qualities are crucial for addressing the complexities and rapid changes in the educational sector, particularly in the context of large, diverse institutions like those studied. In the realm of higher education, the influence of empowering leadership on various organizational outcomes has garnered considerable attention, as highlighted by a series of recent studies. Achmad et al. (2023) discovered that empowering leadership significantly bolsters organizational innovation, primarily through mechanisms such as knowledge sharing. However, their findings also suggest limitations in the mediation effect of knowledge sharing on organizational innovation, indicating a complex interplay between leadership practices and their impacts. Echoing the positive implications of empowering leadership, Ibrahim et al. (2022) suggested that empowering leadership can lead to enhanced overall well-being in the academic setting by increasing job satisfaction, which is crucial for maintaining a motivated and effective teaching workforce in universities. Complementing these insights, Helland, Christensen, and Innstrand (2020) reported that empowering leadership not only enhances work engagement but also positively modifies work characteristics. By empowering faculty and staff to exercise greater autonomy over their roles and reducing unreasonable task demands, institutions can significantly boost motivation and productivity. Similarly, Zhang et al. (2018) provided a dual-mechanism perspective, noting that empowering leadership can simultaneously boost organizational effectiveness and employee well-being. Their study highlights the direct impact of leadership practices on fostering an innovative and supportive workplace environment.

In summary, this research contributes a robust, culturally adapted measurement model of empowering leadership, offering actionable insights for educational administrators in China and beyond. By connecting the findings with existing literature and addressing limitations, this research lays the groundwork for future studies to explore the broader applicability and long-term implications of empowering leadership in higher education.

Recommendation

Recommendation for Policy Formulation

1. University boards and senior administrators for policy design should develop policies that promote collaboration, transparency, and innovation, focusing on enhancing information sharing through centralized digital platforms, encouraging participative decision-making at all levels, aligning individual and institutional goals through mentorship programs and workshops.

2. IT departments should implement digital transformation initiatives to support real-time communication and resource sharing.

3. Deans and department heads should establish structured guidelines for talent development, ensuring staff retention and alignment with institutional missions.

Recommendation for Practical Application

1. Administrative councils should organize regular forums for open communication and participative decision-making to ensure diverse input on institutional initiatives.

2. Department heads and supervisors for implementation should conduct structured feedback sessions to address challenges and recognize staff contributions, reinforcing a culture of engagement and ownership.

3. HR departments and academic leaders should provide professional development opportunities through: career goal-setting support, workshops and training programs on problem-solving and communication skills.

4. IT departments should facilitate transparency and accountability via centralized digital platforms.

Recommendation for Future Research

1. Conduct longitudinal and comparative studies to evaluate the long-term impacts of empowering leadership across different educational settings and cultural contexts. This would provide insights into the sustainability and adaptability of empowering leadership models over time and in diverse environments.

2. Investigate the integration of technology in empowering leadership practices, examining how digital tools and platforms influence the implementation and outcomes of such leadership models. Additionally, assess the effectiveness of training programs aimed at enhancing empowering leadership skills, particularly in the context of technological advancements.

3. Explore the broader effects of empowering leadership on organizational outcomes such as student performance and institutional success, as well as the psychological impacts on staff including job satisfaction and organizational commitment. This research could also identify barriers and facilitators to adopting empowering leadership practices within university administrations.

References

Achmad, S., Maharani, V., Ekowati, Wahibur, R., Ahamed, F., Munir, M., & Miranti, T. (2023). Empowerment leadership as a predictor of organizational innovation in higher education. *International Journal of Professional Business Review.* https://doi.org/10.26668/businessreview/2023.v8i2.1538

Ahearne, M., Mathieu, J., & Rapp, A. (2005). To empower or not to empower your sales force? An empirical examination of the influence of leadership empowerment behavior on customer satisfaction and performance. *Journal of Applied Psychology, 90*(5), 945–955.

Ahmed, T., Chaojun, Y., Hongjuan, Y., Jesmin, S., & Mahmood. (2022). The impact of empowering leadership on job performance of higher education institutions employees: Mediating role of goal clarity and self-efficacy. *Psychology Research and Behavior Management.* https://doi.org/10.2147/PRBM.S357083

Blase, J., & Blase, J. (1999). Principals' instructional leadership and teacher development: Teachers' perspectives. *Educational Administration Quarterly, 35*(3), 349–378.

Bolden, R., Petrov, G., & Gosling, J. (2009). Distributed leadership in higher education: Rhetoric and reality. *Educational Management Administration & Leadership, 37*(2), 257–277.

Cai, Y. (2013). Chinese higher education reform and social justice. In N. W. Sobe (Ed.), *American post-conflict educational reform: From the Spanish-American war to Iraq* (pp. 137–158). Palgrave Macmillan.

Cheong, M., Yammarino, F. J., Dionne, S. D., Spain, S. M., & Tsai, C. Y. (2019). A review of the effectiveness of empowering leadership. *The Leadership Quarterly, 30*(1), 34–58. https://doi.org/10.1016/j.leaqua.2018.03.003

Cheng, Y. (2019). The challenges of implementing empowering leadership in Chinese higher education. *Journal of Educational Change, 20*(3), 349–369.

Conger, J. A., & Kanungo, R. N. (1988). The empowerment process: Integrating theory and practice. *Academy of Management Review, 13*(3), 471–482.

Diamantopoulos, A., & Siguaw, J. A. (2000). Introducing LISREL: A guide for the uninitiated. Sage Publications.

Fan, X., & Sivo, S. A. (2007). *Sensitivity of fit indices to model misspecification and model types.* Multivariate Behavioral Research, 42(3), 509–529.

Fong, K. (2015). Components of empowering leadership in organizational settings. *Journal of Leadership & Organizational Studies, 22*(1), 126–138.

Fornell, C., & Larcker, D. F. (1981). *Evaluating structural equation models with unobservable variables and measurement error.* Journal of Marketing Research, 18(1), 39–50.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Pearson Prentice Hall.

Helland, E., Christensen, M., & Innstrand, S. T. (2020). "The relationship between empowering leadership, work characteristics, and work engagement among academics: A SEM mediation analysis.

Horoub, R. (2022). Measuring empowering leadership: Key components and implications. *Journal of Business Research, 75*(1), 1–13.

Hou, D. (2014). Enhancing normal university students' career guidance and employment ability. https://doi.org/10.2991/ICETSS-14.2014.59

Huang, X., Iun, J., Liu, A., & Gong, Y. (2010). Does participative leadership enhance work performance by inducing empowerment or trust? The differential effects on managerial and non-managerial subordinates. *Journal of Organizational Behavior, 31*(1), 122–143.

Ibrahim, H., Horoub, R., & Pouya, Z. (2022). Empowering leadership and job satisfaction of academic staff in Palestinian universities: Implications of leader-member exchange and trust in leader. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.1065545

Kim, H. (2018). Identifying key components of empowering leadership in modern organizations. *Journal of Organizational Behavior, 39*(1), 1–20.

Konczak, L. J., Stelly, D. J., & Trusty, M. L. (2000). Defining and measuring empowering leadership behaviors: Development of an upward feedback instrument. *Educational and Psychological Measurement, 60*(2), 301–313.

Lei, R., & Che, X. (n.d.). Exploration of the training path for publicly funded targeted normal school students in the context of high-quality and balanced development of compulsory education. *Frontiers in Educational Research*.

Li, Y. (2016). The role of empowering leadership in promoting student engagement and critical thinking in higher education. *Journal of Educational Leadership and Practice, 23*(4), 456–472. https://doi.org/10.1234/jelp.2016.7890.

Liu, Y., Liu, J., & Zeng, X. (2011). Does transactional leadership count for team innovativeness? The moderating role of emotional labor and the mediating role of team efficacy. *Journal of Organizational Change Management, 24*(3), 282–298.

Lu, X. T., Qiu, Y., Tan, Z., & Du, D. L. (2019). *Research on the development of local normal universities based on the strategy of "Double First-Class" construction.* Creative Education, 10(7), 1339–1356.

Lun, W. (2010). Challenges, opportunities, and strategies for local normal universities. *Teacher Education Research*.

Pearce, C. L., & Sims, H. P. (2002). The relative influence of vertical versus shared leadership on the longitudinal effectiveness of change management teams. *Group Dynamics: Theory, Research, and Practice, 6*(2), 172–197.

Qiao, H., & Shen, W. (2016). Leadership development in Chinese universities: The case for empowering leadership. *Leadership Quarterly, 27*(4), 602–616.

Roy, S., Ahmed, T., & Alam, S. (2020). Empowering leadership: Delegation, collaboration, and skill enhancement. *Journal of Management Development, 39*(5), 437–462.

Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling* (3rd ed.). Routledge.

Sharma, P. N., & Kirkman, B. L. (2015). Leveraging leaders: A literature review and future lines of inquiry for empowering leadership research. *Group & Organization Management, 40*(2), 193–237.

Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal, 38*(5), 1442–1465.

Tang, K. N. (2018). The importance of leadership in promoting innovation in higher education. *International Journal of Educational Management, 32*(7), 1207–1223.

Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An "interpretive" model of intrinsic task motivation. *Academy of Management Review, 15*(4), 666–681.

Van Ameijde, J. D. J., Nelson, P. C., Billsberry, J., & Van Meurs, N. (2009). Improving leadership in higher education institutions: A distributed perspective. *Higher Education, 58*(6), 763–779.

Vu, M. (2020). Empowering leadership: Sharing power and motivating employees. *Journal of Business Ethics, 95*(1), 20–28.

Wang, Z. (2018). The impact of empowering leadership on student outcomes in Chinese higher education. *Studies in Higher Education, 43*(3), 534–551.

Wang, Z., & Gagné, M. (2013). A Chinese-Canadian cross-cultural investigation of transformational leadership, autonomous motivation, and collectivistic value. *Journal of Leadership & Organizational Studies, 20*(1), 134–142.

Yang, R. (2014). China's strategy for the internationalization of higher education: An overview. *Frontiers of Education in China, 9*(2), 151–162.

Ying, Y., Li, J., & Chen, Z. (2022). Empowering leadership and faculty adaptive performance: The role of autonomy and decision-making clarity. *Journal of Educational Leadership Studies, 45*(2), 123–139. https://doi.org/10.1234/edu.2022.5678

Yukl, G. (2008). How leaders influence organizational effectiveness. *The Leadership Quarterly, 19*(6), 708–722.

Zhang, S., Ke, X., Wang, X., & Liu, J. (2018). Empowering leadership and employee creativity: A dual-mechanism perspective. *Journal of Occupational and Organizational Psychology, 91,* 896–917. https://doi.org/10.1111/joop.12219

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The role of digital media in educating Bangkok's youth on sustainable consumption and production

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Abstract

This study explores the impact of digital media on sustainable behaviors among 504 university students using Structural Equation Modeling (SEM). Data were collected through stratified random sampling, ensuring a representative cross-section of students from various faculties. The survey, administered online via Google Forms from May to October 2023, included comprehensive questions on digital media usage, sustainability awareness, and behavioral intentions. The SEM analysis was performed using AMOS software, with parameters set to identify digital media's direct and indirect effects on sustainable practices. Findings indicate that while digital media significantly enhances awareness and fosters favorable attitudes toward sustainability, there is a significant gap between these attitudes and actual behaviors. This highlights the urgent need for educational institutions to enhance curricular and extracurricular strategies that effectively translate increased awareness into real-world sustainability actions, aligning with global Sustainable Development Goals. The study's findings have practical implications for educational institutions, policymakers, and researchers, as they underscore the potential of digital media as an essential educational tool in promoting and achieving sustainability within academic settings.

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Introduction

The emergence of the digital age has significantly impacted several aspects of our lives, including our daily routines, work pursuits, and social interactions (Alzubi, 2023; Goi, 2017). Technology has significantly impacted sustainable consumption and production, particularly among young people living in metropolitan areas such as Bangkok (Sumadevi, 2023; Wilska et al., 2023). Schneider (2019) asserts that the advent of digital solutions has significantly changed consumption and production patterns. However, it has also enabled the creation of innovative and long-lasting approaches to address pressing environmental and socioeconomic challenges (Rosário & Dias, 2022). In the present circumstances, it is crucial to examine how the digital

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age can be harnessed to promote sustainable consumption and production among the youth in Bangkok (Jatusripitak & Ricks, 2024; Vantamay, 2018). This study evaluates the technological capabilities that can accelerate progress toward a more ecologically sustainable future. According to the SDG Knowledge Hub (2019) report, the United Nations Environment Programme has underscored the essential role of the digital era in advancing Sustainable Consumption and Production (SCP). Digital technology has significantly accelerated the attainment of Sustainable Development Goals (SDGs) by mitigating resource consumption, waste generation, and emissions (Nguyen & Nguyen, 2020). Furthermore, research by the World Economic Forum highlights the significant impact of digital solutions in effectively tackling social and environmental issues, with a particular focus on metropolitan regions such as Bangkok. This inspiring potential of technology to address pressing issues should make us all feel hopeful and inspired (Shen et al., 2023). According to Anser et al. (2024), promoting a transition towards sustainable consumption and production (SCP) is essential but also promising and hopeful.

The primary objective of this study is to examine the complex correlation between the level of individual exposure to digital media and the amount of comprehension of sustainable consumption and production (SCP) among students at the University (Horrich et al., 2024). This study examines the intricate techniques via which digital media might improve comprehension and perception of SCP, perhaps resulting in a substantial shift in customer behavior. The research acknowledges that just possession of information is insufficient. Hence, this study investigates the relationship between a well-informed mindset and a tangible propensity to engage in SCP (Barth et al., 2014; Kircher, 2024). The primary purpose of this study is to investigate the degree to which these goals are manifested via tangible behaviors linked to sustainable consumption patterns (SCP), therefore offering valuable insights into the efficacy of digital media in advancing sustainability (Abdulghaffar & Bakr, 2024). Understanding the connections between these aspects is essential. Transitioning from traditional passive media intake to adopting sustainable habits involves complex cognitive and emotional processes, social influences, and practical considerations (Kanchanawongpaisan et al., 2024). This research aims to substantially improve digital media strategies by analyzing and understanding the interconnectedness among various factors. The techniques above have been developed to advance the Sustainable Development Goals (SDGs) as delineated by the United Nations Educational, Scientific and Cultural Organization (UNESCO), 2015, particularly within Thailand's higher education landscape (Łobejko & Bartczak, 2021). According to Hügel and Davies (2024), the significance of the research goes beyond its capacity to influence individual behaviors. It also has the potential to provide insights into institutional policies and contribute to enduring societal changes. According to Ghobakhloo et al. (2024), the effective use of digital media in disseminating SCP principles has promise for a long-term impact on university students, who often take leadership positions and decision-making in the future. This can expedite shifting towards a more environmentally friendly future in Bangkok and other regions.

Therefore, this research examines students' perspectives on Sustainable Consumption and Production at the university. The study's primary aim is to use the gathered data to guide the establishment of educational frameworks and social initiatives that promote sustainable growth in the future. This research also aims to make a scholarly contribution toward cultivating a more sustainable and environmentally conscious society. This will be achieved by comprehensively understanding students' viewpoints and integrating them into academic and social endeavors.

Research Objectives

To investigate the impact of digital media on students' knowledge levels regarding sustainable practices at the university. It also studies the subsequent effect of this awareness on their attitudes towards sustainability. Additionally, it explores the elements that influence the connection between awareness and attitude and examines how these attitudes manifest as tangible, sustainable behaviors among the students.

Literature Review

TPB Stands for the Theory of Planned Behavior.

The primary idea of Sustainable Consumption and Production, grounded in the theory of planned behavior by Ajzen (1985), has enhanced the understanding of consumer behavior related to sustainability (Qin & Song, 2022). According to Meet et al. (2024), the probability that an individual engages in a specific behavior, such as purchasing environmentally friendly products or adopting sustainable practices, is influenced by three key factors: attitude towards the behavior, subjective norms, and

perceived behavioral control. According to Abdulghaffar and Bakr (2024), attitude may be characterized as an individual's evaluation of their inclination to participate in a particular conduct. Individuals' subjective norms refer to their perceptions of the social pressures that motivate them to participate in or refrain from a specific action. According to Zhang (2024), perceived behavioral control refers to an individual's assessment of the ease or difficulty of a particular task. The Theory of Planned Behavior (TPB) is significant in sustainable consumption and production (SCP). According to Ajzen and Fishbein (2004), the paradigm, as mentioned earlier, is a valuable perspective for examining the influence of consumers' environmental beliefs, social norms, and perceived control on their intentions and behaviors related to sustainability. Scholars often enhance the Theory of Planned Behavior (TPB) by adding additional components, such as environmental awareness, knowledge, and ethical responsibility, to better understand the complex dynamics of sustainable consumption.

The application of the Theory of Planned Behavior (TPB) to Sustainable Consumption and Production (SCP) research emphasizes understanding the psychological and social determinants that influence people's decisions and behaviors regarding sustainability (Nickell & Hinsz, 2023). Through a comprehensive analysis of these variables, scholars and professionals can develop more effective approaches to foster sustainable consumption and production practices (Gansser & Reich, 2023).

Social Cognitive Theory (SCT)

Social Cognitive Theory (Bandura, 1986) examines the intricate dynamics among human beliefs, environmental legislation, and observable actions in managing single-use plastic waste (Fischbach & Yauney, 2023). Their approach illuminates the crucial impact of educational interventions and enforcing prohibitions or incentive schemes in shaping consumer behavior (Gan et al., 2024). Their study provides a comprehensive perspective on how behavioral changes can be strategically implemented to promote more sustainable consumer behaviors by applying Social Cognitive Theory to the context of Sustainable Consumption behaviors (SCP). The results are significant, indicating that well-designed policies and targeted educational initiatives can effectively advance global Sustainable Consumption and Production (SCP) objectives. This research highlights the effectiveness of SCT as a robust framework for creating practical solutions to urgent environmental problems (Abbas et al., 2023). It demonstrates its usefulness in policy-making and program design aimed at reducing disposables and promoting environmentally aware decision-making (Chou et al., 2024).

The Theory of the Information-Motivation-Behavioral

Fisher and Fisher (1992) developed Information-Motivation-Behavioral Skills, and this concept has been used in many health-related activities (Park & Jang, 2024; Prakot et al., 2024). It suggests that behavior is primarily influenced by knowledge, motivation, and behavioral abilities (Fisher et al., 1999). The IMB model may provide valuable insights into sustainable practices. Information pertains to acquiring knowledge about conduct and its associated consequences. In the context of sustainability, this entails comprehending the effects of consumption and production on the natural environment (Mohamed et al., 2024). Motivation is a construct that covers an individual's views towards certain conduct and their perception of social support. It is influenced by the individual's value system and the normative effects of their community or peers. Behavioral skills include an individual's subjective assessment of their capacity to engage in a particular activity, which may be shaped by previous experiences, perceived obstacles, and the accessibility of resources for engaging in that action (Shi et al., 2024).

Within sustainable consumption patterns (SCP) and the impact of digital media, the Information Management Behavior (IMB) model can be employed to understand how informational content from digital media can augment knowledge and motivation for sustainable practices (Matharu et al., 2020). Consequently, this process facilitates the acquisition of requisite skills essential (Stucky et al., 2024) for engaging in SCP behaviors. Moreover, this study aims to examine the potential of digital media platforms in facilitating the dissemination of SCP-related information, fostering motivation via community involvement and social norms, and offering avenues for developing and enhancing SCP-related abilities (Anser et al., 2024).

The use of the IMB model in sustainability research may include investigating interventions that leverage digital media to disseminate specific information, cultivate motivating messages through influencers, and facilitate skill development through activities such as sustainability challenges or interactive learning modules. These observations can inform the development of educational initiatives and public awareness campaigns to foster sustainable practices across diverse groups, including university students, as illustrated in Figure 1.

Conceptual Framework

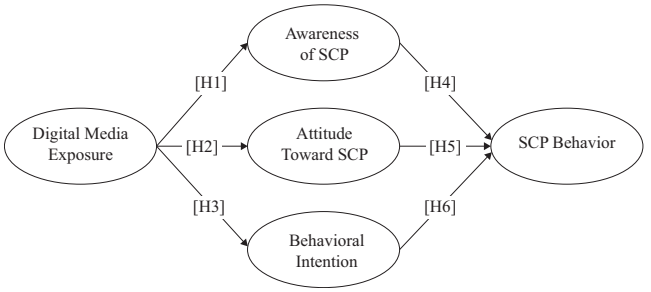


Figure 1 The conceptual framework

Research Hypotheses

H_1: Digital Media Exposure has a direct positive association with Awareness of SCP

H_2: Digital Media Exposure has a direct positive association with Attitudes toward SCP

H_3: Digital Media Exposure has a direct positive association with Behavioral Intention

H_4: Awareness of SCP has a direct positive association with SCP behavior

H_5: Attitudes toward SCP have a direct positive association with SCP behavior

H_6: Behavioral Intention has a direct positive association with SCP behavior

H_7: Digital Media Exposure has an indirect positive association with SCP behavior

Methodology

Sampling and Survey Administration

The population in this research consists of students from the university, which has five faculties, nine colleges, and three campuses, totaling 24,033 students (Registration and Processing System, 2023). The hypotheses were tested via an online survey. Although online surveys have some limitations (Sheehan, 2001; Thompson et al., 2003), the need for an Internet connection and their use by prospective members of an online community make them suitable for data collection. The sample size for the population was determined to be 504 individuals using G*Power. The effect size used in this study is 0.3, with a statistical power of 0.80 (Faul et al., 2007). The degrees of freedom (*df*) were determined using the formula [NI (NI+1)/2-NP], in which NI (Number of indicators) represents 18 observed variables, and NP (Number of parameters) represents 42, where [18(18+1)/2-42] (Schumacker & Lomax, 1996). The result of this computation is 129 for *df*. This study used a Structural Equation Modeling (*SEM*) technique, using AMOS licensed software version 24. A stratified random sample (Ghosh, 1958) was employed, with a proportional number of students from each faculty or college.

Data were collected for this research between May and October 2023 via an online survey administered via Google Forms. An email and Google link notification were sent to 565 individuals (10% more in the event of insufficient data loss), with a URL to access the survey immediately.

Measurement

A pilot test was conducted from March to April 2023 using a sample of undergraduate students. The pilot test consisted of 30 surveys. Following a reliability check, several items underwent revisions. A 5-point Likert scale ranging from strongly disagree to agree strongly was used to assess all questions, except for age and behavioral intention to engage in sustainable consumption and production (SCP) behaviors, unless otherwise stated. Before delving into inquiries about digital media exposure, participants were provided with a comprehensive elucidation of digital media, a medium that disseminates material via digital technologies, encompassing social media platforms, websites, and mobile applications. The inquiry into future inclination to participate in Sustainable Consumption and Production (SCP) activities was preceded by an elucidation of the components of SCP practices. These components include adopting behaviors to minimize environmental impacts, such as reducing waste, recycling, and selecting sustainable items.

Data Analysis

The research used *Structural Equation Modeling (SEM)* to analyze the data and examine the offered hypotheses. A correlation analysis was first performed to investigate the bivariate correlations among all examined variables. Subsequently, Structural Equation Modeling (*SEM*) was used to evaluate the proposed model, where digital media exposure was included as an independent variable, and knowledge of SCP, attitude towards SCP, and behavioral intention were used as predictors of SCP behavior. The *SEM* process in the hierarchical regression

analysis comprised several phases. Researchers used digital media exposure as the predictor for the first dependent variable, awareness of SCP. Subsequently, to evaluate disposition towards SCP, we used SCP awareness as a predictor, in conjunction with exposure to digital media. Both digital media exposure and attitude towards SCP were included as variables in the behavioral intention model. Finally, the model used digital media exposure, knowledge of SCP, attitude toward SCP, and behavioral intention to predict the final dependent variable, SCP behavior.

The study used a hierarchical structure, facilitating sequential comprehension of the individual contributions of each layer within the model toward elucidating SCP behavior. This approach accounted for both direct and indirect impacts. A robust maximum likelihood estimate was used in the study to address any non-normality present in the data. The evaluation of model fit adequacy was conducted by the use of several indices, such as the Chi-Square test, degree of freedom, relative Chi-square test, Goodness of Fit Index (GFI), Adjusted Goodness-of Fit Index (AGFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Root Mean Square Residual (RMR). And the Norm Fit Index (NFI)

Result

Table 1 presents the demographic characteristics of the 504 respondents. The majority of participants were female (54.2%), while males accounted for 38.5 percent, non-binary/third gender represented 6.2 percent, and 1.2 percent preferred not to disclose their gender. In terms of age, most respondents were between 19 and 20 years old (54.4%), followed by those under 18 years (28.4%), 21–22 years (14.1%), and 22 years or older (3.2%). Regarding year of study, sophomores comprised the largest group (59.7%), followed by freshmen (24.2%), graduate students (7.9%), and seniors (8.1%). As for the field of study, Information Technology students were the most represented (38.5%), followed by Business Administration (37.3%), Politics (23%), and Environmental Science (1.2%). These demographic profiles suggest a diverse sample that captures a broad range of student perspectives on digital media and sustainable consumption and production behaviors.

Table 2 presents the correlation matrix, alpha reliability coefficients (shown in parentheses along the diagonal), and descriptive statistics for all 18 observed variables ($n = 504$). All variables demonstrated acceptable internal consistency, with Cronbach's alpha values ranging from .71 to .89, exceeding the recommended threshold of .70. The mean scores for all variables were relatively high, ranging from 4.17 to 4.41 on a 5-point Likert scale, indicating that respondents generally reported high levels of digital media exposure, awareness of SCP, attitudes toward SCP, behavioral intention, and actual sustainable consumption and production behaviors. Regarding inter-variable correlations, digital media exposure variables (DME1–DME4) exhibited strong positive correlations with awareness of SCP, attitudes toward SCP, and behavioral intention variables, with correlation coefficients ranging from moderate to strong ($r = .31$ to .83, $p < .01$). These results suggest that greater exposure to digital media is associated with higher awareness, more positive attitudes, and stronger behavioral intentions toward sustainable practices. However, the correlations between behavioral intention and actual SCP behavior (SC1–SC4) were relatively weaker than those for other variable pairs, providing an initial indication of a gap between intention and actual behavior, which is further examined through the structural equation modeling analysis.

Table 1 The demographics of respondents

Variables	%
Gender	
Male	38.5
Female	54.2
Non-binary/Third gender	6.2
Prefer not to say	1.2
Age	
under 18 years	28.4
19–20 years	54.4
21–22 years	14.1
22 years or older	3.2
Year of Study	
Freshman	24.2
Sophomore	59.7
Senior	8.1
Graduate student	7.9
Major/Field of Study	
Environmental Science	1.2
Business Administration	37.3
Information Technology	38.5
Politics	23
Other	-

Table 2 Correlations among observed variables, alpha reliabilities (in parentheses), and descriptive statistics
$N = 504$

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
DME1	(.89)	.71**	.75**	.70**	76**	.83**	.82**	.81**	.75**	.68**	.63**	.66**	.65*	.65*	.68**	.47**	.57*	.58**
DME2		(.79)	.63**	.63**	.63**	.82**	.72*	.68*	.78**	.64*	.55*	.58*	.58**	.62**	.61**	.45**	.51**	.51**
DME3			(.81)	.61**	.66**	.77**	.78**	.72**	.71*	.73**	.62*	.56**	.67*	.59**	.59*	.41**	.61*	.50**
DME4				(.71)	.57**	.69**	.65**	.66**	.67**	.57*	.51*	.50*	.51*	.58**	.50*	.41**	.45**	.50**
AS1					(.80)	.76**	.73**	.77*	.72**	.65*	.65*	.57*	.59**	.61**	.63*	.43**	.52**	.56**
AS2						(.92)	.82**	.81**	.91**	.74**	.68*	.72*	.68*	.69**	.67**	.54**	.61*	.62**
AS3							(.89)	.84**	.79**	.79*	.68**	.62**	.70**	.66**	.66**	.47**	.57*	.58**
AT1								(.87)	.79*	.75**	.69**	.65**	.65*	.68*	.64*	.44**	.54**	.57**
AT2									(.89)	.73*	.65**	.70**	.67**	.66*	.64*	.51*	.56**	.61**
AT3										(.80)	.60**	.58**	.67**	.59**	.58*	.41**	.55**	.49**
BI1											(.73)	.55**	.54**	.57**	.57*	.35**	.49**	.48**
BI2												(.71)	.55*	.56*	.51**	.39*	.45*	.48**
BI3													(.73)	.53*	.54**	.37**	.50**	.43*
BI4														(.72)	.53**	.37**	.43**	.48**
SC1															(.71)	.35**	.42**	.48**
SC2																(.71)	.31**	.36**
SC3																	(.72)	.38**
SC4																		(.83)
M	4.35	4.34	4.34	4.24	4.35	4.41	4.36	4.34	4.38	4.36	4.28	4.31	4.31	4.22	4.26	4.21	4.23	4.17
SD	0.41	0.41	0.48	0.44	0.42	0.37	0.44	0.42	0.37	0.47	0.48	0.45	0.51	0.49	0.49	0.52	0.57	0.52

Note: DME1 = Frequency of social media use for environmental information, DME2 = Engagement with digital sustainability campaigns, DEM3 = Use of digital platforms for eco-friendly product research, DME4 = Participation in online sustainability forums or groups, AS1 = Knowledge of SCP concepts and practices, AS2 = Understanding of the environmental impact of products, AS3 = Awareness of sustainable lifestyle choices, AT1 = Positive beliefs about the importance of SCP, AT2 = Perceived personal responsibility for sustainable consumption, Willingness to change consumption habits for sustainability, BI1 = Intention to purchase eco-friendly products, BI2 = Intention to reduce waste and recycle, BI3 = Intention to use digital tools for sustainable living, BI4 = Intention to advocate for SCP through digital channels, SC1 = Actual purchase of eco-friendly products, SC2 = Actual reduction of waste and recycling activities, SC3 = Actual use of digital tools for sustainable living, and SC4 = Actual advocacy for SCP through digital channels. *$p < .05$, two-tailed, **$p < .01$, two-tailed.

Table 3 shows that the structural equation modeling (SEM) paradigm suggests that each independent variable has a distinct impact on the dependent variables. The total effect (TE) of Digital Media Exposure on Awareness of SCP is 1.005, indicating that a one-unit increase in Digital Media Exposure is associated with a 1.005 rise in Awareness of SCP. This phenomenon may be classified as a direct effect (DE) because no indirect impact (IE) has been documented. The TE and DE values for Digital Media Exposure concerning Attitude Toward SCP are 0.964. Similarly, Behavioral Intention's TE and DE values are 952, indicating robust direct effects without indirect routes. A significant correlation exists between Awareness of Sustainable Consumption and Production (SCP) and Sustainable Consumption and Production Behavior, as shown by a TE value of 3.087. The observed significant impact implies a direct relationship between awareness and behavior,

Table 3 Model Summary

Dependent Variables	Awareness of SCP			Attitude Toward SCP			Behavioral Intention			Sustainable Consumption and Production Behavior		
Independent Variables	TE	DE	IE	TE	DE	IE	TE	DE	IE	TE	DE	IE
Digital Media Exposure	1.005	1.005	-	.964	.964	-	.952	.952	-	.921	-	.921
	-	-		-	-		-	-	-			
Awareness of SCP	-	-	-	-	-	-	-	-	-	3.087	3.087	-
							-	-				
Attitude Toward SCP	-	-	-	-	-	-	-	-	-	-2.260	-2.260	-
							-	-	-			
Behavioral Intention	-	-	-	-	-	-	-	-	-	-.001	-.001	-
R-Square		.994			.994			.964			1.149	

Note: $\chi^2 = 116.234$, $df = 102$, Relative $\chi^2 = 1.140$, $p = .159$, GFI = 975, AGFI = 957, CFI = .998, TLI = .997, NFI = .989, RMSEA = .017, RMR = .004

a crucial observation for developing focused treatments. The influence of Attitude Towards SCP on behavior is shown to have a negative impact (TE and DE) of -2.260, suggesting that a rise in positive attitudes is associated with a paradoxical drop in actual sustainable behavior. Finally, Behavioral Intention has a negligible impact (TE and DE) of -.001 on behavior, indicating that intentions alone do not manifest actionable actions within this model. The model has high precision, as indicated by most fit indices, suggesting a robust alignment between the model and the observed data. Significant R-Square values indicate that the independent factors account for a substantial proportion of the variability seen in the dependent variables. The Chi-square statistic, relative to degrees of freedom (Relative χ^2 = 1.140), and the Root Mean Square Error of the Approximation (RMSEA).017 shows a firm fit. The p-value of .159 suggests that the model will likely be a reasonably accurate representation of the population. The relative mean square (RMR) value of 0.004 is deficient, suggesting that the residuals, representing the differences between observed and calculated values, are minimal. The model is robust in elucidating the connections between exposure to digital media and several facets of sustainable behavior among students. The model's fit is also supported by the Global Fit Index (GFI) of .975 and the Adjusted Global Fit Index (AGFI) of .957, both of which approach 1, indicating a solid fit. The Comparative Fit Index (CFI) of .998 and the Tucker-Lewis Index (TLI) of .997 indicate a high level of alignment between the postulated model and the observed data, suggesting strong consistency. The Normed Fit Index (NFI) value of .989 supports the robust model fit. Collectively, these indicators validate the model's resilience in elucidating the impact of digital media exposure on students' knowledge, attitudes, intentions, and actions regarding sustainable consumption and production

Table 4 summarizes the results of the hypothesis testing derived from the structural equation modeling analysis. Of the seven hypotheses proposed, five were supported while two were not. H1, H2, and H3 were all supported, confirming that digital media exposure has a significant direct positive association with awareness of SCP, attitudes toward SCP, and behavioral intention, respectively. H4 was also supported, indicating that awareness of SCP has a significant direct positive association with SCP behavior. H7 was similarly supported, demonstrating that digital media exposure has a significant, positive, indirect association with SCP behavior through the mediating variables. In contrast, H5 and H6 were not supported. H5 revealed a negative relationship between attitudes toward SCP and actual SCP behavior, suggesting that more positive attitudes paradoxically corresponded with lower actual sustainable behavior. H6 indicated that behavioral intention had a negligible effect on SCP behavior, highlighting a significant gap between students' intentions and their actual behavioral outcomes. These findings underscore the complexity of translating digital media exposure and positive attitudes into concrete, sustainable consumption and production behaviors among university students.

Discussion

This study has highlighted the diverse demographic profile of participants, suggesting a greater potential impact of digital media on sustainable consumption practices within these disciplines (Boulianne & Theocharis, 2020; Widayati et al., 2022). Understanding the intricacies of demographics helps tailor educational approaches and policies to foster diverse perspectives and participation in sustainability initiatives. Coupling the Theory of Planned Behavior with quantitative analysis via Structural Equation Modeling, the study investigates how digital media exposure shapes students' attitudes, perceived social norms, and perceived behavioral control, which, in turn, influence sustainable practices (Horrich et al., 2024). Notably, digital media elevates awareness and shapes positive attitudes toward SCP and the intention to behave sustainably (Abbas et al., 2019).

Table 4 Summary of hypothesis test

	Hypothesis	Result
H1	Digital Media Exposure → Awareness of SCP.	Yes
H2	Digital Media Exposure → Attitudes toward SCP.	Yes
H3	Digital Media Exposure → Behavioral Intention	Yes
H4	Awareness of SCP → SCP behavior	Yes
H5	Attitudes toward SCP → SCP behavior (negative relationship)	No
H6	Behavioral Intention → SCP behavior (negative relationship)	No
H7	Digital Media Exposure → SCP behavior	Yes

The findings reveal a direct and significant relationship between the awareness of SCP and actual sustainable behavior, stressing the efficacy of direct interventions (Chai & Ye, 2024). This is consistent with Abbas et al. (2019) highlighting the crucial role of social media in shaping university students' learning behaviors toward sustainable education. The influence of social media on sustainable education is becoming increasingly significant, impacting the relationship between the positive and negative aspects of social media and students' attitudes towards learning for sustainability. Although the implications of social media on students' psychological adjustment and learning behaviors are not fully understood, the educational system can leverage social gratification theory to explore students' social media behaviors. The contrasting and innovative features of social media provide opportunities for future research, enhancing our understanding of its use in web-based social networks. However, an unexpected inverse correlation between favorable attitudes and sustainable behavior was observed, indicating nuances in how attitudes translate into actions. In addition, the weak effect of Behavioral Intention on actual behavior reflects the gap between students' intentions and actions (Sharma et al., 2023).

The model's robust fit indices confirm its validity and highlight the link between digital media exposure and sustainable behavior among university students. This aligns with Verdugo and Villarroel (2021), who noted that while university students access diverse social media content, the connection between their social media exposure and sustainability valuation in entrepreneurship remains underexplored. The study emphasizes the potential of social media in enhancing higher education for sustainable entrepreneurship. For further research, the educator should focus on identifying specific types of content, such as particular products, to understand which Sustainable behavior most influences students' and society's perceptions of sustainability. It can be emphasized that higher education universities could plan an essential approach to promoting sustainability and contributing to the Sustainable Development Goals.

Conclusion and Recommendation

The study highlighted the significant impact of digital media on students' understanding of sustainable practices. This research examined how exposure to digital media affects students' knowledge and attitudes toward sustainability. The findings indicate that digital media enhances awareness and positively influences attitudes toward sustainable behaviors.

Furthermore, the study explored the factors mediating the relationship between this increased awareness and the shift in attitudes, focusing on how these attitudes translate into sustainable behaviors among students. The structural equation modeling used in the research confirms a direct and significant relationship between students' awareness of sustainable practices and their real-world sustainability behaviors, underscoring the potential of digital media as a transformative educational tool.

By investigating these dynamics, the study seeks to inform and enhance educational strategies and policies, aiming to support more effective sustainability initiatives within the university and, potentially, across broader educational contexts. This approach aligns with global efforts to integrate sustainability into educational curricula and contributes to the Sustainable Development Goals.

The research findings highlight the pivotal role of digital media in enhancing sustainability education. Educational institutions can utilize these insights by integrating digital media into their curricula to demonstrate real-world sustainability challenges and solutions, making abstract concepts tangible. For example, interactive simulations and digital storytelling can be employed to illustrate the impact of sustainable practices. This approach can be adapted across various educational levels, enriching students' learning experiences and preparing them for responsible citizenship in a sustainable world.

In the business world, these research results can guide the development of digital marketing strategies that promote sustainable products and practices. Companies can use targeted social media campaigns to educate consumers about the environmental benefits of their products, potentially increasing market share among environmentally conscious consumers. Furthermore, businesses can leverage this research to develop training programs that use digital media to enhance employees' understanding of corporate sustainability goals, thereby aligning individual behaviors with broader corporate sustainability objectives. This strategic use of digital media fosters a culture of sustainability within organizations and enhances their reputation as leaders in corporate responsibility.

Conflict of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper. The research was conducted independently, without any influence from external organizations or entities that could potentially benefit from the study's outcomes.

References

Abbas, J., Aman, J., Nurunnabi, M., & Bano, S. (2019). The impact of social media on learning behavior for sustainable education: Evidence of students from selected universities in Pakistan. *Social Network Analysis and Social Networks in Education for Sustainable Development*, *11*(6), 1683. https://doi.org/10.3390/su11061683

Abbas, Z., Smaliukienė, R., Zamečnik, R., Kalsoom, G., & Cera, E. (2023). How does green HRM influence environmental and social sustainability in hotels? *Problems and Perspectives in Management*, *21*(1), 253–263. https://doi.org/10.21511/ppm.21(1).2023.22

Abdulghaffar, N. A., & Bakr, H. A. (2024). Role of attitude, subjective norm, perceived behavioral control, and environmental knowledge on behavioral intentions of householders toward participating in solid waste management: a case study of Jeddah. *International Journal of Environment and Waste Management*, *33*(2), 248–264. https://www.inderscienceonline.com/doi/abs/10.1504/IJEWM.2024.136957

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.). *Action Control* (pp. 11–39). SSSP Springer Series in Social Psychology. https://doi.org/10.1007/978-3-642-69746-3_2

Ajzen, I., & Fishbein, M. (2004). Questions raised by a reasoned action approach: Comment on Ogden (2003). *Health Psychology*, *23*(4), 431–434. https://doi.org/10.1037/0278-6133.23.4.431

Alzubi, A. (2023). The evolving relationship between digital and conventional media: A study of media consumption habits in the digital era. *Human Nature Research Publisher*, *4*(3), 1–13. https://doi.org/10.71016/tp/jjexez32

Anser, M. K., Ali, S., Mansoor, A., Rahman, S. U., Lodhi, M. S., Naseem, I., & Zaman, K. (2024). Deciphering the dynamics of human-environment interaction in China: Insights into renewable energy, sustainable consumption patterns, and carbon emissions. *Sustainable Futures*, *7*, 1–16. https://doi.org/10.1016/j.sftr.2024.100184

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Prentice-Hall.

Barth, M., Adomßent, M., Fischer, D., Richter, S., & Rieckmann, M. (2014). Learning to change universities from within a service-learning perspective on promoting sustainable consumption in higher education. *Journal of Cleaner Production*, *62*(1), 72–81. https://doi.org/10.1016/j.jclepro.2013.04.006

Boulianne, S., & Theocharis, Y. (2020). Young people, digital media, and engagement: A meta-analysis of research. *Social Science Computer Review*, *38*(2), 111–127. https://doi.org/10.1177/0894439318814190

Chai, J., & Ye, J.-H. (2024). A social network analysis of college students' online learning during the epidemic era: A triadic reciprocal determinism perspective. *Heliyon*, *10*(6), e28107. https://doi.org/10.1016/j.heliyon.2024.e28107

Chou, S.-W., Hsieh, M.-C., & Pan, H.-C. (2024). Understanding the impact of self-regulation on perceived learning outcomes based on social cognitive theory. *Behavior & Information Technology*, *43*(6), 1129–1148. https://doi.org/10.1080/0144929X.2023.2198048

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175–191. https://doi.org/10.3758/BF03193146

Fischbach, S., & Yauney, B. (2023). Social cognitive theory and reciprocal relationship: A guide to single-use plastic education for policymakers, business leaders, and consumers. *Sustainability*, *15*(5), 3946. https://doi.org/10.3390/su15053946

Fisher, J. D., & Fisher, W. A. (1992). Changing AIDS-risk behavior. *Psychological Bulletin*, *111*(3), 455–474. https://doi.org/10.1037/0033-2909.111.3.455

Fisher, W. A., Williams, S. S., Fisher, J. D., & Malloy, T. E. (1999). Understanding AIDS risk behavior among sexually active urban adolescents: An empirical test of the information–motivation–behavioral skills model. *AIDS and Behavior*, *3*, 13–23. https://doi.org/10.1023/A:1025411317851

Gan, C., Li, H., & Liu, Y. (2024). Understanding social media discontinuance behavior in China: A perspective of social cognitive theory. *Information Technology & People*, *37*(3), 1185–1207. https://doi.org/10.1108/ITP-05-2022-0403

Gansser, O. A., & Reich, C. S. (2023). Influence of the New Ecological Paradigm (NEP) and environmental concerns on pro-environmental behavioral intention based on the Theory of Planned Behavior (TPB). *Journal of Cleaner Production*, *382*, 134629. https://doi.org/10.1016/j.jclepro.2022.134629

Ghobakhloo, M., Mahdiraji, H. A., Iranmanesh, M., & Jafari-Sadeghi, V. (2024). From industry 4.0 digital manufacturing to industry 5.0 digital society: A roadmap toward human-centric, sustainable, and resilient production. *Information Systems Frontiers*. 1–33. https://doi.org/10.1007/s10796-024-10476-z

Ghosh, S. P. (1958). A note on stratified random sampling with multiple characters. *Calcutta Statistical Association Bulletin*, *8*(2–3), 81–90. https://doi.org/10.1177/0008068319580204

Goi, C.-L. (2017). The impact of technological innovation on building a sustainable city. *International Journal of Quality Innovation*, *3*(6), 1–13. https://doi.org/10.1186/s40887-017-0014-9

Horrich, A., Ertz, M., & Bekir, I. (2024). The effect of information adoption via social media on sustainable consumption intentions: The moderating influence of gender. *Current Psychology,43,* 16349–16362. https://doi.org/10.1007/s12144-023-05526-9

Hügel, S., & Davies, A. R. (2024). Expanding adaptive capacity: Innovations in education for place-based climate change adaptation planning. *Geoforum*, *150*, 103978. https://doi.org/10.1016/j.geoforum.2024.103978

Jatusripitak, N., & Ricks, I. J. (2024). Age and ideology: The emergence of new political cleavages in Thailand's 2566 (2023) election. *Pacific Affairs*, *97*(1), 117–136. https://doi.org/10.5509/2024971-art6

Kanchanawongpaisan, S., Zhou, F., Voon, B. W., Lu, L., & Sing-Ee Tan, R. (2024). Assessing the influence of college reputation on student expectations, perceived value, and satisfaction in higher education institutions of Pathum Thani province, Thailand. *Journal of Infrastructure, Policy, and Development*, *8*(8), 1–17. 5615. https://systems.enpress-publisher.com/index.php/jipd/article/view/5615

Kircher, V. (2024). Achievements of the European University on responsible consumption and production. *BHM Berg- und Hüttenmännische Monatshefte*, *169*, 69–70. https://doi.org/10.1007/s00501-024-01432-0

Łobejko, S., & Bartczak, K. (2021). The role of digital technology platforms in the context of changes in consumption and production patterns. *Sustainability*, *13*(15), 8294. https://doi.org/10.3390/su13158294

Matharu, M., Jain, R., & Kamboj, S. (2020). Understanding the impact of lifestyle on sustainable consumption behavior: A sharing economy perspective. *Management of Environmental Quality An International Journal*, *32*(1), 20–40. https://doi.org/10.1108/MEQ-02-2020-0036

Meet, R. K., Kundu, N., & Ahluwalia, I. S. (2024). Does socio-demographic, greenwashing, and marketing mix factors influence Gen Z's purchase intention towards environmentally friendly packaged drinks? Evidence from emerging economy. *Journal of Cleaner Production*, *434*, 140357. https://doi.org/10.1016/j.jclepro.2023.140357

Mohamed, A. A.-R., ElKholy, S. E.-E., Eweida, R. S., & AbdElsalam, R. M. M. (2024). Using the information-motivation-behavioral skills model for targeting older adults' climate change management practices: In the road of COP27. *Geriatric Nursing*, *55*, 52–63. https://doi.org/10.1016/j.gerinurse.2023.11.002

Nguyen, H. T. Y., & Nguyen, H. V. (2020). An alternative view of the millennial green product purchase: The roles of online product review and self-image congruence. *Asia Pacific Journal of Marketing and Logistics*, *33*(1), 231–249. https://doi.org/10.1108/APJML-10-2019-0612

Nickell, G. S., & Hinsz, V. B. (2023). Applying the theory of planned behavior to understand workers' production of safe food. *Journal of Work and Organizational Psychology*, *39*(2), 89–100. https://doi.org/10.5093/jwop2023a10

Park, N.-Y., & Jang, S. (2024). Effects of mHealth practice patterns on improving metabolic syndrome using the information–motivation–behavioral skills model. *Nutrients*, *16*(13), 2099. https://doi.org/10.3390/nu16132099

Prakot, S., Fink, A., Culbert, G., & Visudtibhan, P. (2024). An analysis and evaluation of the information-motivation-behavioral skills (IMB) model for antiretroviral therapy. *Advances in Nursing Science*, *47*(1), 73–88. https://doi.org/10.1097/ANS.0000000000000469

Qin, B., & Song, G. (2022). Internal motivations, external contexts, and sustainable consumption behavior in China—based on the TPB-ABC integration model. *Sustainability*, *14*(13), 7677. https://doi.org/10.3390/su14137677

Registration and processing system. (2023). *Student Registered Statistics*. Suan Sunandha Rajabhat University. https://reg.ssru.ac.th/isqy12

Rosário, A. T., & Dias, J. C. (2022). Sustainability and the digital transition: A literature review. *Sustainability*, *14*(7), 4072. https://doi.org/10.3390/su14074072

Schneider, S. (2019). The impacts of digital technologies on innovating for sustainability. In P. Shrivastava & L. Zsolnai, *Innovation for Sustainability. Palgrave Studies in Sustainable Business in Association with Future Earth.* Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-97385-2_22

Schumacker, R. E., & Lomax, R. G. (1996). *A beginner's guide to structural equation modeling.* Psychology Press.

SDG Knowledge Hub. (2019, September 27). *GeSI and Deloitte report analyzes the impacts of digital technology adoption on the SDGs*. Retrieved March 22, 2024, from Author. https://sdg.iisd.org/news/gesi-deloitte-report-analyzes-impacts-of-digital-technology-adoption-on-the-sdgs/

Sharma, L., Bulsara, H. P., Bagdi, H., & Trivedi, M. (2023). Exploring sustainable entrepreneurial intentions through the lens of the theory of planned behaviour: A PLS-SEM approach. *Journal of Advances in Management Research*, *21*(1), 20–43. https://doi.org/10.1108/JAMR-01-2023-0006

Sheehan, K. B. (2001). E-mail survey response rates: A review. *Journal of Computer-Mediated Communication*, *6*(2), 1–15. https://doi.org/10.1111/j.1083-6101.2001.tb00117.x

Shen, Y., Yang, Z., & Zhang, X. (2023). Impact of digital technology on carbon emissions: Evidence from Chinese cities. *Frontiers in Ecology and Evolution*, *11*, 1–17. https://doi.org/10.3389/fevo.2023.1166376

Shi, G., Lin, B., Pan, H., He, W., & Zhong, X. (2024). Using an extended information-motivation-behavioral skills model to explain HPV vaccination intention among men who have sex with men only and men who have sex with men and women. *Human Vaccines & Immunotherapeutics*, *20*(1), 2327150. https://doi.org/10.1080/21645515.2024.2327150

Stucky, K. J., Baker, L. N., Rush, B. K., Waldron-Perrine, B., Dean, P. M., Tlustos, S. J., & Barisa, M. (2024). Training in neurorehabilitation psychology: Defining competencies, requisite skill sets, and a proposed developmental pathway. *Archives of Physical Medicine and Rehabilitation*, *105*(3), 604–610. https://doi.org/10.1016/j.apmr.2023.08.016

Sumadevi, S. (2023). Impact of social media on youth: Comprehensive analysis. *Shodh Sari-An International Multidisciplinary Journal*, *2*(4), 286–301. https://doi.org/10.59231/SARI7640

Thompson, L. F., Surface, E. A., Martin, D. L., & Sanders, M. G. (2003). From paper to pixels: Moving personnel surveys to the Web. *Personnel Psychology*, *56*(1), 197–227. https://doi.org/10.1111/j.1744-6570.2003.tb00149.x

United Nations Educational, Scientific, and Cultural Organization. (2015). *UNESCO and Sustainable Development Goals*. Author. https://www.unesco.org/en/sdgs

Vantamay, N. (2018). Investigation and recommendations on the promotion of sustainable consumption behavior among young consumers in Thailand. *Kasetsart Journal of Social Sciences*, *39*(1), 51–58. https://doi.org/10.1016/j.kjss.2018.01.007

Verdugo, G. B., & Villarroel, A. V. (2021). Measuring the association between students' exposure to social media and their valuation of sustainability in entrepreneurship. *Heliyon*, *7*(6), e07272. https://doi.org/10.1016/j.heliyon.2021.e07272

Widayati, A., Wibawa, E. A., Septiana, Y., & Johari, R. J. (2022). Industrial revolution era 4.0: Digital literacy of accounting *Dinamika Pendidikan*, *17*(1), 107–116. https://doi.org/10.15294/dp.v17i1.36645

Wilska, T.-A., Holkkola, M., & Tuominen, J. (2023). The role of social media in the creation of young people's consumer identities. *SAGE Open*, *13*(2), 1–15. https://doi.org/10.1177/21582440231177030

Zhang, Y. (2024). Academic cheating as planned behavior: The effects of perceived behavioral control and individualism-collectivism orientations. *Higher Education*, *87*, 567–590. https://doi.org/10.1007/s10734-023-01024-w

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Development of the training approach on basic shadow puppet performance (Nang Talung) for grade 7 students at Thessaban 4 (Banlaemsai) School

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Abstract

The objective of this research was to develop the training approach on basic shadow puppet performance (Nang Talung). The research design was based on research and development (R&D) which was conducted in 3 steps: 1) study basic information in development of the training curriculum, 2) create and find the quality of the training curriculum, and 3) study the results of the implementation of the training curriculum. The main sample consisted of grade 7 students in the second semester of 2023 academic year at Tessaban 4 (Banlaemsai) school in Songkhla province, Thailand. Cluster random sampling was employed. The research instruments comprised of: 1) a training curriculum on basic shadow puppet performance, 2) a knowledge achievement test, 3) a practical skill achievement test, and 4) a students' satisfaction questionnaire. Analytical statistics were mean, standard deviation and t-test value. The results of the research showed that: 1) the target group agreed with the development of training curriculum, 2) the appropriateness from a quality check of the training curriculum by experts was at a highest level with the average of 4.93, 3) the knowledge learning achievement of students after training with the training curriculum was higher than before training, with statistically significant at the level of .01, 4) the practical skill achievement of students after training was higher than the percentage of 70 with statistically significant at the level of .01, and 5) the satisfaction of students towards the training was at a high level with the average of 4.32.

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Introduction

Nang Talung or puppet shadow performance is a popular folk performance in the south of Thailand because it is related to beliefs, rituals and entertainment. Nang Talung is also a medium that is both a doctrine providing news, knowledge, social movement and intelligence to the villagers. It is also a tool for the development of local communities in morality, ethics, education, music, sports and career (Office of Arts and Culture, Surat Thani Rajabhat University, 2017). However now, Nang Talung is less popular due to the influence of modern culture combined with advanced technology, which plays a role in the way of life of the new generation. In addition, Nang Talung has an informal learning process, that is learning only from their own relatives, that has made Nang Talung less popular. The result is in Nang Talung being lost from southern Thailand (Kulkan, 2012; Phankong, et al., 2011).

Under the Office of Education, Songkhla Municipality, a course has been developed in social, religion, and culture learning for groups in the 1st grade and has included additional courses in Songkhla, which has a unit that teaches about the local wisdom heritage, learning about culture, literature, folk performances and local folk play. When the course is used, the students only learn the knowledge of the content of the shadow puppet. As a result, students lack practice to perform the shadow puppet that may be due to the duration of the course, that is a limitation of the course (Tessaban 4 (Banlaemsai) School, 2022).

From the problems above, there is another way that can solve both the problems that arise in learning management in the additional course in Songkhla city. One of them is the preparation of short-term training courses about the practicing performance, so students can learn both in the content and practical skill performance not determined (Pairote & Sirisukantha, 2021; Choorak, 2013, pp.18–19).

Due to the rapid advance of technology, the interest to learn local wisdom and culture has lessened with the younger generation, which can cause the loss of identity of certain culture, such as shadow puppet in the South of Thailand. This curriculum has to be taught in a creative way to the students to preserve the culture. The training approach on basic shadow puppet performance (Nang Talung) for grade 7 students at Thessaban 4 (Banlaemsai) School will be very useful for students to gain knowledge, practice skills and to have good attitude on shadow puppet performance; besides, it is a traditional folk performance to be preserved.

Literature Review

To review the development of the training approach on basic shadow puppet performance (Nang Talung) for grade 7 students. the researcher has applied the concept of developing the curriculum of Hilda Taba, who said that the composition of the development of the course has 3 elements: (1) purpose, as a guideline for teaching and to determine how learners want to learn; (2) content, the selection and arrangement of knowledge and experience; (3) the implementation, is the implementation of the course to be effective; the evaluation is the answer to check that the implementation of the training course is as intended or not. All courses must include the same core elements, which are as follows: (Choorak, 2013, pp. 43–71; Patphon, 2019, pp.1–10). The researcher therefore set the steps for the development of the training approach on basic shadow puppet performance (Nang Talung) for grade 7 students into 3 steps:

Step 1: Study basic information in development of the training approach on basic shadow puppet performance.

Step 2: Create and find the quality of the training approach on basic shadow puppet performance, which is the step where the researcher brings basic information from step 1, prepares a training curriculum and designs learning activities according to the learning management of CIPPA, which is a teaching and learning management process that is based on learner - centered approach. It means that learners must generate knowledge, ideas, and make decisions to learn. They can discover knowledge on their own from 4 concepts: (1) the concept of building knowledge, (2) the concept of group and collaborative learning process, (3) the concept of learning readiness, (4) the concept of learning transfer. Such is the origin of the principle of the CIPPA. Each letter in English can be translated as “C” comes from the term Construction of Knowledge, which means self-knowledge creation, “I” comes from the word Interaction, which means interaction with friends, other people, and the environment around, “P” comes from the term Process Skills, which means various process skills that are tools for creating knowledge, the other “P” stands for Physical Participation, meaning participation in activities, and “A” is for Application, which means the big skill is a sub-skill and then brought to the learner to practice. Furthermore, when the sub-skill is successful, it must be linked to a great skill. It is a method to help the learner to achieve a better learning in practical skills. The teaching and learning management can be carried out according to these steps. The first step is the demonstration of skill

or action that the teacher wants the learners to do in the overall picture. The second step is to demonstrate and let the learner practice the sub-skill. In this step, teacher should classify all the skills into skills. The third step is for the learner to practice the sub-skills. The fourth step is the technique that the teachers introduce. The trick is to make the practice observe the elements of the demonstration learning management, consisting of 1) instructors and learners, 2) the subject or things to demonstrate, 3) the performance, making, or let the learner observe, and 4) the learning results of the learner caused by the demonstration. In the management of the demonstration teaching and learning, there is a sequence of steps, 1) preparation steps, 2) pre-demonstration steps, 3) demonstration steps and 4) the summary discussion of learning (Khammanee, 2021, p. 330).

Step 3: Studying the results of the implementation of training approach on basic shadow puppet performance is a step where the researchers organize learning activities training and then measuring and evaluating 3 aspects, including: 1) learning achievement in knowledge, 2) learning achievement in practical skills, and 3) satisfaction as follows.

1. Knowledge achievement is the ability of learning behavior based on Bloom's Taxonomy 2001 which has 6 levels, including the recognition level, the understanding level, the application level, the analysis level, the assessment level, and the creative level (Pradabvet, 2017).

1.1 The memorization stage means that students can remember knowledge, store knowledge, and can reuse the knowledge that has been remembered for a period of time and having a relationship with knowledge.

1.2 The understanding stage means that students create self-knowledge through speaking, writing, using images, symbols with Interpret, test, categorize, summarize, reference, compare, and explain about knowledge.

1.3 The application stage means that students apply the original knowledge through the thinking process which can be used to solve problems in the various situations about the knowledge of the movie according to the training course on the preliminary dance for grade 7 students.

1.4 The analysis stage means that students can break down the knowledge into parts, leading to the decision that each part is correlated or different.

1.5 The evaluation level means that students can decide from the criteria set or from the standard that has been created by examining both the survey or other forms and analysis about knowledge.

1.6 The creative stage means that students integrate knowledge and can use knowledge effectively.

2. Learning achievement in practical skills is the expression behavior of the learner, which is a behavior where the body must move to determine how much they have the ability to achieve the learning objectives. To know if the learner has skills or not, there must be a principle of creating a practical skill measuring tool consisting of 5 principles: 1) setting goals, 2) determining the framework of assessment, 3) determining the weight, the importance of the characteristics and tools that must be used, 4) determining the issues that need to be evaluated, and 5) determining the task and situation for the practical assessor (Tangthanakanon, 2014).

3. Satisfaction; the study of the characteristics of educational satisfaction will have an assessment of satisfaction with teaching and learning. The achievement of the mental satisfaction assessment method will use observation or interview or the use of an estimate questionnaire by using a 5-level rating scale according to the method of Likert Scale (Phromnee et al., 2020). Therefore, the important thing is to make the learner satisfied with the best education, which in the new era of education involves factors that result in learners being satisfied with learning management, consisting of 5 aspects, including 1) courses 2) instructors 3) learning activities 4) measurement and evaluation of teaching and 5) other factors that support learning (Chantavanich, 1999).

Basic shadow puppet performance is a practice of basic shadow performance that can be extended to the advanced skills in which the training needs start from the very beginning following 3 steps which are; 1) the image of teacher of the shadow puppet performance; 2) to worship Lord Shiva, considered the god of entertainment, which is considered the image the Lord Shiva; and 3) the role is a representative of the shadow puppet play performance that is used to play as teacher.

Methodology

This research design was based on research and development (R&D), which was conducted in 3 steps:

Step 1: Study the Basic Information in the Development of Training Approach on Basic Shadow Puppet Performance (Nang Talung)

Participants

This researcher divided the target group in the 1st step into 2 groups, including (1) the group which used the

in-depth interview method, which determined the main informant from the criteria of Creswell (2007), where the key information provider for the interview, should be between 5–25 people and (2) focus group that use the method of answering the group conversation record. Expressing opinions or answering questions about the need to develop training approach on basic shadow puppet performance with the target group was as follows:

1. The in-depth interview is being used by the group of:
   1.1 shadow puppet practitioners.
   1.2 expert teachers in a shadow puppet performance.
   1.3 expert teachers in cultural and local wisdom.
   1.4 parents of grade 7 students.
2. The group is using answers in the group discussion recording.
   2.1 20 grade 7 students.

Data collection

Interviewing opinions on the development of training approach on basic shadow puppet performance for shadow puppet practitioners, expert teachers in shadow puppet performance, expert teachers in cultural and local wisdom, and parents of grade 7 students, and group conversation to inquire about the needs and interest of students for the development of training curriculum on basic shadow puppet performance.

Data analysis

1. For the interview questionnaire on opinions regarding the development of training approach on basic shadow puppet performance for shadow puppet practitioners, expert teachers in shadow puppet performance, expert teachers in cultural and local wisdom, and parents of grade 7 students, the researchers analyzed and summarized the data obtained from the interviewing.

2. For the group interview (focus group) form to inquire about the needs and interests in development of training approach on basic shadow puppet performance for grade 7 students, the researchers analyzed and summarized the data content analysis.

Step 2: Creating and Finding the Quality of the Training Curriculum on Basic Shadow Puppet Performance

Participants

Three group, of experts, consisting of shadow puppet practitioners, expert teachers in a shadow puppet performance, and expert teachers in cultural and local wisdom.

Data collection

1. The results of step 1, which focused on studying basic information for developing a training curriculum on basic shadow puppet performance, were used to create a training curriculum on basic shadow puppet performance for grade 7 students.

2. To create and design a training plan based on the training curriculum on basic shadow puppet performance for grade 7 students using the CIPPA Model allows for a learning management approach that enables students to independently explore knowledge about shadow puppetry. The curriculum consists of learning content including the history of shadow puppet performance, the elements of shadow puppet performance, and current shadow puppet performance strategies. It also employs Demonstration learning management, which involves demonstrating basic shadow puppet performances for students to observe. In addition, Davies' learning management is utilized to facilitate the learning of practical skills in shadow puppetry, starting from smaller skills and linking them together to form larger skills, as presented in Table 1.

3. Take the training curriculum and the training plans according to the training curriculum on basic shadow puppet performance for grade 7 students for the quality check by experts.

Table 1 Training plans according to the training curriculum on the basic shadow puppet performance

No	Training plans	Teaching method	Time (hours)
1	- The history of the shadow puppet performance	CIPPA Model learning management	1
	- Elements of the shadow puppet performance		1
	- The current shadow puppet performance strategy		1
2	Demonstration of the shadow puppet performance	Demonstration learning management	1
3	Hermit puppeteering	Davies' learning management	3
4	Shiva puppeteering		3
5	Praynabot puppeteering		3
6	Basic training for shadow puppet performance		3
Total			16

Data analysis

Mean ($\bar{x}$) and standard deviation (*SD*) were used to analyze the quality of the training curriculum on basic shadow puppet performance and the training plans.

Step 3: Study of the Results of the Implementation of Training Approach on Basic Shadow Puppet Performance

Participants

1. The population used in the research are the grade 7 students, in Tessaban 4 (Banlaem- sai) school under the office of Education, Songkhla Municipality, in the second semester of 2023 academic 4 classrooms.

2. The sample group are 25 grade 7 students in Tessaban 4 (Banlaemsai) school under the office of Education, Songkhla Municipality, in the second semester of 2023 academic year using cluster random sampling by using the classroom as a unit of analysis.

Data collection

1. Measure learning outcomes before and after training using the same set of multiple-choice questions with 4 options, totaling 20 questions.

2. Conduct the assessment of basic shadow puppet performance skill using an observation, evaluated in 4 aspects, 1) the ability of the performance, 2) the deftness in the image of the shadow puppet performance, 3) right according to tradition, and 4) the singing of a poem.

3. Measure the satisfaction for students with the training approach on basic shadow puppet performance using a satisfaction questionnaire, in 4 aspects, 1) teacher, 2) place, instructional media, and duration, 3) training organizing and 4) the application of knowledge.

Data analysis

1. Compare the achievement of knowledge by using t-test statistics. (Dependent Samples)

2. Compare the learning achievement in practical skills on basic shadow puppet performance by using t-test statistics. (One Sample)

3. Analyze satisfaction towards training with training curriculum, using mean and standard deviations.

Results and Discussion

1. The results of the basic information in the development of the training approach on basic shadow puppet performance found that the target groups wanted to develop the training approach on basic shadow puppet performance. The research results found that, because the shadow puppet performance was a form of social media in the past, but now is less and less popular, it is important that the younger generation should work together to continue and preserve such. The introduction of the local culture in the show through education will make the show closer to the children, and if children are aware of the value of the ancestors who have conveyed the show from the past to the present, the more popular the show, especially if the students study the show, which will be able to create knowledge. The skills create awareness of the show and in addition, it is a training to continue the career as an artist in line with the show performance, also in accordance with the results of the study of Kaewpradit (2009), who found that everyone has a need to develop a learning unit about the poem for the reason that the poem is a community economy, there is a value for conservation to the next generation.

2. The results of creating and finding the quality of the training curriculum are presented in Table 2.

From Table 2, it was found that the three experts considered the appropriateness of the training curriculum on the shadow puppet performance. Overall, it was at the highest appropriate level; there was an average of 4.93, and the standard deviation was 0.12. When considering each component, in order of the average, it was found that the content aspect, the component of the training curriculum, and measurement and evaluation showed the most average appropriateness assessment results: at the most level ($\bar{x}$ = 5.00, *SD* = 0.00), followed by the learning activities with the assessment results suitable at the most level ($\bar{x}$ = 4.89, *SD* = 0.20) and the learning Materials has the appropriateness assessment; there is the least average at the most level ($\bar{x}$ = 4.78, *SD* = 0.38), respectively.

Table 2 Results of the quality of training curriculum

The components of training curriculum	Appropriateness level		
	$\bar{x}$	*SD*	Interpreting the result
Content	5.00	0.00	highest
Training curriculum	5.00	0.00	highest
Learning activity	4.89	0.20	highest
Learning materials	4.78	0.38	highest
Measurement and evaluation	5.00	0.00	highest
Total	4.93	0.12	highest

The training curriculum on the basic shadow puppet performance for grade 7 students consisted of 4 components, including; (1) The history of the shadow puppet performance; (2) The elements of the shadow puppet performance; (3) The strategy of the modern era; and (4) The basic training of the shadow puppet performance with elements such as (1) Principles and reasons, (2) Destinations, (3) Content, (4) Training methods,

(5) Training media, (6) Measurement and evaluation, and (7) Training schedule. The researchers used such data to create a training course in line with the results of the study. Biltali (2013) developed a training curriculum on "creative media from waste materials" and Pankaew (2014) developed a training curriculum on designing learning activities according to the constructivist concept by integrating technology in teaching and learning.

3. The results of the quality of the training plans by experts are presented in Table 3.

Table 3 Results of the quality of the training plans

Assessment list	Appropriateness level		
	$\bar{x}$	*SD*	Interpreting the result
Concept	5.00	0.00	highest
Learning objectives	4.78	0.35	highest
Content	5.00	0.00	highest
Activity process	5.00	0.00	highest
Training material	5.00	0.00	highest
Measurement and evaluation	5.00	0.00	highest
Total	4.96	0.06	highest

From Table 3, it was found that three experts considered the appropriateness of the training plan. Overall, it had a level of suitability at highest level. ($\bar{x}$ = 4.96, *SD* = 0.06); when considering many aspects, it was found that for the essence of the concept aspect, content aspect, activity process aspect, training material aspect, and measurement and evaluation aspect there is the same level of suitability at the highest level ($\bar{x}$ = 5.00, *SD* = 0.00), followed by the learning objectives aspect where there is the least appropriate level at the highest level ($\bar{x}$ = 4.78, *SD* = 0.35).

For the training plan according to the basic shadow puppet performance for grade 7 students, the elements are: (1) essence, (2) learning purpose, (3) content, (4) training management process, (5) training materials, and (6) measurement and evaluation. The research results are like this because the researcher has determined and designed a variety of learning activities and organized learning activities that are consistent with the principles and reasons, goals, content, training methods, training materials, training materials measurement and evaluation and training schedules. It also helps students to learn according to the learning objectives focus on the development of students to truly understand the subject by allowing students to create knowledge by themselves by cooperation from the group. It also helps to develop various process skills for students, both learning achievement and the achievement in practical skills in accordance with Davies's (1971, pp. 50–56).

4. The knowledge learning achievement after training with the training approach was statistically significantly higher than before the training at the level of .01. The findings found that because of the shadow puppet performance, the needs of students who were interested in practicing shadow puppet performance made students interested in organizing training activities and also gave an opportunity to participate in the activities. Furthermore, students have knowledge and understanding of the content according to the training curriculum of the basic shadow puppet play because CIPPA model of learning management emphasizes learners seeking knowledge on their own in line with the results that found a training course on classroom action research. The academic achievement in knowledge after training is higher than before training, also in line with the results of the study of Pankaew (2014), where it was found that knowledge achievement after training with training courses Subject: Design of learning activities based on constructive Constructivist by integrating technology in teaching and learning for science learning subject area, it is higher than before training.

5. The practical skill learning achievement in basic shadow puppet performance of grade 7 students after the training was higher than the percentage at the criteria of 70 percent, statistically significant at the level of .01. The findings were such because of the training activities created by the researchers. There is a guideline for organizing training activities that focus on practical skills, The Davies model of skill teaching focuses on practicing small skills and then connecting them to a larger and complete skill, demonstration learning is organized. The teacher has a role to demonstrate the basic process of the shadow puppet play process for the students to observe. Diverse, student-centered learning arrangements have resulted in higher achievement in practical skills, in line with Kaewpradit (2009) education. It was found that students' achievement in practical skills related to creative crafts passed the criteria at a very good level, also in line with the education of Panchariyakul (2019) that found the ability to make a trainer's report with a training course Subject: Classroom Action Research Overall at a good level.

6. Students' satisfaction of towards training with training activities. The basic shadow puppet performance of the shadow puppet performance is overall at a high level. It had an average of 4.32. The results of this research found that because the training curriculum on basic shadow puppet performance had a variety of interesting training activities, it helped students to

develop process skills, including knowledge, practical skills. equal opportunities for questioning and participation in learning. There were learning management methods that align with the purpose, content, measurement and evaluation, interesting content that meets the needs of learners, a sequence with the importance of the content, teaching materials were real, suitable for training and trainees, and a variety of measurements and evaluations were carried out in accordance with the education of such. It was found that the course on English communication satisfies the trainees Kaewpradit (2009). It was also found that students' satisfaction with the unit-based learning management method was at a high level. The results are presented in Table 4–Table 6.

Conclusion and Recommendation

1. Research should be conducted to develop training approach in accordance with local conditions and students' interests at other grade levels.

2. Research should be conducted to develop training curriculum in other subject areas other than social studies, Thai language, art, foreign language, etc.

3. The use of learning resources and local wisdom should be promoted to provide a wider range of the training curriculum.

4. In this research the researchers organized the training activities using the learning method with CIPPA model demonstration learning management, and Davies' practical skill model. Student behavior should be observed and a variety of learning activities should be arranged to be suitable with the situation, learning management from learning resources.

5. In this research the researchers studied knowledge achievement and practical skill achievement, so research in further other dependent variables should be studied: group work skills, and problem solving.

Conflict of Interest

The authors declare that there are no conflicts of interest.

Table 4 Results of comparison of knowledge learning achievement before and after training with training curriculum (n = 25)

Knowledge achievement	Full score	$\bar{x}$	*SD*	*t*
Before training with the training curriculum	20	8.04	1.99	14.99**
After training with the training curriculum	20	13.80	2.18	

Note: **p < .01

Table 5 Results of the comparison of practical skills learning achievement basic shadow puppet performance after training with 70 percent criteria (n = 25)

Assessment items	Full score	$\bar{x}$	*SD*	Criteria of 70 percent	*t*
1. The ability of the performance	3	2.84	0.37	2.25	7.88**
2. The deftness in the image of the shadow puppet performance	3	2.52	0.51	2.25	2.65*
3. Right according to tradition	3	2.84	0.37	2.25	7.88**
4. The singing of a poem	3	2.56	0.51	2.25	3.06**
Total	12	2.69	0.27	9	8.92**

Note: *p < .05, **p < .01

Table 6 Results of students' satisfaction towards training with training approach on basic shadow puppet performance (n = 25)

Assessment list	$\bar{X}$	*SD*	Interpreting the results
Teacher aspect	4.53	0.28	highest
Place, instructional media, and duration aspect	4.12	0.69	high
Training organizing aspect	4.27	0.52	high
Application of knowledge aspect	4.35	0.66	high
Total	4.32	0.29	high

References

Biltali, W. (2013). *Development of a training course on creative media from waste materials for child development center teachers* [Master's thesis, Songkhla Rajabhat University].

Chantavanich, A. (1999). *The nature of social psychology in educational quality development: Guidelines for national development*. National Defense College.

Choorak, J. (2013). *Course development documents* (3rd ed.). Chonbut Printing.

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Sage Publications.

Davies, I. K. (1971). *Instructional technique*. McGraw-Hill.

Kaewpradit, P. (2009). *Research and development of learning units on creative crafts career and technology learning group for grade 3 students* [Master's thesis, Songkhla Rajabhat University].

Khammanee, T. (2009). *A variety of alternative teaching styles*. Chulalongkorn University Press.

Khammanee, T. (2021). *Teaching science: Knowledge for effective learning management* (25th ed.). Chulalongkorn University Press.

Office of Arts and Culture, Surat Thani Rajabhat University. (2017). *Training and dissemination of Nang Talung*. https://culture.sru.ac.th

Pairote, C., & Sirisukantha, T. (2021). A training course on self-awareness and motivation that affects the performance of trainees in the Institute of Skill Development 10, Lampang. *Journal of Business Administration Maejo University, 3*(1), 17–40.

Panchariyakul, S. (2019). Development of training courses on classroom action research. *Journal of Graduate Studies Network, Northern Rajabhat University, 9*(2), 33–48.

Pankaew, P. (2014). *Designing learning activities based on constructivist concepts by integrating technology in teaching and learning for science learning subject areas* [Master's thesis, Songkhla Rajabhat University].

Patphon, M. (2019). *Contemporary curriculum development model*. Center for Leadership in Curriculum Innovation and Learning.

Phankong, T., et al. (2011). Management of shadow puppet show business and cultural tourism: A case study of Nang Talung Nakarin Chathong. *Journal of Humanities and Social Sciences, 33*(3), 222–240.

Phromnee, P., Pittayawattanachai, Y., & Thappha, J. (2020). The concept of satisfaction and creating a job satisfaction questionnaire. *Academic Journal of the Association of Private Higher Education Institutions of Thailand, 26*(1), 59–66.

Pradabvet, R. (2017). Guidelines for organizing learning activities with technology according to Bloom's taxonomy. *Veridian E-Journal, Silpakorn University (Humanities, Social Sciences and Arts), 10*(3), 1051–1065. https://he02.tci-thaijo.org/index.php/Veridian-E-Journal/article/view/104735

Tangthanakanon, K. (2016). *Measuring and assessing practical skills*. Chulalongkorn University Press.

Tessaban 4 (Banlaemsai) School. (2022). *School curriculum: Social studies, religion and culture (secondary level, B.E. 2565)*. Songkhla Municipality Office of Education.

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Structural conditions of typical urban areas and electoral support for an Islamist party: The case of the Prosperous Justice Party in Depok Jaya and Cinangka, Depok City, Indonesia

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Abstract

The Partai Keadilan Sejahtera (PKS) or Prosperous Justice Party is an Islamist party that gained significant electoral support in Indonesia after the fall of the New Order regime. According to several studies, this is a reflection of the phenomenon of urban Muslim middle class as its socio-political base. However, in several areas with similar characteristics, electoral support for PKS has been less than impressive. The author argues that differences in structural conditions typical of urban areas, including Islamic character, type of settlement, migration status, presence of ethnic groups and Islamic organizations, also play a role in determining this support. This Islamist party tends to gain significant support in urban areas with less assertive Islamic character, with most of the population living in housing complexes and being migrants, and ethnic grouping and Islamic organizations not having influence in society. These conditions make it easier for the Islamist party to gain electoral support. In urban areas where the opposed condition occurs, the Islamist party tends to gain less significant support.

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Introduction

The Islamist party considered the most electorally successful in Indonesia's democratization era (1998–present) is the Partai Keadilan Sejahtera (PKS). Several studies have linked this party's success to the urban characteristics of the areas where PKS gained significant electoral support (Bubalo et al., 2008; Machmudi, 2008). This cannot be separated from PKS's socio-political base, namely, the Muslim middle class, most of whom live in urban areas. In several urban areas, such as Bandung and Depok, PKS has been able to win the competition, or at least come in second or third place, for four times (2004, 2009, 2014, 2019) in the district/city legislative elections (Alamsyah, 2021).

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However, in several other urban areas, PKS tends to get less significant electoral support. This means that, first, PKS did not succeed in gaining the top three highest vote counts in the District/City Regional People's Representative Council (DPRD) elections. The areas that fall into this first category include Sidoarjo and Probolinggo City (Alamsyah, 2021). Second, the party gained enough votes to gain the second or third place, but the difference with the winning party is very far, as happened in Surabaya, and Surakarta. In the two cities, PKS received votes that gained them an average number of 4–7 seats, while Partai Demokrasi Indonesia Perjuangan (Indonesian Democratic Party of Struggle), abbreviated as PDIP, which gained the first place, received 11–30 seats.

Why is it that in urban areas that are often considered as vote banks for PKS, support for this party can vary? How is that possible?

To answer these questions, the author argues that in addition to the urban characteristics of these areas, there are also other aspects that play a role in determining electoral support. These are the specific structural conditions of each urban area, including Islamic characteristics, settlement types, migration status, the presence of ethnic groups and Islamic organizations. In urban areas where the Islamist party gains significant support, the conditions are that Muslims do not display a particular Islamic characteristic, the majority of the population lives in housing complexes and has migrant status, and ethnic groups and Islamic organizations have less influence in society. These conditions make it easier for the Islamist party to gain electoral support. Meanwhile, in urban areas where support for the Islamist party tends to be less significant, the opposite conditions occur.

The author confirms this argument with data obtained from field research on electoral support for PKS in two kelurahan in Depok City, one of the cities in West Java Province where PKS received large electoral support in the 2019 local legislative elections, namely, Depok Jaya and Cinangka. In Depok Jaya, electoral support for PKS is quite significant while in Cinangka it is less significant. This tendency not only occurred in the 2019 local legislative elections, but also in the 2004, 2009, 2014 local legislative elections.

Literature Review

Previous Studies

The argument contrasts with several studies on electoral support for PKS. These studies can be mapped into four categories. The first category is of the view that the party's Islamist ideology attracts certain segments of society, especially the Muslim middle class who live in urban areas (Bubalo et al., 2008; Hasan, 2012; Machmudi, 2008). The second category is also related to Islamist ideology but its moderate version (Berland, 2017; Rofhani & Fuad, 2021; Tomsa, 2012). The third category focuses on the institutional aspects of the party, for example high party discipline, the provision of social services (Fionna, 2014; Hamayotsu, 2011). The fourth focuses on the ability of this Islamist party to adapt to the local political context, in terms of values, political behavior, and so on (Park, 2021, 2023; Miichi, 2023).

The author basically agrees that electoral support for PKS is higher in urban areas than in rural areas. However, as the author has stated previously, there are also a number of urban areas where support for this party is less encouraging. The cause of this difference must be sought in other aspects outside the issue of urbanity. The author proposes the specific conditions of each urban area as aspects that also determine whether PKS will gain significant support or not. These aspects theoretically reflect what Lipset and Rokkan (1967) and Sherman and Kolker (1987) conceptualize as cleavages or socio-political basis.

Theoretical Perspective

Theoretically, these typical structural conditions are forms of societal cleavages that are specifically found in every urban area and can influence electoral support for political parties. According to Lipset and Rokkan (1967), cleavage consists of four forms. In the first cleavage, namely, subject versus dominant culture, society and parties are divided into two camps, namely, those who fight for national culture or those who insist on local culture. In the second cleavage, church(es) versus government, society and parties are divided into two categories, namely, those who support the role of religion (church) or those who support secularism. In the third cleavage, that is primary versus secondary economy, the landowning class in rural areas whose political affiliation is with the conservative party is separated

from the industrialist class in urban areas who support the liberal party. In the fourth cleavage, owners versus tenants, the employer class support the conservative party, while the liberal party is divided between the working class who choose the labor party, the socialist party, or the communist party.

Meanwhile, according to Sherman and Kolker (1987), cleavage (social political basis) has three dimensions, namely, social stratification, political identity, and ideology. Stratification includes five social classes, namely, upper, upper middle, lower middle, workers, and poor people. Each class has its own value orientation and political choices. Political identity is related to the relationship between individuals and the political system that is reflected in a person's thoughts, feelings, and political actions. Ideology is a set of integrated and coherent beliefs that influence political views and actions which includes conservatism, liberalism, socialism, fascism, and their various variants.

By modifying the ideas about cleavage above, Depok Jaya and Cinangka are divided into five cleavages. First, the Islamic pattern consisting of traditionalist, modernist, and revivalist Islam. Second, the type of settlement which includes housing complexes and urban villages (kampung). Third, the migration status which is divided into migrants and local residents (natives). Fourth, ethnic groups. Fifth, Islamic organizations. The last two cleavages are divided into ethnic groups and Islamic organizations that have or do not have influence in society and electoral politics.

Methodology

Research Design

Referring to Creswell (2009), this study uses a qualitative approach. This can be seen in the objectives of this study, namely, to explain the aspects that play a role in determining the differences in electoral support obtained by PKS in Depok Jaya Kelurahan and in Cinangka Kelurahan, in the 2019 local legislative elections. This objective has an effect on other elements of this study, such as the choice of theory, methods, data processing and analysis. This type of research is grounded in Creswell's (2009) theory. In this study, the author modifies the cleavage theory of Lipset and Rokkan (1967) and Sherman and Kolker (1987). The result of the modification is what the author terms as structural conditions typical of urban areas that can also determine electoral support for the Islamist party.

Participants

The subjects of the study are the PKS Local Administration Board (Dewan Pimpinan Ranting, DPRa) of Depok Jaya Kelurahan (abbreviated as PKS Depok Jaya) and the PKS DPRa of Cinangka Kelurahan (PKS Cinangka). Both are chapters of the party at the village or kelurahan level, of the PKS, which is a national-scale party. The informants of this research consist of four categories, namely, (1) administrators of PKS Depok Jaya and PKS Cinangka, (2) administrators of parties that are PKS's main competitors, namely, the United Development Party (PPP) and the National Mandate Party (PAN) Cinangka, (3) community figures or leaders of Islamic organizations, namely, the administrators of Nadhlatul Ulama (NU) and Muhammadiyah Cinangka, (4) academics who understand the history and socio-political dynamics of Depok City, including Depok Jaya and Cinangka.

Data Collection

The data collection techniques used in this study were in-depth interviews, document studies, and literature studies. In-depth interviews were conducted to obtain primary data from a number of previously determined informants, such as the administrators of PKS Depok Jaya and Cinangka. Document studies were used to obtain secondary data from a number of documents, such as local legislative election results data from the Komisi Pemilihan Umum (KPU) Kota Depok (Depok City General Elections Comission), statistical data from the Badan Pusat Statistik (BPS) Kota Depok (Statistics Indonesia-Depok City). Literature studies were used to obtain data from various library sources, such as books, articles in scientific journals.

Data Processing and Analysis

Referring to Creswell (2009) and Bryman (2012), with some modifications, the following are the steps in processing and analyzing in-depth interview data. First, compile a verbatim transcript of all informants' interviews. Second, understand the similarities and differences of data in each transcript, and discard irrelevant data. Third, categorize, code, trace the relationship between categories and core categories. Fourth, compile a description of the setting, people, groups, categories, themes based on the coding results. Fifth, present the description by discussing themes, relationships between themes, and so on. Sixth, interpret the data.

Seventh, carry out the steps above to process and analyze data obtained from document studies and literature studies and then integrate them into in-depth interview data.

Trustworthiness

This study used three data validation strategies. The first is the selection of informants from four categories. This validation strategy is part of what Bryman (2012) and Creswell (2009) term triangulation. With this strategy, data or information obtained from one informant are confirmed with other informants. The second strategy, also part of triangulation, is the use of three data collection techniques, namely, in-depth interviews, document studies, and literature studies. Through this strategy, data or information obtained with one data collection technique are confirmed with one or two other data collection techniques. The third strategy is what is called member validation (Bryman, 2012) or member checking (Creswell, 2009), namely, confirming research findings to informants in the academic category.

Results

Two Urban Areas

Based on a BPS definition, this study defines an urban area as "… the status of an administrative area at the village/kelurahan level that meets the criteria for an urban settlement classification" (Badan Pusat Statistik [BPS], 2021). An area can be called an urban village if based on certain calculations it gets a total score of 9 for the indicators "… population density per km2, percentage of farming families, and existence/access to urban facilities…" (BPS, 2021). The facilities in question are related to education (from early childhood education, elementary to secondary), economy (markets, shops), health (hospitals), and accommodation/entertainment places such as hotels, salons (BPS, 2021). However, if the total score for the three indicators is below 9, then an area is categorized as rural.

According to the BPS definition and criteria, both Depok Jaya and Cinangka are classified as urban areas. This urban status is reflected in the urban indicators provided by BPS. Using data from BPS Kota Depok for Depok Jaya (Badan Pusat Statistik Kota Depok [BPS Kota Depok], 2018a) and Cinangka (Badan Pusat Statistik Kota Depok [BPS Kota Depok], 2018b), the calculated total score for the three indicators in each kelurahan exceeds 9, confirming their classification as urban areas. However, even though both are classified as urban settlements, PKS received unequal electoral support in the two kelurahan, as can be seen in the following results of the 2019 local legislative elections. Results should be clear and concise. Present the findings together with relevant supportive evidence revealed from the research, either in the forms of figures, tables or diagrams.

Electoral Support for the Prosperous Justice Party

Electoral support or electoral outcome in this article refers to the total number of valid votes won by PKS in Depok Jaya and Cinangka in the 2019 local legislative elections. Electoral support can be very significant, significant, and less significant. Very significant support can be interpreted as the party winning the electoral competition, winning the majority of votes or both. Significant support means that the party is in second or third place in terms of votes with a margin that is not far from the winning party. Less significant support has two definitions, the first being the party is not reaching the top three positions in terms of votes, and the second, the party being able to achieve the position of the second or third place, but with a significant gap of votes compared to the winning party.

Sixteen political parties participated in the 2019 local legislative elections in Depok Jaya and Cinangka. In Depok Jaya, PKS gained very significant electoral support because it won the local legislative election by gaining 5,209 votes (34.92% of the total valid votes) (Komisi Pemilihan Umum Kota Depok, 2019a). In contrast to Depok Jaya, electoral support for PKS in Cinangka tended to be less significant. Despite an increase of around six percentage points compared to the 2014 local legislative election and successfully displacing PDIP to the 5th place, PKS only ranked 4th with 1,306 votes (11.50% of the total votes) (Komisi Pemilihan Umum Kota Depok, 2019b).

One of the causes of the difference in electoral outcomes obtained by PKS in Depok Jaya and Cinangka is the dissimilarity of structural conditions in each of these kelurahan. This includes Islamic patterns, types of settlements, migration status, ethnic groups, and Islamic organizations. The following section will describe these in more depth.

Religion and Islamic Characteristics

The majority of Depok Jaya's population, 22,470 people (86.40% of the total), are Muslim (BPS Kota Depok, 2018a). Similarly, in Cinangka, 17,071 people (96.41%) identify as Muslim (BPS Kota Depok, 2018b). Based on the data, it can be concluded that the majority of the population in those two kelurahan are Muslim. This condition is a good initial capital for PKS as an Islamist party to gain significant support in electoral competition. But this does not happen automatically. The differences in Islamic patterns in the two kelurahan, which include traditionalists (contextualization of Islam in local traditions), modernists (purification of Islamic teachings), and revivalists (formation of Islamic order), have an effect on the differences in electoral support for PKS.

The Islamic character in Depok Jaya is not particularly distinct, though many of the ritual practices observed by most Muslims in the area reflect the traditionalist Islam commonly associated with NU. However, they do not identify themselves as NU members, do not join the organization, and are not affiliated with PPP or Partai Kebangkitan Bangsa (National Awakening Party, abbreviated as PKB) which represent NU. Meanwhile, the character of Islam in Cinangka, especially that which is inherent in locally born inhabitants, is divided into traditionalist and modernist Islam. Those who are traditionalists are members of NU, while those who are modernists are members of Muhammadiyah. Politically, NU tends to be affiliated with PPP, while Muhammadiyah with PAN. On the other hand, PKS is often considered as one of the representatives of revivalist Islam, although it has experienced moderation in recent years.

Housing Complexes and Urban Villages

Depok Jaya consists entirely of housing complexes. Since its inception in the 1970s by the New Order government, Depok Jaya was indeed designed as a housing complex. This is part of a government program to meet the needs of the community for decent housing at prices that are affordable for the general public. The program is generally known as the National Housing Program (Perumnas). The Depok Jaya housing complex is the pilot project for the Perumnas Program. Referring to the name of the program, Depok Jaya is then also popularly known by another name, Perumnas Depok 1.

In contrast to Depok Jaya, the type of settlement in Cinangka is dominated by urban villages (kampung) with a small number of housing complexes. Historically, Cinangka was originally a small village located on a former rubber plantation area of around 147 hectares owned by a Dutch company (K. Koman, personal communication, November 7, 2021; Irsyam, 2017). In 1953, the Indonesian government then issued a policy to distribute the land to local residents living around the plantation. The policy was implemented in the context of the nationalization of Dutch companies following Indonesia's independence in 1945 and the recognition of Indonesia's sovereignty by the Netherlands in 1949.

In the last decade, Cinangka has undergone several important changes that have transformed the face of this village into a more urban area. One of them is the construction of a number of housing complexes, such as Casa Carana Residence and Griya Cinangka Asri. This cannot be separated from the need for housing at a relatively cheap price, not far from the workplace, and easily accessible by various means of transportation. Perhaps because it is considered an urban village, land prices in Cinangka are still cheaper than in the core of Depok and its surroundings, such as Depok Jaya and Pondok Cina. This has an effect on house prices which are also cheaper. Cinangka is not difficult to access using two-wheeled or four-wheeled vehicles.

In Depok Jaya, all residents live in the housing complexes. They come from various religions, ethnicities, social classes, and almost all of them are migrants. The Muslim middle class which is the backbone of PKS is also part of the Depok Jaya residents who live mingling with other residents. Meanwhile in Cinangka, most of the residents with various backgrounds live in the kampung. Here is where almost all of the indigenous residents, who are Muslim, ethnic Betawi, and related by kinship, also live. Meanwhile, several housing complexes in Cinangka are mostly inhabited by migrants, the middle class, with various religions and ethnicities. The Muslim middle class, which is the socio-political base of PKS, is also mostly residents of the housing complex.

Migrants and Natives

The population of Depok Jaya is almost entirely migrants, including those who are PKS cadres and sympathizers. They come from several regions in Indonesia, but mostly from Central Java and East Java. There are also a small number of non-Javanese migrants.

They are the first generation to live in the kelurahan. This happened when Depok Jaya, the first national housing complex (Perumnas) in Indonesia, was completed and began to be occupied around the 1970s (Irsyam, 2017). Because migrants are the majority population in Depok Jaya, they fill various positions in society, starting from the head of the Neighborhood Association (RT), mosque administrators, and so on.

Meanwhile, in Cinangka there are two categories of population based on migration status, namely, local residents (natives) and migrants. The native population are those who have lived in Cinangka since the colonial era, which at that time was still a small village around a rubber plantation owned by the Dutch. This category also applies to their descendants; the second, third, fourth generations, and so on. The majority of the native population are ethnic Betawi. Although not the majority, they have an important influence in Cinangka because of their status as the native people, being relatively institutionalized and occupying various positions in society, such as heads of the RT, kelurahan officials and mosque administrators.

The population categorized as migrants in Cinangka refers to those who came from various regions and settled in Cinangka in the 1970s to 1980s and their descendants. This also applies to those who have settled in Cinangka in the last decade or so, including PKS cadres and sympathizers who mostly live in housing complexes. According to several sources, it is possible that the number of migrants in Cinangka exceed that of the native population. However, unlike the native population, they do not have influence in Cinangka and do not occupy positions in society.

Because almost all of its residents are migrants, in Depok Jaya there are almost no issues between migrants and natives or other related issues, such as cultural differences and social status. Meanwhile, in Cinangka, this has become an issue in society. Although there is no coercion, migrants must adapt to the culture and Islamic patterns. If not, they will still be considered as newcomers. In daily life, this can complicate interactions between these migrants and the native population. Migrants who display a different culture and Islamic pattern, especially those who incite local residents to follow them, such as PKS cadres, will be considered a "threat" to the social order of Cinangka. This can be a stumbling block in interactions between such migrants and the native population.

Ethnic Groups

Based on ethnic composition, most of the population of Depok Jaya is Javanese. They mostly come from Central Java and East Java. In this kelurahan there are also other ethnic groups, such as Sundanese, Bugis, Padang, but their numbers are not large. Many Javanese people in Depok Jaya occupy important positions in society, such as heads of RT, heads of Rukun Warga (neighborhood association, abbreviated as RW) and mosque administrators. Among the residents with diverse ethnic backgrounds are PKS cadres.

In Cinangka, Betawi is the ethnic group with at least a plurality, although perhaps not the majority. The Betawi people in this kelurahan consider themselves as one extended family because they are still tied by kinship. This is manifested in a number of activities that often involve kinship elements, such as social gatherings, religious studies, and marriages. The Betawi in Cinangka hold important positions in society, such as being the head of the RT, the head of the Community Empowerment Institution, and the mosque administrator. In Cinangka there are also non-Betawi ethnic groups (Sundanese, Javanese and so on), and non-native Betawi, who moved into the area. Most PKS cadres are part of these ethnic categories.

Depok Jaya residents generally do not join community organizations, including Islamic-based organizations. They are also not affiliated with political parties operating in the kelurahan. In general, as voters, they can be categorized as floating masses. Meanwhile, the Betawi ethnic group, whose influence is quite strong in Cinangka, is divided into two large Islamic organizations with different political affiliations, namely, NU, whose political affiliation is PPP, and Muhammadiyah, whose political affiliation is PAN.

Islamic Organizations

Islamic organizations in the society can have a dominant influence or not. This can be seen in the Islamic character shown, the management of religious places, non-ritual Islamic activities carried out, social services, socio-political bases, and political choices. If all of these are referenced by Muslims, then an Islamic organization can be said to have a dominant influence. If not, then no Islamic organization has a dominant influence.

Islamic organizations in Depok Jaya tend not to have a dominant influence on society, either in daily life or in electoral politics. However, there are at least three Islamic

organizations in this kelurahan that have relatively greater influence than other Islamic organizations. These are the Mosque Prosperity Council (DKM), the Mosque Youth Forum (FRM), and the Depok Jaya Mosque Communication Forum (FKMDJ).

DKM is an Islamic organization tasked with managing a mosque, from building maintenance, facilities, arranging worship to organizing non-worship Islamic activities, such as religious studies, and providing assistance to the community. The majority of mosques in Depok Jaya have a DKM. They are also members of FKMDJ. Through FKMDJ, they can socialize and work together in organizing several Islamic activities. In each mosque there is also an FRM that manages various Islamic activities for youths. The administrators of the three institutions consist of a number of individuals and figures with diverse Islamic backgrounds. A number of PKS cadres and sympathizers are also involved in the three institutions, and even have quite an important influence because of their superior human resources (mostly being highly educated), extensive networks, party support, and high Islamic spirit.

The three institutions do not specifically display a particular Islamic character. One reason is because their administrators have different Islamic backgrounds. All three share a social base with Muhammadiyah, the Muslim middle class. Most mosques in Depok Jaya are managed by DKM, FRM, and are connected to each other through FKMDJ. Institutionally, the three do not have affiliations or support political parties. But personally, the administrators of the three institutions are affiliated with or support certain political parties, especially those based on Islam or considered to guarantee the interests of Muslims.

In contrast to Depok Jaya, Cinangka is marked by the presence of two dominant Islamic organizations in society, including in electoral politics, namely, Nahdlatul Ulama (NU) and Muhammadiyah. The character of NU's Islam is traditionalist. Its social base is the lower middle class, such as farmers (in small numbers), laborers, informal sector workers, small entrepreneurs, both native and migrant residents. They are concentrated around Kampung Bulak, Kebon Atas and Poncol. They manage several mosques, such as the An-Nur Mosque in Kampung Bulak. In these mosques, several non-worship activities are also held, such as religious studies and provision of assistance. NU sympathizers in Cinangka tend to channel their political support to PPP.

Meanwhile, Muhammadiyah, which began to develop in Cinangka around the 1950s, represents modernist Islam. In some ways, Muhammadiyah's Islamic character is the antithesis of NU's Islamic character. The social base of this organization is the upper middle class, such as workers in the formal sector, civil servants or private employees, including teachers, with education levels ranging from high school to college. Geographically, Muhammadiyah members are concentrated in several kampung such as Kebon Barat and Cinangka Ujung. Like NU, Muhammadiyah also manages a number of mosques, such as the Al-Birru Mosque in Kebon Barat, and uses them not only for worship activities but also for a number of non-ritual Islamic activities and social services. In addition, Muhammadiyah also manages kindergartens, elementary schools, and junior high schools. Most Muhammadiyah people in Cinangka are PAN supporters.

PKS cadres in Cinangka are usually not part of the two dominant Islamic organizations. However, there are a small number of residents, especially young Muhammadiyah members, who are PKS sympathizers.

Discussion

The findings of this study show that Depok Jaya and Cinangka are in fact urban areas. The problem is, even though they are both urban areas, electoral support for PKS in the two kelurahan shows different tendencies, as can be seen in the results of the 2019 local legislative elections. In Depok Jaya, PKS won quite a large number of votes, placing this party in first place as the party with the most votes, while in Cinangka it was the opposite.

This is certainly not in line with a number of studies that argue that PKS tends to get significant electoral outcomes in urban areas. Although PKS did indeed gain more support in urban areas than in rural areas, the cause of the difference in electoral outcomes was not only due to the urbanity factor. Less than impressive electoral support for PKS also occurred in areas with prominent urban characteristics, such as Surabaya, Surakarta, and Semarang.

Referring to the findings of this study, the cause of the difference in electoral support is the differences between specific structural conditions of Depok Jaya and Cinangka as urban areas. These conditions in the two kelurahan include Islamic character, type of settlement, native population, migration status, ethnic groups, and Islamic organizations. The structural conditions unique to Depok Jaya provide an opportunity for PKS to gain significant electoral support, while the structural conditions unique to Cinangka actually hinder it.

The first structural condition is the character of Islam. In Depok Jaya, Islam is not dominated by a certain character supported by a strong institution. Therefore, even though sentiments against PKS revivalism have emerged, this has not become a stumbling block for this Islamist party to garner support from various segments of voters in various electoral competitions, including the 2019 local legislative elections. In Cinangka, the conditions are different. In this kelurahan, the revivalist PKS must face resistance from two dominant Islamic organizations, namely, the traditionalist NU and the modernist Muhammadiyah. At this point, there is latent competition between the Muslim middle class who are the socio-political basis of PKS, and a similar class who are the main drivers of NU and Muhammadiyah. As a result, it is not easy for PKS to gain electoral support from various segments of voters in this region.

The type of settlement in Depok Jaya provides a way for PKS to gain electoral support from various voter segments. This can happen because the Muslim middle class that PKS relies on, both party administrators and ordinary members, are active members of the society. Both physically and socially, there are no barriers that limit their relationships with other residents. Meanwhile, the type of settlement in Cinangka has the opposite effect on PKS. One of the reasons is because most of the party's cadres live in housing complexes. This condition causes their relationship with the Cinangka residents who mostly live in the kampung outside the housing complexes to be limited. In the end, it makes it difficult for PKS to gain support.

The migration status as a structural condition in Depok Jaya provides an opportunity for PKS to gain significant electoral support. This is because the PKS cadres in this kelurahan are migrants, just like most other residents. They also mingle in everyday life because, like other residents, they live in housing complexes. In such a condition, PKS cadres have the opportunity to interact with other residents, offer them the party's vision, mission and programs, collaborate, recruit them as cadres, and mobilize electoral support. Meanwhile, in Cinangka, the opposite occurs. The efforts of PKS cadres to gain electoral support are hampered by their status as migrants. This results in limited interaction with other residents, both natives and other migrants. This is because most of these cadres live in the few housing complexes, while the majority of residents live in the kampung.

The ethnic conditions in Depok Jaya make it more feasible for PKS, whose cadres are an inherent part of the local population with diverse ethnic backgrounds, to gain larger electoral support than in Cinangka. In this kelurahan, while the Javanese ethnic group makes up the majority in quantity, they do not have social, cultural nor political dominance. The members of various ethnic groups in Depok Jaya tend to be categorized as a political floating mass. This condition gives PKS the freedom to implement various strategies that are considered effective in attracting electoral support. However, PKS cannot do such a thing in Cinangka because it is hampered by the existence of the socially, culturally and politically influential Betawi ethnic group in the society. Politically, the native population tends to channel its electoral support to PPP or PAN. Meanwhile, on the other hand, most PKS cadres in Cinangka are of non-Betawi ethnicity or, if Betawi, are not natives to the area. With the influence it has, the Betawi ethnic group in Cinangka is not only able to maintain the political choices of its members but can also influence the political choices of other residents from various ethnicities.

In relation to Islamic organizations, the structural conditions in Depok Jaya provide more freedom for PKS to garner significant electoral support than in Cinangka. This is possible because in Depok Jaya there is no dominant Islamic organization. However, there are three organizations that are quite influential in society, especially in the management of mosques and Islamic activities, namely, DKM, FRM, and FKMDJ. All three are instruments that can be managed by PKS to garner support. In Cinangka, PKS does not have such freedom. The dominance of NU and Muhammadiyah, including in the management of mosques and Islamic activities, with their respective political affinities (NU supporting PPP and Muhammadiyah supporting PAN) makes it difficult for PKS to gain support from various voter segments. In the end, apart from relying on cadres, the voter segment that can be attracted to support this Islamist party is the floating mass, especially those categorized as migrants.

Theoretically, these distinctive structural conditions reflect what Lipset and Rokkan (1967), Sherman and Kolker (1987) conceptualize as cleavage or socio-political basis that divides society into various social groups with their respective political choices. The pattern of Islam is one manifestation of the cleavage of church(es) versus government, political identity, ideology. The type of settlement reflects the cleavage of subject versus dominant culture, social stratification, political identity. Migration status is compatible with the cleavages of subject versus dominant culture and primary versus secondary, social stratification, political identity. Ethnic groups reflect the cleavage of subject versus

dominant culture, political identity. Islamic organizations are manifestations of the cleavage church(es) versus government, political identity, ideology.

However, in this study, the concept of cleavage is not only used to explain a number of groupings in society in two urban communities and relate them to the different political choices of these groups. The concept is also used to explain the inequality of cleavage composition in each urban area and elaborate on its effects on the differences in electoral outcomes achieved by a party.

Conclusion and Recommendation

Data obtained from field research in two urban areas confirm the argument of this study. As previously explained, both areas that are the case of this study are both urban areas although the gradation is slightly different. Although they have more or less the same characteristics, electoral support for PKS tends to be different. In one area, this Islamist party received significant electoral support more than in the other area. The cause of the difference in electoral outcomes is the differences of the typical structural conditions, theoretically known as cleavages, the socio-political bases, in the two regions, which include Islamic patterns, types of settlements, migration status, ethnic groups, and Islamic organizations. The specific structural conditions in one region provide opportunities for the Islamist party to gain electoral support from various segments of voters, while in another region, the structural conditions actually hinder it.

The argument that has been confirmed by the field data emphasizes the important difference between this study and a number of studies that focus on the urban nature of an area as an important aspect that determines the level of electoral support for PKS. Of course, the author agrees that this Islamist party gets more support in urban areas than in rural areas. Data from various electoral competitions, at least since the 2004 General Election, confirm this. However, these aspects do not automatically create significant electoral support for PKS. These aspects are necessary conditions but not sufficient for the formation of electoral support. Whether this Islamist party will gain large vote support or not in an urban area depends on the specific structural conditions of the area.

However, this study does not specifically discuss the strategies of the Islamist party in dealing with the specific structural conditions it faces in an urban area. In fact, a discussion of this is important to do in order to understand the agency dimension of this Islamist party in structural conditions that facilitate or hinder it from gaining electoral support. Theoretically, a discussion of the agency dimension can avoid the idea of typical structural conditions, cleavages or socio-political bases from the tendency of a deterministic explanation of the structure in determining electoral support for a political party. A discussion of the agency dimension can be the agenda of the next research.

Conflict of Interest

The author declares that there is no conflict of interest.

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References

Alamsyah, A. R. (2021). Cleavages and electoral support to Islamist party in Java urban areas: The case of Prosperous Justice Party. *Masyarakat: Jurnal Sosiologi, 26*(2), 112–136. https://doi.org/10.7454/MJS.v26i2.12581

Badan Pusat Statistik. (2021). *Peraturan Kepala Badan Pusat Statistik nomor 120 tahun 2020 tentang klasifikasi desa perkotaan dan perdesaan di Indonesia 2020: Buku 2 Jawa. Badan Pusat Statistik. [Regulation of the head of statistics Indonesia number 120 of 2020 concerning urban village and rural village classification in Indonesia 2020: Book 2 Java]*. Statistics Indonesia. https://www.bps.go.id/id/publication/2021/05/26/cff43de20a058e9e8400ca57/peraturan-kepala-badan-pusat-statistik-nomor-120-tahun-2020-tentang-klasifikasi-desa-perkotaan-dan-perdesaan-di-indonesia-2020---buku-2-jawa.html [in Indonesian]

Badan Pusat Statistik Kota Depok. (2018a). *Kecamatan Pancoran Mas dalam angka 2018. [Pancoran Mas Subdistrict in figures 2018]*. Statistics Indonesia Depok City. https://depokkota.bps.go.id/id/publication/2018/09/26/7c0fdae43939a6b17fa94cae/kecamatan-pancoran-mas-dalam-angka-2018.html [in Indonesian]

Badan Pusat Statistik Kota Depok. (2018b). *Kecamatan Sawangan dalam angka 2018. [Sawangan Subdistrict in figures 2018]*. Statistics Indonesia Depok City. https://depokkota.bps.go.id/id/publication/2018/09/26/ec34bfc2e5217399d5c50254/kecamatan-sawangan-dalam-angka-2018.html [in Indonesian]

Berland, A. (2017). When do religious parties moderate? Religious party moderation in Indonesia, Turkey, and India. *SAIS Review of International Affairs, 37*(1S), 131–143. https://doi.org/10.1353/sais.2017.0020

Bryman, A. (2012). *Social research methods* (4th ed.). Oxford University Press.

Bubalo, A., Fealy, G., & Mason, W. (2008). *Zealous democrats: Islamism and democracy in Egypt, Indonesia and Turkey* (Lowy Institute Paper No. 25). Lowy Institute for International Policy. https://www.lowyinstitute.org/sites/default/files/pubfiles/Bubalo%2C_Zealous_democrats_web_1.pdf

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Sage Publications.

Fionna, U. (2014). The pull and push between central and local political parties: A case study of party branch organisation in Indonesia. *Asia Pacific Journal of Public Administration*, *33*(2), 143–162. https://doi.org/10.1080/23276665.2011.10779382

Hamayotsu, K. (2011). The political rise of the Prosperous Justice Party in post-authoritarian Indonesia: Examining the political economy of Islamist mobilization in a Muslim democracy. *Asian Survey, 51*(5), 971–992. https://doi.org/10.1525/as.2011.51.5.971

Hasan, N. (2012). Islamist party, electoral politics and da'wah mobilization among youth: The Prosperous Justice Party (PKS) in Indonesia. *Journal of Indonesian Islam, 6*(1), 17–47. http://dx.doi.org/10.15642/JIIS.2012.6.1.17-47

Irsyam, T. W. M. (2017). *Berkembang dalam bayang-bayang Jakarta: Sejarah Depok 1950–1990-an. [Growing in the shadows of Jakarta: The history of Depok 1950-1990s]*. Yayasan Pustaka Obor Indonesia. [in Indonesian]

Komisi Pemilihan Umum Kota Depok. (2019a). *Sertifikat rekapitulasi hasil penghitungan perolehan suara, calon anggota Dewan Perwakilan Rakyat Daerah kota, Kecamatan Pancoran Mas*. [Certificate of summary of vote counting results, candidates for members of the city Regional People's Representative Council, Pancoran Mas Subdistrict]. Depok City General Elections Commission. [in Indonesian].

Komisi Pemilihan Umum Kota Depok. (2019b). *Sertifikat rekapitulasi hasil penghitungan perolehan suara, calon anggota Dewan Perwakilan Rakyat Daerah kota, Kecamatan Sawangan.* [Certificate of summary of vote counting results, candidates for members of the city Regional People's Representative Council, Sawangan Subdistrict]. Depok City General Elections Commission. [in Indonesian]

Lipset, S. M., & Rokkan, S. (1967). *Cleavage structures, party systems, and voter alignments: An introduction.* Free Press.

Machmudi, Y. (2008). *Islamising Indonesia: The rise of Jemaah Tarbiyah and the Prosperous Justice Party (PKS)*. [Doctoral dissertation, Australian National University]. https://press-files.anu.edu.au/downloads/press/p26191/pdf/prelims15.pdf

Miichi, K. (2023) Indigenizing Islamism in Indonesia: Prosperous Justice Party's approaches towards traditionalist Muslims. *Politics, Religion & Ideology, 24*(1), 120–133. https://doi.org/10.1080/21567689.2023.2190893

Park, J. H. (2021). The electoral paradox of party institutionalisation: The case of PKS in eastern Indonesia. *Asian Studies Review, 45*(4), 690–710. https://doi.org/10.1080/10357823.2021.1931661

Park, J. H. (2023). Localised impacts on Islamist political mobilisation in Indonesia: Evidence from three sub-provincial units. *Journal of Southeast Asian Studies, 54*(3), 450–479. https://doi.org/10.1017/S0022463423000474

Rofhani, R., & Fuad, A. N. (2021). Moderating anti-feminism: Islamism and women candidates in the Prosperous Justice Party (PKS). *Journal of Current Southeast Asian Affairs, 40*(1), 156–173. https://doi.org/10.1177/1868103421989076

Sherman, A. K., & Kolker, A. (1987). *The social bases of politics*. Wadsworth.

Tomsa, D. (2012). Moderating Islamism in Indonesia: Tracing patterns of party change in the Prosperous Justice Party. *Political Research Quarterly, 65*(3), 486–498. https://doi.org/10.1177/1065912911404566

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Influence of religious philosophy on parental school choice: A qualitative analysis

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Abstract

In this paper, attention is paid to the extent to which religious philosophy can determine parental choice of a school for their children. It has become common in families to look for an institution that shares their beliefs, thus it is worth knowing the reasons behind such choices. The goal of this study is to understand the key objectives of parents who put such priorities above other factors when choosing a school. More specifically, library research and a phenomenological approach formed the qualitative research design data sources which were various articles and books. The results show that parents consider the focus on the religious education of their children, the similarity of beliefs in the family and the school, and the possibility of belonging to a faith community in a school as the main criteria for the selection of schools. These are important areas in the nurturing of children's morals and ethics. From the findings of the study, it can also be stated that such parents conform to the school's existing philosophy which appeals to them. There has been an attempt in this research paper that suggests that these schools should develop programs that will cultivate their students' religious beliefs holistically. This program will also be useful to families whose philosophical views have been extended to educational institutions that are highly confessional.

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Introduction

In the 21st century, we have observed that school choice is particularly important in the context of families guided by specific religious principles. Religion is fairly important in the education of children and their upbringing, so the family search strategy for school premises raises issues relevant to educators, decision-makers, and researchers in equal measure (Kelty & Wakabayashi, 2020). The purpose of this study is thus, to fill a research gap with regard to the link between religious philosophy and parental school choice.

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Given the wider range and diversity of educational lay public Anglican, Catholic, Jewish, and other schools, there are some factors that parents have to consider in their choice of a school for their children. One of these factors is religion. Some parents want their children to attend college, and such children need to attend a place that perfectly enhances their intelligence and spiritual teaching. This is more so in proportions of sociological settings whereby activities and interactions of the people around are structured around religious life (Siddique, 2023).

While there is growing headway on the significance of religion in education, its specific facets, including its influence on parent decision-making of school choice, have received less emphasis when dealing with sociological factors explaining parental education choice (Horwitz, 2021). Earlier studies have dealt with a more general perspective including location, academic performance, and even extracurricular activities among other factors bearing little attention, the underlying religious factors. This research fills this gap by investigating the aims and concerns parents have when making schooling decisions that are predominantly influenced by faith.

There are several reasons why it is necessary to understand the reasons why parents make such choices in their attempt to educate children based on religion. It assists in educational planning because the institutions will have a clearer picture of what these families expect when seeking to have their children educated in a religious setting (Schonfeld & Demaria, 2020). Such recognition might allow schools to better tailor their curricula and programs in order to increase student participation and satisfaction. This study also adds its voice to the wider debate on education equity and inclusivity. With increased diversity within societies, it is critical to recognize the need for religious pluralism and the religious needs of different families.

By examining the relationship between religion and education, this research is able to contribute to policies that foster inclusivity and respect for different faiths within the framework of the educational system. The idea that inspired this research is rooted in the understanding that religion has an influence on an individual's identity, values, and behavior. When it comes to choosing schools, most parents use their religion to make the decision which in turn, shapes their outlook of what education should entail (Gross & Rutland, 2021).

The context of these beliefs is what they seek to uncover: in what ways do these beliefs affect the decision-making process in such a way that it impacts the child's educational development by Charles et al. (2021) as well as their social interactions and the moral aspect of their personality? The goals of this work require formulating the following research questions: what are the main aims of parents practicing religion while searching for a suitable school for their child; which factors do parents consider while searching for a school in accordance with religious criteria, and how do these factors operate with respect to the child's education, expectations as well as the outcomes of such an education. To achieve these objectives, the study will address the following research questions:

• What drives parents to choose a school when religion is their priority?

• How do parents view the value of the school in instilling moral values in their children via religious teachings?

• How does the value of education based on religion aid in the development of a child's academic success and social interactions?

The focus of the existing body of literature pertaining to school choice, lay factors such as academic performance, other schools or institutions' societal stature, and the distance of the school from their residence.

Although, concerning the religious philosophy of potential students and their families, the literature is rather thin. The works by Chubb and Moe outline school choice as an element of ensuring the quality of education, but they have nothing to say about why religious families choose them (Ng et al., 2024). This has not stopped a few studies from understanding how the two fit together, mostly as one parent's ethics persuading them to seek out ethical schools for their children. For example, it was reported that parents emphasizing the need for religious schooling enrolled their kids in institutions that would nurture those beliefs. Some studies focus on why there is a need to have value congruence between home and school institutions and as a result, parents will be inclined to schools that are teaching the values which they have been taught at home. In spite of those conclusions, it still remains an unanswered question with an explanatory factor, what are the goals and motives of parents in schools observing religious philosophies? In order to fill this gap, the current study intends to conduct a qualitative analysis on the focus of religion in families and parental decision-making processes.

The aim of this work is to investigate the impact of religious philosophy on school choices made by parents, a subject that has not been adequately addressed by previous authors. This study aims to understand the motivations and considerations of parents who have a Christian education within their priorities and would

add educational value to educators, policymakers, and researchers alike (Liu et al., 2022). It is crucial to grasp the issue of religion in the context of school selection in order to promote inclusion and improve the educational experience of children from various backgrounds. We hope to add to our understanding of how the relationship between education and religion operates and how best to meet the needs of children seeking that kind of education. The outcomes of this work will go beyond deepening our appreciation of the possible outcomes of parental influence on school choice and consider multi-faceted educational policies and practices that embrace various individual and family values. This study is designed to understand the goals of parents with religion, and in turn, encourage better relationships between schools and families, enhancing children's overall development.

Literature Review

In recent years, the interaction of religion and education is a topic worth investigating, especially in light of the issue of school choice (Johnson et al., 2024). From the studies, it appears that there is a complex correlation between education and religion with regard to political affiliations and political believer's values, which has the highest prominence level. It has been found in this body of literature that parents who are devoted to a certain belief system are more likely to search for like-minded schools that offer a certain ethos to their students. This literature review will focus on synthesizing existing studies so as to provide a clientele understanding of the reasons behind parental school choice which is informed by the objective religious philosophy.

The theory is directly related to education; parents looking for schools for their children would want them to get educated in an institution with shared values. In this sense, value congruence theories propose that individuals are likely to actively engage with institutions that they feel incorporate their values. Further postulate that parental attachment to religious beliefs will influence the expectations of parents for the education of their children and therefore, the institutions chosen will tend to be those associated with the parents' religious beliefs. These findings complement those who contend that religious philosophy will be very prominent in their choice of educational institutions due to the need for families who wish to come together through education (Caldicott, 2023).

Furthermore, the review of the literature points out the religious education aspect of the individual in terms of character formation and morality. Research suggests that parents who are inclined toward teaching religion to their offspring deem it crucial in nurturing the cultural and social identities of their children. For example, it was discovered that many Muslim parents are concerned with the type of school their children attend and will seek one that has an Islamic curriculum as they see this as central to the overall moral development of their children. Also, the same pattern was encountered in which nonsexual persons favor Comprehensive schools which integrate religious education into the other subjects offered in the school. The value parents seek in their children's schools through understanding that the child will be taught religious education is the same value they seek from the environment of the school (Schonfeld & Demaria, 2020).

Besides character formation, the literature also offers solutions to the problem of how parents can resolve the cultural diversity quandary that they face when trying to provide their children with religious education (Jefferies et al., 2020). With the increase in multicultural societies, parents are faced with the dilemma of how to choose educational institutions that are respectful of their beliefs whilst equally being inclusive of different cultures. It is stated that multicultural sensitivity is fundamental in the teaching-learning process and posits that schools need to make efforts to create spaces that appreciate difference and advocate for diversity. Such a viewpoint is important in shedding light on how parents make choices in situations where there exists a multiplicity of religions and cultures.

In addition, the literature further tells us that not only does the religion of a family determine the choices made by a family with regards to a school but also the quality of education and the reputation of the school in the society coupled with the sociocultural factors. It is believed that school choice can improve education quality through competition among institutions. Nevertheless, this position disregards the real reasons of religious family which might include but are not limited to ideology and values with social achievements. This lack in the literature indicates the importance of further studies that focus on the relationship between religious philosophy and other factors in the choice of school by parents (Alesina et al., 2023).

The foregoing literature helps to understand the contribution of religious philosophy in the choice of schools by such parents but at the same time points out areas that require additional investigation (Poncini, 2023). For example, although researchers have focused

on the effort to confirm the significance of congruence between the values or norms of religious education, the studies do not have an extensive qualitative strategy that aims to explore the reasons and the experiences of parents placing such importance on religious beliefs. This research therefore intends to help close this gap through the use of phenomenology with a view to exploring the objectives and concerns of parents who have a wide range of faith perspectives.

In closing, the body of work looking at the interrelation between religion and education shows that in the context of making decisions about schooling, a great deal is determined by parental religious philosophy. Theoretical constructs such as value congruence and character development can explain such choices and their underlying motivations. Still, such works also indicate the more nuanced aspects of the equation that need to be investigated further: how do parents integrate faith and practicality when choosing a school? Applying the findings from the coursework, this paper seeks to fill the gap in the existing literature on religion and education while proposing practical measures to address the problems faced by families who want their children educated in a faith-based setting. This research will also facilitate a better understanding of the dynamics between parents' religion and their children's education resulting in an active collaboration and communication between parents and education institutions (Lamu et al., 2023).

Methodology

Study Design

This study employs a qualitative research design whereby a phenomenological approach is used to address parents who select a school for a child based on the child's religion (Gill, 2020a). This design is quite perfect to gain a deeper understanding of the parents considering their lives as well as how they make decisions.

Participants

The participants for this study will be parents with school-aged children, who practice certain religions. The selection criteria will focus predominantly on parents who are highly involved with their faiths and see the importance of such values in educational decisions. Around 30 participants of diverse religions will be recruited to meet the goals of the study and enhance its diversity (Pusztai et al., 2024).

Data Collection

Data will be gathered through semi-structured interviews which will be able to provide flexibility in the participants' experiences while still capturing the important areas (Banha et al., 2022). Each interview will take 45 to 60 minutes and will take place in a secure environment to preserve privacy and help the participants feel at ease. The data collection will take place in Indonesia where the participants will easily reach the area. The procedure for collecting data entails the following:

1. Recruitment: Participants will be sourced from religious institutions, different community centers, and social networking sites. Flyers and announcements will be used across the target population to create awareness of the purpose of the study and the study itself.

2. Informed Consent: Before the interviews, people will be given informed consent that explains the nature of the study, the methods to be employed, and the rights of the study participants. Consent will be acquired even before the interviews commence.

3. Conducting Interviews: The study interviews will be audio recorded as long as participants allow, and the recordings will be transcribed verbatim. Advertisements are anticipated to solicit participants who will be interviewed pertaining to their motives, belief systems and experiences in relation to their school of choice on the basis of religious philosophy (Carey et al., 2022).

Sampling method

A purposive sampling method will be used to obtain a sample of participants who fit the study's requirements. This method ensures that certain persons who can contribute useful information and are relevant to the topic of study are included (Gill, 2020b). The target is to have a representative sample that incorporates different religions such as Christianity, Islam, Judaism, and others that may surface.

Data Analysis: Procedure

The thematic analysis described will guide this study. The analysis will have the following processes (Braun & Clarke, 2021):

1. Familiarization: Participants unfamiliar with the topic will expose themselves to the data by reviewing the transcripts on a number of occasions as a way of obtaining their fullness of ideas.

2. Coding: In this phase, the data will be sorted into various categories using initial codes that highlight core elements pertinent to the research questions and objectives. In this phase, the use of qualitative data analysis software such as NVivo will be applied for effective data arrangement and management.

3. Theme Development: Themes will be constructed through reorganizing lesser codes reflecting the deeper meaning within participants' experiences and motivations. This process will include a series of amendments to yield the desired goals that the themes achieved.

4. Validation: Member checking will be used to improve the credibility of findings. Thus, participants will be able to read the themes and explanations based on the interviews conducted on them. This will ensure that the participants' perspectives are adequately presented in the analysis.

5. Reporting: The communication of final findings will be straightforward and ethical as well as adhere to the reporting styles accepted by the scientific community. The results will be placed in the context of previous studies to demonstrate their importance and relevance to educational practice.

By adopting this methodology, one hopes to achieve a less superficial appreciation of the significance of the religious philosophy aspect in relation to parental schools' choice activity and furnish the education sector with new approaches and ideas for research and policy. The research design is as follows. (Figure 1)

Results

The findings of this research extend a clear and detailed explanation of the goals and needs of parents who prefer schools with a religious philosophy. The results have been presented in an organized manner integrating data in the form of tables, figures, and graphs to the themes and points discussed (Ross & Morrison, 2020).

Discussion of Result

The first theme from the qualitative analysis was the appeal of parents in the schools that are consistent with Martinez et al. (2022) religious beliefs. Such themes include:

1. Heavy Religious Instruction
2. Moral and Ethical Development
3. Sense of Community and Affiliation
4. High Educational Standards
5. Cultural and Religious Heritage

A discussion of each theme follows below including statistics and graphics where appropriate.

Theme 1: Heavy Religious Instruction

One predominant factor that drives parents is the wish to achieve strong religious instruction that upholds their beliefs. Approximately 85 percent of the respondents of the data argued that religion should be taught as part of the curriculum to one's children.

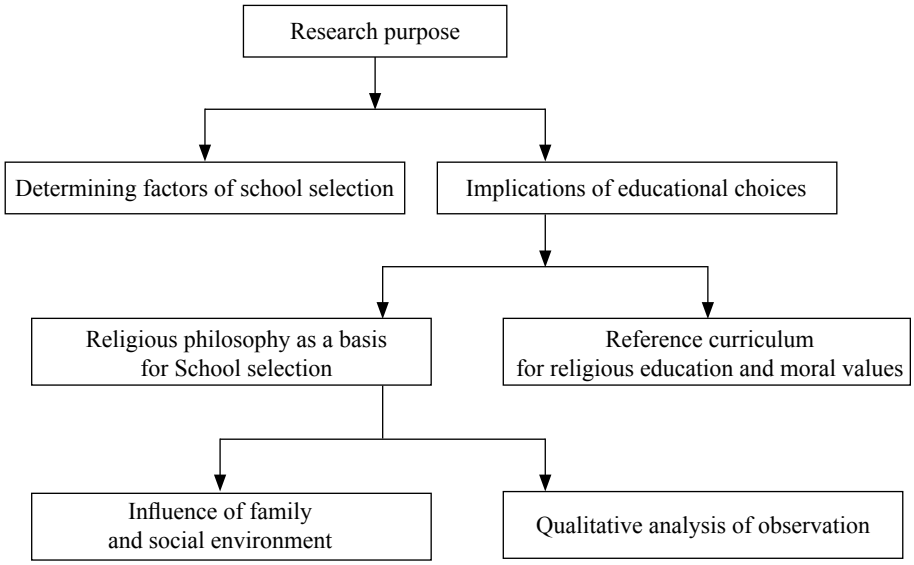


Figure 1 Research ethics guidelines and scientific reporting standards

Table 1 illustrates the perceived importance of religious education among participants. The majority (85%) consider it either very important or important, highlighting its central role in their school choice.

Theme 2: Moral and Character Development

Parents believe that a strong religious education is essential for the moral and character development of their children. Many participants expressed concerns about the moral climate in secular schools.

Table 1 Importance of religious education in school choice

Importance Level	Percentage of Participants
Very Important	60
Important	25
Somewhat Important	10
Not Important	5

Theme 3: Community and Belonging

The sense of community and belonging associated with religious schools was another prominent theme. Parents reported that religious schools foster a supportive environment where families share similar values (Pusztai et al., 2024).

Explanation of the Table 2

• Factor: This column lists the various elements that contribute to the sense of community in religious schools.

• Description: A brief explanation of each factor.

• Impact Measurement: This column describes how the impact of each factor is measured.

Data/Statistics

This column provides specific data or statistics that illustrate the effectiveness or presence of each factor in fostering a sense of community (Matsouaka, 2022).

Theme 4: Academic Excellence

While religious education is a priority, many parents also seek academic excellence. The data revealed that 75 percent of participants believe that religious schools provide a higher quality of education (Poncini, 2023).

Table 3 compares parents' perceptions of academic quality between religious and secular schools. The majority (75%) believe that religious schools offer superior education, indicating a dual focus on both religious and academic outcomes.

Theme 5: Cultural and Religious Identity

Parents also expressed the importance of maintaining their cultural and religious identity through education. This theme was particularly relevant for families from minority religious backgrounds (Gross & Rutland, 2021).

Table 3 Perception of academic quality in religious versus secular schools

School Type	Percentage of Participants
Religious School	75
Secular School	25

Table 2 Sense of community in religious schools

Factor	Description	Impact Measurement	Data/Statistics
Shared Values	Common religious beliefs and practices among students	Percentage of students feeling aligned with school values	85% of students report alignment
Parental Involvement	Engagement of parents in school activities	Number of parental participation events per year	12 events annually
Community Events	Religious and social gatherings organized by the school	Average attendance at events	200 attendees per event
Support Networks	Availability of mentorship and peer support	Percentage of students reporting feeling supported	90% of students feel supported
Cultural Celebrations	Recognition of diverse cultural backgrounds within the school	Number of cultural events held annually	5 events per year
Student Engagement	Participation in school clubs and activities	Percentage of students involved in extracurriculars	75% of students involved
Communication Channels	Effectiveness of communication between school and families	Satisfaction rating from parents	4.5/5 average satisfaction
Religious Instruction	Quality of religious education provided	Student satisfaction with a religious curriculum	88% satisfaction rate

Figure 2 depicts the percentage of parents who prioritize cultural identity in their children's education. Approximately 65 percent of participants indicated that preserving their cultural identity is a significant factor in their school choice.

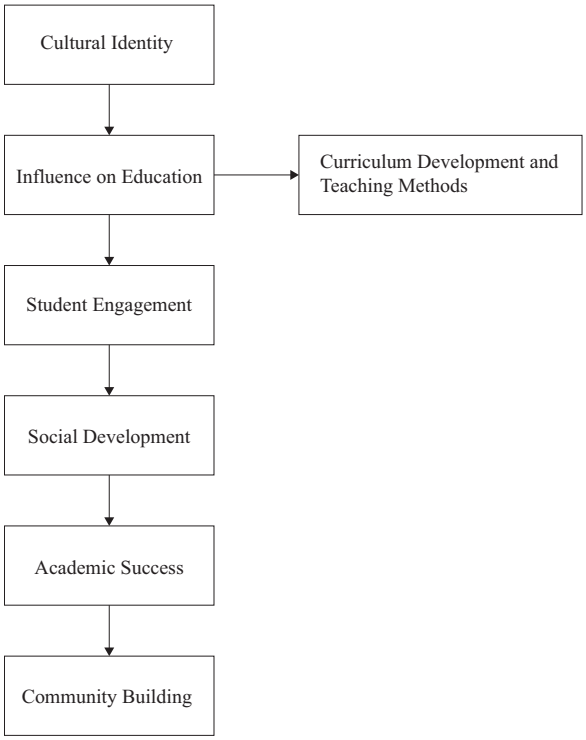


Figure 2 Importance of cultural identity in education

Implications of Results

As this study has established, there are a number of considerations regarding educational policy and practice as follows (Hyde, 2024):

1. Support for Religious Education: There is a good observation pointing towards a robust concern for religious education which implies that people in charge of making policies should address the requests of those families who would want their children to be trained in religious matters. This could mean subsidizing religious schools or incorporating religious education into the public school system.

2. Focus on Moral Development: Parents' worries regarding the moral development of their children once they attend non-religious schools capture the importance of character education in our educational setting. Perhaps schools can introduce programs that instill and teach ethical and moral reasoning in the pupils.

3. Community Engagement: Parents of children attending religious schools indicated a high level of sense of community which points to the fact that schools should aim to build a conducive environment for the families. For example, parents can be encouraged to participate in community development scope.

4. Academic Standards: The lower academic reputation of schools that are non-religious appears to encourage further the need for any school to uphold standards and quality of education even when it is a religious institution. This can happen, for example, through the exchange of ideas and resources between religious and secular schools.

5. Tact and Balance: The significance of cultural and religious belonging in education brings the need for schools to be explicitly cultural and inclusive. Educational institutions should appreciate and embrace the cultural diversity of their learners as a way of enhancing cohesion and contact in the pedagogy that is taught.

This study's results indicate that parents who seek schools that have a religious orientation choose such schools for reasons of seeking religious instruction, moral education, character development, a sense of belonging to the community, learning skills, and protection of culture. Such observations are useful in the understanding of stakeholders including educationists, policy formulators, and research analysts who are curious to know the impact of religion on the educational decision-making process. They argue that schools can be more effective in addressing the concerns of families and children and in providing an appropriate learning environment that is respectful of the different values and beliefs held by their target populations.

Discussions

The results of this study shed light on the interactions that exist between the choice of a school and the choice of a religious philosophy among parents (Foley et al., 2024). The identified motivations seeking strong religious educational institutions, moral and character development, seeking community belonging, academic performance, and cultural integration depict interconnections that exist in making decisions to educate children in religious-oriented institutions of one's choice.

The high priority cycle quoted relates to parents' wish that education goes beyond academic learning. They want children to possess values and ethics acknowledged and endorsed by their faith. This of course corresponds with the concept in other literature on education to encompass

character and moral growth. They also can be informed by parents' fears regarding prevailing secular ethics in public schools providing a vacuum in values to be filled by their children receiving education in church schools. The quote therefore reinforces the idea that education is more than functional; it transforms society by shaping the minds and hearts of people (Pring, 2021).

Parents of such children also mentioned a strong feeling of community among themselves pointing out that religious schools are more than mere academic institutions; they are social centers reinforcing common values and beliefs (Elsayed, 2024). This aspect of community life is vital in times like today when people are likely to experience feeling alienated in a pluralistic society. It also supports the findings on child development, describing the supportive role of religious schools in providing a sense of community and identity that is important in the development of children's social and emotional aspects. Implications for Practice and Policy Education was largely a movement towards enlightenment, the creation of universal moral values. Apparently, these findings are significant for the field and for practice and policy.

Firstly, both types of religious institutions need to focus on moral and character education. As schools integrate values within contexts that are most significant to parents, there is a greater chance of success without compromising community expectations and parents' worries about their children's development. Secondly, the findings indicate a need for policy intervention by encouraging policies that enhance and promote the development of religion-based schools (Hidayatulloh et al., 2024). It is a grave wrong that most religious schools receive no such support to cover training, resources, and funding to help teachers promote religion alongside good education principles.

Furthermore, there is a problem with how people and students within schools perceive community identity creation as part of the school's core objectives. Schools have programs that can be created to seek parental involvement as well as provide a platform where families can interact and hence bring out the identity aspect parents want for their children (Eden et al., 2024).

1. Curriculum Development: Educational institutions, which have a responsibility of molding character, should have policies aimed at establishing curricula that place greater emphasis on moral and ethical learning.

2. Community Engagement Initiatives: Schools should implement strategies aimed at enhancing family-school connections such as organizing family programs, mobilizing parents to volunteer, and entering into collaborations with other stakeholders in the school community.

3. Research on Diverse Educational Needs: Further studies should examine the perceptions and experiences of families of different religious affiliations and cultural backgrounds in relation to their educational needs and preferences. This may help inform education stakeholders towards more comprehensive education policies.

4. Support for Religious Schools: Policymakers must bear in mind the conclusions that were drawn in these studies in their deployment of resources and support to educational institutions in such a way that religious and nonreligious schools survive and effectively respond to the needs of families.

The study brings to light the profound impact of the philosophy of religion on the choices of parents regarding the school that they wish their children to attend. The findings show that parents value not only good academic performance, but also the moral and ethical growth of their offspring, the feeling of commonality, and the enhancement of cultural values (Porcher, 2024). These findings are significant for educational practice and policy and bring into focus the necessity of schools meeting the diverse needs of families. The authors suggest that such efforts should be complemented with further research on the diverse factors undergirding school choice, particularly within an emerging multicultural society so that every family can find a suitable school that accommodates their principles and beliefs.

Conclusion and Recommendations

The investigation found information about the children and parents and emphasized important parts of religious philosophy regarding parents' school elections. The data suggest that for most families, choosing a school today is not a matter of good grades but a matter of religious beliefs. Parents are concerned that their children are educated on a set of criteria that are not limited to personal cultural characteristics as well as excellent academic performance, but also moral standing and adherence to the feelings that belong in a community. This demonstrates the significance of addressing the many feelings behind school choice, especially in a multicultural parentage where family needs and expectations are diverse.

These are important implications for teachers, policy makers, and researchers. While educational

establishments try to serve various members of society, it is necessary to understand how paramount religious values are when choosing education. It is important that the schools can handle these values with excellence, but what takes priority is their education making the schools comfortable places for all families as there is respect for all peoples' values.

Integrate Values-Based Education: Values and morals should go hand in hand with learning a particular subject in educational institutions; hence, some elements should be blended. By doing this, the outcomes from education correspond to the values that parents regard as critics. Enhance Community Engagement: It is required and necessary to engage schools. Engagement should be geared towards cooperation between parents and the community. Such events, workshops, or simply volunteering in the organization enable parents to meet and be involved with the interaction, and consequently, the sense of belonging that is so paramount in children's social and emotional development. Enhancing Educational Pluralism: It is necessary to emphasize the particular features of religious schools in the context of other educational institutions. Supporting and giving resources to these specific institutions can help make sure that they survive and are able to respond to the families that require them. Further Investigation is Needed: Further studies should examine the views of families belonging to different religions and cultures in order to fully appreciate their choice of education. These inquiries could help shape the implementation of family-centered educational policies and practices that consider the needs of the greater population. Encourage Family and School Interaction: It is necessary for schools to manage contact with the parents so as to understand their norms and expectations. Schools are also encouraged to utilize regular feedback approaches such as survey instruments and focus discussion groups to enhance the relevance of their programs to the community.

In conclusion, this study emphasizes the importance of religion and education in forming parental preferences. Knowing and acknowledging the values that drive these choices, school systems can work towards making better representations of these parental and student values and improving students' academic and emotional well-being. The suggestions made are intended to protect the educational interests of the learners and ensure that the differences in the learners' cultures and belief systems are appreciated and cultivated.

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Conflicts of Interest

The Author declares that there are no Conflicts of Interest.

References

Alesina, A., Hohmann, S., Michalopoulos, S., & Papaioannou, E. (2023). Religion and educational mobility in Africa. *Nature*, *618*(7963), 134–143. https://doi.org/10.1038/s41586-023-06051-2

Banha, F., Flores, A., & Coelho, L. S. (2022). Quantitizing Qualitative Data from Semi-Structured Interviews: A Methodological Contribution in the Context of Public Policy Decision-Making. *Mathematics*, *10*(19), 3597. https://doi.org/10.3390/math10193597

Braun, V., & Clarke, V. (2021). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, *9*(1), 3–26. https://doi.org/10.1037/qup0000196

Caldicott, C. V. (2023). Revisiting moral courage as an educational objective. *Academic Medicine*, *98*(8), 873–875. https://doi.org/10.1097/acm.0000000000005239

Carey, L. B., Koenig, H. G., Cohen, J., Gabbay, E., Hill, T., Aiken, C., Drummond, D., & Carey, J. R. (2022). Cancer, religious philosophy, death and dying. *Journal of Religion and Health*, *61*(6), 4283–4287. https://doi.org/10.1007/s10943-022-01673-8

Charles, L., Brémault-Phillips, S., Pike, A., Vokey, C., Kilkenny, T., Johnson, M., Tian, P. G. J., Babenko, O., Dobbs, B., & Parmar, J. (2021). Decision-making capacity assessment education. *Journal of the American Geriatrics Society*, *69*(4). https://doi.org/10.1111/jgs.17067

Eden, N. C. A., Chisom, N. O. N., & Adeniyi, N. I. S. (2024). Parent and Community Involvement in Education: Strengthening Partnerships for Social Improvement. *International Journal of Applied Research in Social Sciences*, *6*(3), 372–382. https://doi.org/10.51594/ijarss.v6i3.894

Elsayed, W. (2024). Building a better society: The Vital role of Family's social values in creating a culture of giving in young Children's minds. *Heliyon*, *10*(7), e29208. https://doi.org/10.1016/j.heliyon.2024.e29208

Foley, T., Caltabiano, N., & Dinan-Thompson, M. (2024). A case study of parent perspectives on interreligious learning and teaching in a diverse Catholic school context: 'Building a civilisation of love.' *Journal of Beliefs and Values*, 1–16. https://doi.org/10.1080/13617672.2024.2302240

Gill, M.J. (2020a). *Phenomenological approaches to research*. Qualitative Analysis: Eight approaches, London: Sage, pp. 73–94.

Gill, S. L. (2020b). Qualitative sampling methods. *Journal of Human Lactation*, *36*(4), 579–581. https://doi.org/10.1177/0890334420949218

Gross, Z., & Rutland, S. D. (2021). *Cultural and religious identity*. In Springer eBooks, 103–126. https://doi.org/10.1007/978-3-030-67969-9_5

Hidayatulloh, T., Saumantri, T., & Ramdani, Z. (2024). Integrating Living Values Education into Indonesian Islamic Schools: An Innovation in Character Building. *EDUKASI Jurnal Penelitian Pendidikan Agama Dan Keagamaan*, *22*(1), 137–152. https://doi.org/10.32729/edukasi.v22i1.1743

Horwitz, I. M. (2021). Religion and Academic Achievement: A research review spanning secondary school and higher education. *Review of Religious Research*, *63*(1), 107–154. https://doi.org/10.1007/s13644-020-00433-y

Hyde, B. (2024). An introduction to religious, moral and values education. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186x.2024.2313805

Jefferies, D., Glew, P., Karhani, Z., McNally, S., & Ramjan, L. M. (2020). The educational benefits of drama in nursing education: A critical literature review. *Nurse Education Today*, *98*, 104669. https://doi.org/10.1016/j.nedt.2020.104669

Johnson, A. F., Lilja, A., & Osbeck, C. (2024). Discourses on religion in research that focuses on students' perspectives. *Journal of Religious Education*, *72*(2), 235–253. https://doi.org/10.1007/s40839-024-00230-7

Kelty, N. E., & Wakabayashi, T. (2020). Family engagement in schools: parent, educator, and community perspectives. *SAGE Open*, *10*(4), 215824402097302. https://doi.org/10.1177/2158244020973024

Lamu, A. N., Chen, G., & Olsen, J. A. (2023). Amplified disparities: The association between spousal education and own health. *Social Science & Medicine*, *323*, 115832. https://doi.org/10.1016/j.socscimed.2023.115832

Liu, Q., Hong, X., & Wang, M. (2022). Parental Educational Anxiety during Children's Transition to Primary School in China. *International Journal of Environmental Research and Public Health*, *19*(23), 15479. https://doi.org/10.3390/ijerph192315479

Martinez, K. A., Hurwitz, H. M., & Rothberg, M. B. (2022). Qualitative analysis of Patient–Physician discussions regarding anticoagulation for atrial fibrillation. *JAMA Internal Medicine*, *182*(12), 1260. https://doi.org/10.1001/jamainternmed.2022.4918

Matsouaka, R. A. (2022). Robust statistical inference for matched win statistics. *Statistical Methods in Medical Research, 31*(8), 1423–1438. https://doi.org/10.1177/09622802221090761

Narwana, K., & Gill, A. S. (2022). Understanding parental school choice in varied socio-economic milieus: a case study of a village in Punjab. *Contemporary Education Dialogue/Education Dialogue*, *19*(2), 204–227. https://doi.org/10.1177/09731849221083732

Ng, H. N., Boey, K. W., Kwan, C. W., & To, H. K. A. (2024). Secondary school students' views on sexuality and sexual health education. *International Journal of Sexual Health*, *36*(3), 391–405. https://doi.org/10.1080/19317611.2024.2341627

Poncini, A. (2023). Standards Setting in Religious Education: Addressing the quality of teaching and assessment practices. *Religions*, *14*(3), 315. https://doi.org/10.3390/rel14030315

Porcher, J. E. (2024). The philosophy of religious studies. *Religion*, *54*(4), 633–642. https://doi.org/10.1080/0048721x.2024.2388431

Pring, R. (2021). Faith, reason and religious education: an essay for teachers of religions in a sceptical age. *International Studies in Catholic Education*, *15*(2), 117–129. https://doi.org/10.1080/19422539.2021.1942684

Pusztai, G., Demeter-Karászi, Z., Csonka, É., Bencze, Á., Major, E., Szilágyi, E., & Bacskai, K. (2024). Patterns of parental involvement in schools of religious communities. A systematic review. *British Journal of Religious Education*, 1–20. https://doi.org/10.1080/01416200.2024.2315550

Pusztai, G., Demeter-Karászi, Z., Csonka, É., Bencze, Á., Major, E., Szilágyi, E., & Bacskai, K. (2024). Patterns of parental involvement in schools of religious communities. A systematic review. *British Journal of Religious Education*, 1–20. https://doi.org/10.1080/01416200.2024.2315550

Ross, S. M., & Morrison, J. R. (2020). Achieving better educational practices through research Evidence: A critical analysis and case illustration of benefits and challenges. *ECNU Review of Education*, *4*(1), 108–127. https://doi.org/10.1177/2096531120916742

Schonfeld, D. J., & Demaria, T. (2020). Supporting children after school shootings. *Pediatric Clinics of North America*, *67*(2), 397–411. https://doi.org/10.1016/j.pcl.2019.12.006

Siddique, A. (2023). Behavioral consequences of religious schooling. *Journal of Development Economics*, *167*, 103237. https://doi.org/10.1016/j.jdeveco.2023.103237

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Framing language behaviour: The role of YouTube in early childhood learning

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Abstract

The main focus of this study is YouTube's control over young learners' language behavior. This study aims to identify a form of YouTube language that is particularly discordant with the cultural identity of Indonesians and to investigate its impact on the language usage patterns of high school students. This research produced a formula describing how YouTube's language dominates and affects young English learners' language behavior. This research employs two theoretical frameworks. The first framework is Gramsci's theory of Hegemony, which examines the existence of power relations. The second is framing theory, which delineates the technical aspects of hegemonic framing in YouTube content intended for young learners. This study used qualitative, descriptive, and phenomenological approaches. We gathered data on these phenomena by delivering a questionnaire to parents. We also conducted interviews with school teachers and kindergarten students who were the focus of the study. This research aims to find out how this YouTube Hegemony is framing young English learners' language behavior. The research outcomes showed that almost every parent who participated admitted that their children's English language behavior is significantly influenced by YouTube language. The language used on YouTube can potentially dominate young English learners' language skills, thus, over time, leading to young learners developing language abilities that relate to the content they see.

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Introduction

The topic of alterations in children's language behaviour caused by social media in Indonesia is growing. Additionally, YouTube's social networking content is often untargeted, which can be problematic if users are unaware that the information they see is unworthy (Omar et al., 2020) because some issues with numerous explicit content warnings often appear in an inappropriate manner. In order to ensure that the worldwide community

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embraces the advantages of the diverse range of content on YouTube, it is necessary to implement specific filters. However, no formula which can prevent explicit content has been available to optimize YouTube, particularly for young children (Neumann & Herodotou, 2020).

The research is urgent for several reasons: First, the content on YouTube in Indonesia does not align with the government's efforts to shape the country's character. Second, there is a noticeable shift in English-speaking behavior that deviates from the standards of proper language usage. Third, there is a concerning change in the English-speaking behavior of children, mainly observed in kindergarten in Indonesia, who misuse English for their age, due to the absence of stringent regulations regarding language usage, and also, the mechanisms to prevent the consumption of inappropriate language by young learners.

In 2016, over the previous two decades, new platforms and social media have been introduced into children's media diets. However, most parents indicate that their children watch television for two or more hours every day. The drop in TV viewing could be attributed to parents limiting screen time or utilizing other platforms. Young children's access to mobile devices has also expanded dramatically, rising from 38 percent in 2011 to 75 percent in 2013. Although the digital gap persists, the majority of young children seen by pediatric healthcare practitioners will have used or been exposed to mobile devices (Farahsani et al., 2020). Stoica (2019)'s research highlights that social media, particularly YouTube, is the most advanced platform for providing suggestions to users in today's media landscape. YouTube showcases the fluctuating levels of popularity that can be leveraged to engage in worldwide social interactions. The pervasive impact of technology on various aspects of life has a significant role in changing individuals' knowledge and character across different domains, and of course requires supervision and guidance (Purwanti & Suryaman, 2023). On a separate occasion, Widiantari (2023) successfully proposed that YouTube may be a viable educational option for young children. Individuals can develop their language skills autonomously by employing effective strategies and carefully selecting appropriate material. Utilizing YouTube as a tool for learning English may influence the desire of young children in early life to prioritize language acquisition.

This research simultaneously combines three theories: hegemony theory, framing, and language behavior. These concepts are used to explore how the technical framing of language on YouTube impacts the language behavior of early childhood learners. All of the theories presented serve specific functions in explaining how YouTube's language framing dominates early learners.

This research diverges from earlier studies as it specifically examines how early-age viewers of YouTube shape their English-speaking behavior and the mechanisms behind this framing theory. From the previous explanation, this study tries to describe YouTube's hegemony to the young English language behavior.

Literature Review

Hegemony

Hegemony refers to the act of exerting dominance or influence. The researcher employs this term to indicate underage Indonesian YouTube viewers who adopt and integrate the slang words and languages used on YouTube into their daily lives. The concept of hegemony originated in Antonio Gramsci's writings when he was imprisoned during Mussolini's fascist regime in Italy (Patria, 1999; Udasmoro & Rahmawati, n.d.). Gramsci redefined the term as a notion of control that compelled the subordinate parties not only to comply with the dominant group but also to internalize the principles and norms established by the ruling party and willingly embrace their subordination (Arifin, 2021; Williams, 2022). The critical term shown by this hegemony is consensus, which is the foundation of hegemony theory, as it is through consensus that the subordinate class is encouraged and motivated to actively participate in upholding the authority of power (Purwanti & Suryaman, 2023). Moreover, in the event of a consensus, the parties being governed willingly accept their subordinate position and even take measures to continue the vigilance of the consensus. Suppose the subordinate class actively engages in upholding the social order. In that case, the ruling class will continue to hold power, acknowledge its status as the ruling class, and be considered deserving of its position of authority (Mohan & Punathambekar, 2019).

Hegemony is a concept that refers to collective consciousness. This consciousness is employed to advocate for subordinated classes, commonly referred to as "subalterns," through a historical bloc that is important in transmitting ideas. Hegemony's participation in the formation of a historical bloc is facilitated by the development of organic and traditional intellectuals, who are responsible for fostering awareness and igniting the spirit of change (Karima et al., 2022). Conversely, traditional intellectuals have a function comparable to organic intellectuals; however, they have not yet

acquired the sensitivity necessary to directly stimulate the consciousness of the subalterns who are the targets of hegemony.

The concept of hegemony is dominance, and because focusing on dominance, it refers to the ability of the dominating class which is YouTube as a content, and the subordinate class which is English young learners (EYL) viewers. The dominant wields authority over the varied content they own, influencing what EYL see. As a result, YouTube has the capacity to frame and control their English language behaviour. This explains why hegemony and framing are so closely linked.

On the other hand, the number of YouTube videos is increasing. This is shown by the high ratings on some YouTube sites that young learners like to watch. They are interested more in cartoon and game channels and often act like the gamers they watch. Consequently, many underage youngsters are viewing these channels without parental supervision. Regrettably, the utilization of English on YouTube falls short of being a commendable and accurate form of language. This can be observed in virtually every YouTube program, where individuals employ slang or English jargon that is frequently unsuitable or lacking in politeness for everyday communication, mainly when small children are involved. Language Behaviour

Language behaviour refers to the complex process of verbal communication involving attitudes such as speaking, naming, and reading, which require the selection of appropriate parameters based on the perceived objects or stimuli. Skinner proposed that a child mimics the language of its parents or caregivers. Successful attempts are rewarded when an adult recognizes a child's words and praises or gives them what they want (2022). In the digital era, children will explore more their language abilities from anything that approaches them, such as YouTube, as one of the media to increase children interaction. YouTube has emerged as the most popular social media platform among parents in an effort to enhance their children's language acquisition. Therefore, the children's language development is influenced or framed by the YouTube language they observe. This is a positive reinforcement in the development of children's language (Skinner, 2022). Children will possess a substantial vocabulary and comprehend the context in which it is employed, which is a form of language behavior framed by YouTube content they have watched.

Classification of YouTube's Hegemony

In 1981, Erving Goffman was the first to develop the notion of framing. He believes that the media can shape reality. Until the audience, who will be the focus of this framing, accepts already established ideas and concepts, the media retains complete control over their dissemination. The framing will be most effective if the intended topic is not yet established. Hegemony contains several key concepts that describe the classes against which Gramsci fought, including the organic intellectual, the traditional intellect, the historical block, and the subaltern. We coined these phrases to characterize the roles that unfold during the hegemonic process. Indeed, the dominant classes build hegemony on concepts of consciousness and voluntarism. Internet-based technology is the driving force behind YouTube's dominance. People think of information technology as an interactive tool with a specific purpose.

Organic Intellectual

Organic intellectual is individuals or groups who actively contribute to the creation of dominant ideas and understandings in society (Patria, 1999). People regard organic intellectuals as superior to all others, typically possessing more intelligent and influential abilities. Their perceived intelligence allows them to influence others with their words. The rulers exploit the existence of these organic peoples to subjugate the lower classes. The creator of the YouTube film serves as the intellectual in framing the YouTube language's dominance. They also incorporate language concepts into the visuals infants see and hear, thereby indirectly enhancing language awareness in early childhood, as they are the primary consumers of these images.

On the other hand, the traditional intellectual serves nearly the same purpose as the organic intellect. Although almost identical and having a shorter history, this class has the potential to become an organic intellectual and disseminate ideology to establish hegemony. In a technical sense, it conveyed concepts that its target audience, the subaltern, could comprehend and absorb.

Subaltern

The subaltern group, known as the subject of hegemony, is subservient to the governing group. This group has a relatively simple attitude and can quickly be roused by an intellectual group (Patria, 1999). Children are termed subaltern since they are a group that is subordinated to the dominating group, which is their parents. With the presence of early childhood in the reception of all the information they acquire from YouTube, children gradually embrace every viewpoint,

from YouTube shows to philosophy and language use. For English learners, the introductory language utilized in YouTube videos and consumed by young children will serve as their "model role" in language usage. Children who watch the show will also copy the characters' actions. Language is the first thing to try to copy in early life because it is one of the ways that children express themselves; thus, it will be necessary for them to learn all of the vocabulary for any term. It is good, but direct parental supervision is required to help them pick appropriate terms for their age.

Historical Blocks

Historical bloc is a political alliance that brings numerous social forces. Regarding the structuring of YouTube language, the parties that become political powers are the parents and the YouTube site itself, which work together to generate the same notion. Parents want to provide YouTube so that their children learn English, and YouTube works as facilitator to make things happen. From here, a historical block of emerging and agreed-upon concepts was constructed.

The formation of YouTube's dominant language was hampered by the historical blocks posed by the early children's audience and YouTube viewing. YouTube conveys a concept using the native language of its nation of origin. When young children incorporate these concepts into their developing minds, they perceive them as a form of communication or sensory experience that complements their cognitive processes. This leads to comprehension and validation of a particular worldview. An intellectual with a natural inclination who follows YouTube shares thoughts and concepts with a tiny infant, subtly captivating their attention.

YouTube: Framing Agenda

Within the framework of cultural Materialism, YouTube is not merely a rudimentary device that presents a fragmented and disconnected intersectional exhibition. Raymond Williams, a prominent figure in developing cultural Materialism, had a more excellent vision for television and YouTube. According to Williams, the impression should not be seen solely as a technological commodity handled like previous technological breakthroughs. It should be regarded more holistically, encompassing their technological and cultural aspects (1974).

Williams perceives television, which YouTube replaced, as a powerful agent transforming individuals' culture and attitudes (1974). The advent of YouTube has fundamentally transformed the world from its previous state. YouTube is very attuned to its impact on social transformation. Van Dijck argues that YouTube shows should be regarded as a type of "practice" rather than being recognized as a technological innovation, as the formalists would suggest. YouTube has evolved into a cultural product that has changed over time, as shows are now seen as a form of practice (2013).

The progression of YouTube as a cultural phenomenon subsequently expanded to encompass technical issues that impact society, which is sometimes referred to as the process of agenda-setting and framing. Coleman assumed that agenda-setting refers to the capacity of the mass media to shape the issues deemed significant to the public's attention. In other linguistic contexts, agenda-setting refers to the idea that the media influences the public's perception of which issues are essential through the transmission of information. It is intimately related to the public and private agenda (Coleman et al., 2009).

McCombs and Shaw contend that the media exerts a differential effect on the general populace. Their research demonstrates that the media substantially influences individuals with a heightened demand for guidance (2005). Two elements that impact the extent of the need for orientation are relevance, which refers to how pertinent the media's topics are to individuals' lives, and uncertainty, which pertains to the public's uncertainty about their opinion on the presented problems (Coleman et al., 2009).

Meanwhile, framing operates under the assumption that the media can shape a particular viewpoint or "spin" regarding the event it is transmitting. Consequently, this will influence the public's perception of the event. This framing is commonly known as the second tier of agenda-setting. McComb and Ghanem argued that framing expands the scope of agenda-setting beyond determining the topics to consider encompassing how these topics are approached and interpreted (2001). The initial section of the explanation centers around the media agenda. Once the media has presented the agenda to the public, the issue becomes a subject of public discourse (Ahmad, 2011). Framing refers to the influence of a prior stimulus on subsequent actions, and framing on YouTube lies in the language used.

Framing and language are inseparably linked. Framing is a strategy for altering viewers' perceptions while presenting information (Karima et al., 2022). Language framing on YouTube refers to how YouTube's language is used to present language impression to young language learners. The language used on YouTube progressively

and steadily plays a part in conveying information linked to words, pictures, and the context of each program. For example, Blippi offers linguistic framing connected to animal vocabulary as well as easy persuasive statements like Let's go, let's join.

Methodology

The research on YouTube framing's design hegemony employs two mutually supportive methods: the analytical descriptive and qualitative methods. Ratna (2016) states that using specific research methods is acceptable as long as they are not contradictory. Qualitative research is employed to examine phenomenological symptoms assessed via a questionnaire. The results of the phenomenological questionnaire are subsequently analyzed in greater depth through analytical descriptions about how framing technically applied. It addresses how and why rather than how many or how much (Moser & Korstjens, 2017). This qualitative method has several stages: (1) research preparation, (2) data collection, (3) data analysis, and (4) data dissemination of research findings.

Participants

Semarang City, Indonesia has hundreds of government and private kindergartens. However, this random sampling is limited to schools that follow the Integrated Islamic School Network (JSIT), because this study focuses on upper middle class households. Another reason is that JSIT has frequently partnered with the researcher over the last years. The selected school also had an excellent accreditation (A), according to the National Accreditation Board.

Data Collection

The data were collected using a questionnaire distributed to the parents of Islamic-integrated kindergarten students in Semarang. This questionnaire was designed to assess how long children interact with their mobile devices on YouTube channels, whether parents supervise their activities, how much children's language skills improve while using YouTube, and whether YouTube influences children's language behavior. Some of the questions in the questionnaires are "How long do they watch YouTube?", "What channels do they often watch?", "Do your children master some words in English?", "What is the laguage behavior of your children who ofter watch YouTube like? On the questionnaire sheet that was handed to the parents, the researcher also added a question on the parents' consent form, asking if they agreed to their child participating in this research project.

Data Analysis

The data source involves 46 respondents. Our questionnaire consists of 10 and 6 questions using the Likert scale with five options for response choices, including 1 = never, 2 = ever, 3 = seldom, 4 = often, and 5 = very often. The Likert scale is a rating scale employed to assess behaviors, attitudes, or opinions. It comprises a statement or query followed by five or seven response statements (Sholichah et al., n.d.; Winarto et al., 2024).

The data source involves 46 respondents. The questions posted were ten in total, with six of them being related to framing and the other four elucidating the extent to which YouTube influences children's language behaviour. Each respondent was assigned a code that ranged from R1 to R 46.

Results and Discussion

Each stage of this research proceeds sequentially; during the initial phase, our team visited two institutions that served as sources. The researcher accessed the data, which was the framing of YouTube's hegemony against early childhood language behavior through socializing the healthy use of technologies for young learners. In addition, the research teams issued a questionnaire to the parents and collected interview data from them to get specific information related to the data. Some of the questions posed were regarding the extent to which their children engaged with YouTube, the duration of their YouTube sessions, the channels they viewed regularly, and the extent to which the language they were exposed to through YouTube programs affected their language development. In addition to the data from interviews, the authors shared Google Forms to obtain information similar to the list of interview questions but more detailed. This information included the time children spent using HP and opening YouTube, the amount of vocabulary their children acquired from watching YouTube, and the language behavior of children who frequently watched YouTube. This questionnaire's findings are intended to substantiate the findings of previous interviews with parents. We, as researchers, are endeavoring to determine the extent to which the language they observe through

YouTube views influences their behavior in early infancy and, more importantly, the mechanism by which this hegemonic framing process occurs (Figure 1).

YouTube Hegemony to English Young Learners

Gramsci's hegemony is more commonly recognized as a political method of dominating a social system that the target object desires to dominate but is not perceived as controlled or dominated. Consensus is a critical aspect of this hegemony, as the sphere of thought determines the process of establishing hegemony. In other words, consensuses in hegemonies are endeavors to dominate and influence. This process is time-consuming and requires gradual progress; however, it significantly impacts the dominance of existing systems. This consensus process occurs in early childhood activities, where children can already spend time playing with devices or HP. Numerous parents are oblivious that it is highly probable that any content on YouTube will significantly influence or even dominate their children's behavior, particularly their speech. YouTube is classified as a technological culture in the cultural paradigm of Materialism due to its substantial impact on culture (Harris, 2001). YouTube should not be regarded as a mere viewing experience; rather, it should be regarded as a "practice." This is because the language that YouTube generates can guide the audience, particularly those in early infancy who are not under parental supervision. Harris referred to this as a cultural practice, termed "framing," impacting technical aspects of the simplest elements of society. Framing is a factor that affects the process of language domination on YouTube. Through framing, the stimulus that has undergone a lengthy process, from the viewing of YouTube videos to the continuous acquisition of information from YouTube in early childhood, leads to the children gradually but inevitably recognizing the language reality of YouTube as meaningful and organized, thereby accepting it as a fact.

Ultimately, the guidelines for children are further practiced in their daily lives because the stimulus lasts for a long time. This implies that the cognitive process of framing infants engage is a means by which they process the information they are presented with. Therefore, it is crucial to have an accompanying adult present when children watch YouTube videos, as they are reliable imitators during their youth. According to the questionnaires and interviews in picture 1 that we conducted with the parents, the average number of children who began watching YouTube at 4 was 31.8 percent, followed by 25 percent at three years old and 22.7 percent at five years old. The remaining children were two years old, 13.6 percent, and one year old, with 6.9 percent who had never watched YouTube. Adolescents viewed YouTube at an average rate of 30 minutes to 2 hours daily. As evidenced by the survey results, 47.7 percent of young children spent 30 minutes using YouTube, 22.7 percent spent 30–60 minutes, 22.7 percent spent 1–2 hours, and the remaining 22.7 percent spent more than 2 hours per day. Such demonstrates their consistent pattern of viewing YouTube. This activity will undoubtedly affect their behavioral learning of language, as the influence of early childhood routines on YouTube consumption will be significant, even when they are growing up and acquiring information. The result of the questionnaire related to the framing of YouTube's language can be seen in the chart below (Figure 2).

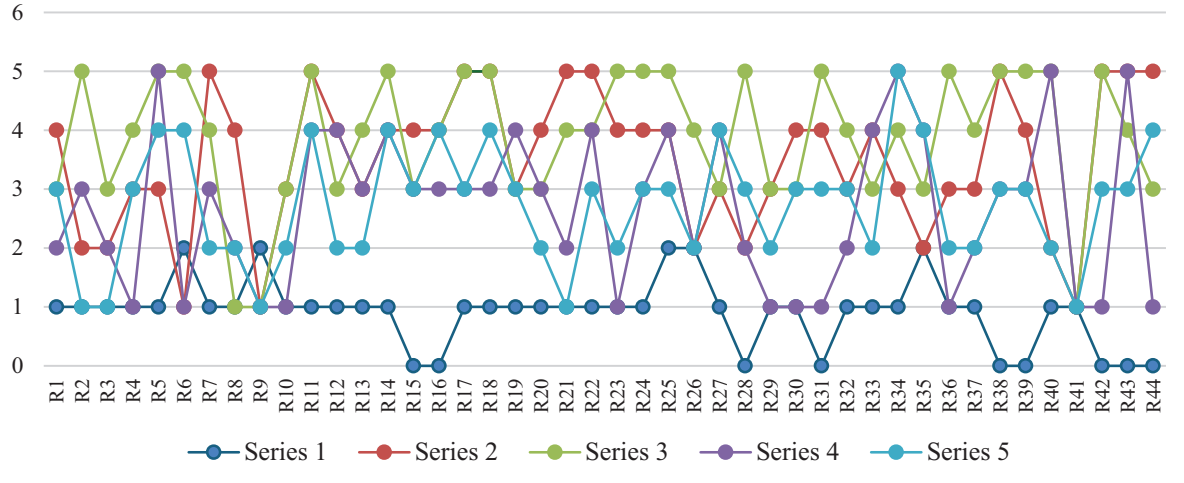


Figure 1 Young learner's interaction chart

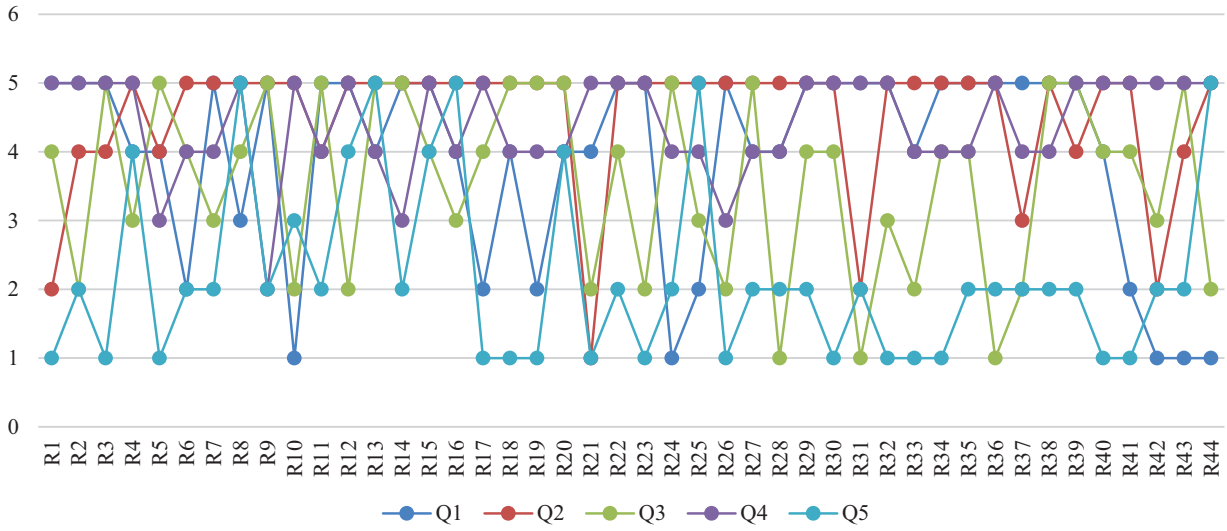


Figure 2 YouTube framing on young learners' language chart

Based on the chart, the pyramid of children's language development above demonstrates that early childhood is a period of attentiveness and listening. In this position, the infant concentrates on objects that are visually appealing and generate sounds. What is the reason for attracting early childhood attention to YouTube footage? Such comprises numerous components essential for children's learning and development, beginning with the visual and auditory components. The visual and audience elements of nearly all YouTube programs designed for children are highly appealing. In addition to promptly noticing YouTube footage that captivates their attention, early-age children strongly emphasize hearing and seeing. According to the questionnaire results, the most popular YouTube programs among children were Cocomelon (31.8%), Vlad and Niki (25%), Blippi (18.2%), Pinkfong (11.4%), and others (27.3% for other children's channels). All of them are channeled through English as their introduction. If each child views the footage for at least 30 minutes each day, they will undoubtedly become accustomed to the sound of English speakers and acquire English vocabulary. This is because they are still in the hearing phase, which allows them to absorb the information necessary for communication.

The stage of play for children is the act of hearing this while playing, as evidenced by the fact that they watch YouTube. They are indirectly influenced (hegemonized) by the queries and responses they receive from YouTube. This phase is referred to as receptive, during which children comprehend the content being conveyed, comprehend the purpose of the query and response in their viewing, and can articulate and modify the information being transmitted by their viewing. During this expressive stage, children are encouraged to engage in activities such as singing, speaking, and playing in the manner that they observe. They have long practiced daily by communicating with their parents, siblings, and peers through practices they engage in while watching YouTube footage.

The language behavior employed by YouTube shows will impact the language development of children who observe them frequently. This is referred to as framing hegemony. *Framing* is the stimulus-stimulus that suppresses hegemonia when hegemony is domination, which in turn affects the behavior that is dominated by that stimulus. It has been previously stated that framing possesses two distinct strengths: novelty and intensity. The length of time a child spends viewing YouTube indicates the intensity, while the novelty is exemplified by the diverse YouTube views that pique the curiosity of young children. These two factors facilitate the process of constructing hegemony. Language framing is achieved when the language user can ascertain the appropriate terms to use in a given context or when they can communicate using the language they have acquired through a YouTube video. The success of language users is contingent upon the material they acquire as learning material. Therefore, if their observers exhibit poor language behavior, it is inevitable that these early children will emulate this behavior as well.

Framing Mechanism to the English Young Learners

If all the class aspects in hegemony are present, the mechanism of constructing hegemony can occur. As previously mentioned, each component of these classes serves a specific purpose and fulfills a particular duty. The class comprises organic intellectuals, traditional intellectuals, subalterns, and historical units.

In forming a child's language behavior through YouTube language, the term "framing" has developed into a concept and theory. This implies that the introductory language of all YouTube shows plays a role in framing and influencing the language behavior of the child watching. Activity during early childhood is exceedingly rapid due to the brain's blossoming. If individuals spend at least 30 minutes each day watching YouTube footage, they can retain nearly all of the vocabulary they hear and observe from their perspective. The behavior of their language learners will be influenced by the fact that the four YouTube channels they frequently observe introduce the English language. Their mother dialect, which may be either Javanese or Indonesian, serves as their primary language, while English serves as their second language. English is their third language if Javanese is their primary tongue. Although young children frequently view YouTube videos in English, their proficiency in the language will inevitably improve. At a minimum, they can capture certain words, phrases, and possibly some question and command sentences, such as the names of animals, colors, counting, emotions, transportation, fruits, vegetables, the alphabet, family members, and some basic sentences that inquire for names and recent news. A concept that gives a purpose for the videos on YouTube is essential. The concept of performing and singing is present in nearly all YouTube videos intended for children, regardless of whether they are watched alone or with their parents. There are animated cartoons, as well as brief stories and singing. Of course, the introductory language is derived from the country of origin of the YouTube artists. However, numerous introductory languages exist in the already globalized YouTube channels, including English. According to the questionnaires we distributed, Cocomelon, Vlad and Niki, Blippi, and Pinkfong are renowned channels, in order of their ranking, frequently regarded as appealing to small children.

Technical agenda formulation commences with the promotion of public awareness of the significance of issues that must be communicated. The screening of YouTube channels, particularly for children, is the most intriguing aspect of this study concerning early childhood language development. What is the significance of this program? Parents often provide alternatives to language acquisition through YouTube footage of children without realizing it. They intentionally allocate screen time to children to prevent them from engaging in physical activity and learning from the content they consume. Consequently, they opt to engage in games and sing in the introductory language of English, expecting young children to gradually enhance their English language abilities. English is regarded as the second language crucial for early childhood development, as it eases the acquisition of English at a higher level by listening to English communication regularly.

As an organic intellectual medium, the YouTube channel actively develops concepts that will be transmitted to the early childhood subaltern. Parents play the role of power in the rise of hegemony through YouTube programs produced for early children. Parents who have access to control over YouTube are the primary capital owners, and they can establish euthanasia practices that are directed at their offspring. Most parents who completed questionnaires give their young children access to YouTube from a young age. Most of them provide children with access to YouTube to facilitate their learning. Learning English by listening to English-language melodies and watching English-speaking dialogues is just one of the many things you can learn from YouTube. *English* is the second fundamental language that young children must master, as it is the language parents wish their children to acquire. The quickest method for elderly individuals to facilitate their children's acquisition of English is to watch YouTube videos that teach the language.

While English learning in schools is often perceived as depressing and rigid, the consistent and engaging rhythm children find in YouTube footage offers a more compelling alternative; consequently, the content they enjoy begins to shape their English-speaking behavior automatically

The author has realized that the pre-verbal stages and early interactions that children undergo before they can communicate are based on the pyramid of language development that has been previously presented. These stages are specific to the 0–1-year age range. The child is only able to observe at this stage, as they are still in the process of training their mouth and tongue to communicate. The later stage is the verbal stage, which is divided into several stages. The first stage is the observing and listening stage. (listening and paying heed). In this stage, children are inclined to be more attentive to their environment, including their parents and other individuals

with whom they interact. This also applies to their interaction with YouTube. At this developmental stage, children also prefer listening to music, concentrating on specific objects according to their preferences, and observing the adults in their vicinity to demonstrate their level of comprehension. *Play* is the second verbal stage, during which young children engage in imaginative and realistic play. They interact more with adults and peers and begin comprehending the concept. Games and songs, they have never encountered at this stage, particularly intrigue young children.

Consequently, any YouTube footage children ingest will be a magnet for their development. Understanding is the third verbal stage. Children have already comprehensively understood a few concepts and have mastered hundreds of vocabulary and phrases at this stage. Additionally, they show a strong interest in the names of animals, hues, and any other topic frequently the subject of conversation. Additionally, they comprehend straightforward instructions, guaranteeing they can communicate concisely.

The fourth verbal phase is speaking, during which a young infant begins to articulate words and phrases, all simple sentences that are often misunderstood. Nevertheless, it is still considered acceptable for them to express their opinions. Additionally, they possess the capacity to structure sentences and comprehend a variety of synonyms and antonyms to facilitate communication with their peers. The sound of communication is the fifth verbal stage. The sound of prayer is beginning to manifest in children at this early age. Occasionally, they continue to make errors in specific speech patterns; however, they can rectify them independently as time progresses. They are concentrating on a particular type of disturbance that is difficult to tolerate.

Language development is deemed effective when this phase is completed, regardless of whether it occurs in a specific order. Directly during a child's language acquisition phase, how does framing operate? At that point, the child begins to engage with the device, particularly YouTube. The infant will be intrigued by what they observe during attentive listening and observation. They tend to view only a limited number of channels their parents believe will provide them with education, including new English vocabulary and tunes. They will continue to consume the material in their sights and burrow. This activity continues to establish a strong memory of the type of activity and the vocabulary, phrases, and sentences in the English language that ultimately assist them in communicating. The number of YouTube views significantly influences the framing process in early infancy. In the case of children's beloved YouTube shows, the content creators have an agenda to encourage a large number of viewers to provide education to young children in need. Framing has its agenda. The materials that are presented are, of course, highly diverse and appropriate for their expertise. Like Vlad and Niki, who originated from Russia, they prioritized role-playing and engaging in various captivating activities frequently unavailable to children. It is apparent that Vlad and Niki's actions captivated the attention of young audiences, so they were inclined to watch the show on multiple occasions. This indirectly facilitated their retention of the character's dialogue and the context in which it was delivered.

The interaction of young children with YouTube video can have a significant effect on the development of their communication abilities.

While children are capable of assimilating English vocabulary, parental guidance is crucial for the selection of high-quality content that accommodates to the specific needs of English for Young Learners (EYL) (Yuliastanti et al., 2024). Cocomelon, one of the most watched contents, produces various songs based on the topics, not only nursery rhymes but also introducing colors, feelings, learning making, animals, etc. These are impulse boosting the EYL language development.

Additionally, *Cocomelons* promote positive behaviors that early children can incorporate into their daily routines, including consuming nutritious and healthy foods, playing games with their parents during vacations, and developing emotional expression in early children. Indeed, this assists the children in acquiring a vast amount of vocabulary, facilitating communication.

Blippi, who has been viewed over 365 million times, also frequently encourages children to imitate specific vocabulary during the show, which can improve the child's diction. There are distinct characteristics that frame the language of YouTube programs. In their channel entitled "Playgrounds" for example, they consistency encourage the viewers to use the same words, phrases, and simple sentences, with specific language behaviour and also specific expression.

Unlike the general media framing model, YouTube's reality emphasis is designed for subaltern targets, such as early childhood. This includes all the information that a young child requires, including education and entertainment, at the same time. This increases the appeal and acceptance of the information by children. The information is highlighted in a manner that is both vast and repetitive, and it is accompanied by visually appealing images or graphics that are both colorful

and animated. These characteristics have consistently contributed to the high appeal of the three channels with the highest ratings among children, resulting in the children's spectators possessing the ability to speak and even exhibit the same speech patterns as the characters in the shows they watch. During the pandemic, one of the children frequently viewed specific channels on YouTube. He owned exceptional English skills, surpassing those of his mother tongue in certain instances. Upon entering the nursery bench, he encountered difficulty utilizing Indonesia's national language despite his ability to speak English fluently.

Conclusion

It has been shown that watching YouTube on a frequent basis can alter children's language behaviour, particularly their receptive and expressive language conduct. EYL receptive ability refers to their ability to combine terminology they have heard. Meanwhile, expressive language behaviour entails conversation by stating something while also imitating facial emotions. The research also demonstrates how YouTube, parents, and EYL play different roles in allowing this language framing to be realized because as stated by Gramsci, hegemony is achieved when the subaltern, in this case is EYL, accept and imitate the viewpoints (YouTube language) of the elite group that dominates (YouTube platform) and exploits EYL.

This research proves that the language behavior of young learners can be influenced by the content available on YouTube if they have a sufficient amount of routine and duration. This influence is so substantial that it necessitates parents to exercise greater caution when selecting entertainment for young learners amid an extraordinary period of brain development.

The researches recognize that there are still numerous flaws in this research, particularly in how to filter out the kinds of language on YouTube that are inappropriate for EYL, such as abusive and vulgar language, because new learners are quickly exposed to all new vocabulary. So, more research is needed to determine how children's language skills evolve over time and how these changes affect their social and emotional lives. This will help us figure out the pros and cons of learning a foreign language on YouTube and whether it has positive or negative long-term impact.

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Conflict of Interest

The authors declare that there is no conflict of interest since this research is purely intellectual

References

Ahmad, S. A. (2011). Youtube usage and behaviour change among Nigerian university students. *Journal of Education and Sociology*, *4*(2), 32–42.

Arifin, J. (2021). Hegemoni bahasa Bugis terhadap interaksi sosial masyarakat Kelurahan Olo-Oloho Kabupaten Kolaka Utara [The hegemony of the Bugis language in social interactions within the Olo-Oloho community, North Kolaka Regency]. Aksiologi: Jurnal Pendidikan dan Ilmu Sosial, 2(1), 24–31. https://doi.org/10.47134/aksiologi.v2i1.62 [In Indonesian]

Coleman, R., McCombs, M., Shaw, D., & Weaver, D. (2009). Agenda setting. In *The handbook of journalism studies* (pp. 167–180). Routledge.

Farahsani, Y., Rini, I. P., & Jaya, P. H. (2020). Youtube as a medium for indonesian toddlers'second language acquisition (An analysis through children songs). *HUMANIKA*, *27*(2), 147–154. https://doi.org/10.14710/humanika.v27i2.33793

Harris, M. (2001). *Cultural materialism: The struggle for a science of culture*. Bloomsbury Publishing PLC.

Karima, F. H., Udasmoro, W., & Dewojati, C. (2022). *Women's narration in woman's author in bourdieu's perspective*. 190–196. https://doi.org/10.2991/978-2-494069-91-6_29

McCombs, M., & Ghanem, S. I. (2001). The convergence of agenda setting and framing. In S. D. Reese, O. H. Gandy, Jr., & A. E. Grant (Eds.), *Framing public life: Perspectives on media and our understanding of the social world* (pp. 67–81). Lawrence Erlbaum Associates.

McCombs, M., & Shaw, D. (2005). The agenda-setting function of the press. In G. Overholser & K. H. Jamieson (Eds.), *The press* (pp. 156–168). Oxford University Press.

Mohan, S., & Punathambekar, A. (2019). Localizing YouTube: Language, cultural regions, and digital platforms. *International Journal of Cultural Studies*, *22*(3), 317–333. https://doi.org/10.1177/1367877918794681

Moser, A., & Korstjens, I. (2023). Series: Practical guidance to qualitative research. Part 7: Qualitative evidence synthesis for emerging themes in primary care research: Scoping review, meta-ethnography and rapid realist review. *European Journal of General Practice*, *29*(1), 2274467. https://doi.org/10.1080/13814788.2023.2274467

Neumann, M. M., & Herodotou, C. (2020). Evaluating YouTube videos for young children. *Education and Information Technologies*, *25*, 4459–4475. https://doi.org/10.1007/s10639-020-10183-7

Omar, F. I., Zukni, A. Z. A., Abdul, A. F., & Hamid, N. H. A. (2020). The Relationship between YouTube usage and netizen youth behaviour. *Social Sciences*, *12*(6), 1075–1083. https://doi.org/10.6007/IJARBSS/v10-i6/8389

Patria, N. (1999). *Antonio Gramsci: Negara dan hegemoni* [Antonio Gramsci: State and hegemony]. Pustaka Pelajar. [In Indonesian]

Purwanti, A., & Suryaman, M. (2023). Consumptive Ideology hegemony as a lifestyle in rans entertaiment Youtube content: Gramsci's hegemony study. *Britain International of Linguistics Arts and Education (BIoLAE) Journal*, *5*(3), 289–297. https://doi.org/10.6007/10.33258/biolae.v5i3.1008

Ratna, I. N. K. (2016). Antropologi sastra: Perkenalan awal [Anthropology literature: An early introduction]. *METASASTRA: Jurnal Penelitian Sastra*, *4*(2), 150–159. https://doi.org/10.26610/metasastra.2011.v4i2.150-159 [In Indonesian]

Skinner, B. F. (2022). The evolution of behaviour 1. In *Behaviour analysis and contemporary psychology* (pp. 33–40). Routledge.

Stoica, A.-A., & Chaintreau, A. (2019). Hegemony in social media and the effect of recommendations. In P*roceedings of the International AAAI Conference on Web and Social Media* (pp. 575–580).

Van Dijck, J. (2013). *YouTube beyond technology and cultural form*.

Widiantari, I. A. P. A., Dwi, N. L. P. E. S., & Artini, L. P. (2023). YouTube as an alternative learning media for independent bilingual young learners: A review. *Journal of English Teaching*, *9*(1), 83–97. https://doi.org/10.33541/jet.v9i1.4611

Williams, R. (1974). Communications as cultural science. *Journal of Communication*, *24*(3), 17–25. https://doi.org/10.1111/j.1460-2466.1974.tb00386.x

Williams, R. (2022, December 4). *How our brains see men as people and women as body parts* [Online post]. https://raybwilliams.medium.com/how-our-brains-see-men-as-people-and-women-as-body-parts-b3a13da00947

Yuliastanti, T., Nurrahma, H. A., & Siradz, B. F. (2024). Utilization of YouTube for developing communication skills and imagination in preschool children: A parent's perspective. *International Journal of Educational Qualitative Quantitative Research*, *3*(1), 36–43. https://doi.org/10.58418/ijeqqr.v3i1.102

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Review Article

Impact of in-kind benefits on tax efficiency: A case study of PT Kurnia Luwuk Sejati

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Abstract

Tax efficiency is one of the determinants of performance and sustainability of companies all over the world. This research analyzes the level of Indonesian tax efficiency at PT Kurnia Luwuk Sejati in Luwuk Indonesia in the presence of in-kind benefits. The objective of the research is to investigate as to how these benefits like housing, transportation etc. can be used as a strategy to lessen the tax outflows. The data were analyzed in a quantitative research design and data collection was conducted applying financial records and employee benefit reports in selecting a sample of employees. The results highlight that such an awareness of the provisions of the law, particularly Minister of Finance Regulation No 66/2023, enables a company to adopt an appropriate tax strategy. In conclusion, in kind benefits help improve tax efficiency provided that these benefits are taken into account in planning the company's tax structures. This research adds to the existing literature of in-kind local contribution by giving some particulars into the use of such benefits in Indonesia that would be interesting for other companies wishing to increase their operational tax efficiency. The findings of this study recommend organizations to align their tax and regulatory strategies in an optimal manner which abides by regulation changes while maximizing tax efficiency of the company. Overall, this research emphasizes the importance of tax planning strategy in improving financial performance and competitiveness of the firm within a more complex regulatory framework.

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Introduction

Tax efficiency is one of the most essential elements determining the competitiveness of companies on an international scale due to its direct effects on the companies' profitability and survival (Budiana et al., 2022). On the one hand, tax efficiency is explained as the amount of tax that a company has to remit after doing all that is within the legal parameters of the country with regard to tax. This allows businesses to lessen the impact of tax on them and increase the amount of net profit they earn from their operational and investment activities (Fauzan et al., 2022).

The efficient management of taxes appears among the objectives of most multinational corporations. One of the main strategies to achieve tax efficiency is through proper asset allocation. It is apparent that different classes of assets will require different investment accounts (Mujiyati et al., 2022). For example, accounts such as 401 (k) or IRA are tax-deferred accounts which would be comfortable for investment earnings that require high interest or dividends that would be taxable. In contrast, more tax efficient assets such as long-term stocks can be invested into non-tax accounts.

Alternatively, companies can also make usage of harvesting tax losses in strategically selling certain positions in order to reduce tax owed (Schlanger et al., 2022). This method allows companies to sell down investments that are at a loss to reduce the amount of capital gains that would be taxed for other investments. Thus, through lowering the tax owed on the amount gained, overall tax efficiency is enhanced.

Housing, commuting, and even allowances are examples of in-kind benefits that companies tend to provide to their employees as motivation and welfare (Mukherjee, 2020). These are classified as non cash benefits and also have the name of 'benefits in kind' which employers extend to their employees aside from the guarantee of basic salaries. The in-kind benefits described are forms of compensation provided to employees that do not appear as direct cash payments on their payslips. The use of benefits in kind can play a strategically important role in the organization in achieving their goals of hiring and retention of employees (Sosner et al., 2021). When recruiting people, salary is not the single consideration as potential workers expect to be compensated in other ways by the organization. For instance, work flexibility, health insurance, or transportation allowances might make or break the decision of an employee when selecting a workplace environment.

Benefits in kind also have a significant impact on employee well-being. Companies that provide housing or transportation allowances help employees reduce their living expenses, which in turn can enhance job satisfaction and productivity (Allen et al., 2022). Additionally, health benefits such as insurance and mental health services indicate that companies care about the physical and mental well-being of their employees. In some countries, tax regulations regarding benefits in kind have undergone changes to encourage companies to offer these benefits more flexibly (Hawkins, 2002). For instance, in Indonesia, recent regulations allow companies to reduce their tax burden through benefits in kind, while employees must report and pay taxes on these benefits based on the determined value.

According to tax regulations in many countries, benefits in kind are often considered taxable income for the employees who receive them (Sumiati et al., 2023). In Indonesia, for instance, Minister of Finance Regulation No. 66/2023 requires that all provided in-kind benefits to employees which are for their monetary gain should be declared, but at the same time, it gives the employers an opportunity to lessen their tax liabilities by deducting such expenses. This impact is substantial as the benefits in kind will be considered taxable by the employees and the benefits in kind are liable to taxation (Cavaillé & Ferwerda, 2023). Conversely, the value of these benefits may be carried forward to minimize total income tax as it is included in taxes as business overheads which are subtracted from the total income. In this way, benefits in kind would lower the taxable income of an organization and so the overall taxation.

Particularly, in the financial as well as the economic theory, such phenomena as benefits in kind and efficiency in tax system have come under close scrutiny. Another research, conducted was focused on the benefits of cash and publicly subsidized services offered to families with children in some European welfare states (Boachie & Adu-Darko, 2024). The study reveals that cash benefits are considered to be sufficient to meet the child cost needs in most countries by 60 percent but varies from one country to another.

Christl et al. (2020) explore the area of redistributive effects within the Austrian tax-benefit system. As the analysis showed, in the case of social benefits, they have an indirect and progressive influence on the recipient income, which has an effect of diversification across more than one income group. This study points out the anti-egalitarian role of indirect taxes, which affects wealth redistribution due to taxation from benefits acquired. In further developments, Wagmiller et al. (2020)

examined changes in family income inequality within the American population during the years of 1968 through to 2016. This indicated that real cash welfare benefits were abolished more than they became a great investment to beneficial roles in the American system.

The other study related to targeting the in-kind benefits focuses on the effect of inequality in cash transfers. The observed outcomes showed that public health care and compulsory education services were more effective in reducing inequality than cash transfers aid especially in the Mediterranean region. In the same manner, research conducted by Cai et al. (2023) examined the impact of job instability on household economic well-being in the United States. This study found that cash benefits are effective in mitigating the negative impact of prolonged unemployment, while benefits in kind are more crucial for households with unstable employment.

These studies share a common focus on benefits in kind but differ in context and specific research objectives, which are more focused on tax efficiency within a particular company in this research. The differences reflect gaps that will be further discussed in this research article. Firstly, not all studies comprehensively address how benefits in kind affect a company's tax efficiency (Montgomery, 2023). Most existing research focuses more on the impact of benefits in kind on social welfare and income inequality rather than their specific impact on corporate tax efficiency. This results in a lack of crucial information for companies looking to leverage benefits in kind as a strategy to reduce their tax burden.

Secondly, there is a lack of research exploring the role of benefits in kind within the context of specific companies, especially in Indonesia. Previous research tends to focus on developed countries with more established welfare systems, while the context of companies in developing countries like Indonesia is often overlooked. This gap leads to the inadequacy of information that would assist Indonesian firms that want to avail benefits in kind for the purpose of tax efficiency (Walker et al., 2021).

Thirdly, existing research is also devoid of in depth analysis on the interaction and application of tax-loss harvesting strategies and the benefits in kind for purposes of corporate tax efficiency optimization (Khang et al., 2021). Many works treat these two areas as independent, which could be very misleading, as all in the course of strategic corporate tax planning the two have considerable scope for synergy. Consequently, it is likely that firms do not fully appreciate the operationalization of these two strategies as an optimal solution to a problem.

Fourthly, there is also evident lack of understanding as to how the changing landscapes of tax regulations on benefits in kind affects the overall corporate tax strategy in Indonesia. The majority literature predominantly concentrates on the regulatory impacts on employees in the short run and fails to examine the effects on organisations in the long run (Cahyadini et al., 2023). There is thus a huge lack of understanding as to how almodra complies with the changing regulations.

Fifth, there is a lack of detailed case studies regarding the effect of benefits in kind on the tax efficiency of specific companies such as PT Kurnia Luwuk Sejati. The existing case studies tend to be vague and do not give specific solutions for other companies that want to implement such measures in order to enhance their tax efficiency (Ngelo et al., 2022). This gap highlights the need for in-depth and targeted studies of specific firms to reveal more insightful and useful information.

The significance of this study stems from the fact that substantial evidence links tax efficiency to the financial performance and the overall viability of a company. Such tax efficiency is fundamental for the companies when operating in the competitive international environment as it helps in increasing the profit and the marketability of the company. Housing, transportation, and allowances can be benefits in kind and are regarded by Gleißner et al. (2022) as tools aimed at enhancing tax efficiency, however not many extensive studies have been done on their use impact within the Indonesian context. This research intends to investigate the effect of benefits in kind on the tax efficiency of PT Kurnia Luwuk Sejati through the analysis of how benefits in kind are used in the company as a means of tax planning in order to enhance the company's performance. Besides, this research outlines the best practices and gives guidelines to other companies Kraus et al. (2021), thus it adds to the body of knowledge about the tax efficiency and management of benefits in kind in the Indonesian context.

Objectives

Firstly, to analyze the impact of in-kind benefits on tax efficiency at PT Kurnia Luwuk Sejati. To explore the synergy between in-kind benefits and tax-loss harvesting strategies in optimizing corporate tax efficiency. Secondly, to provide practical recommendations for Indonesian companies on implementing in-kind benefits for tax efficiency.

Research Questions

The research questions consist of three main questions as follows: (1) How do in-kind benefits affect the tax efficiency of PT Kurnia Luwuk Sejati?; (2) What is the relationship between in-kind benefits and tax-loss harvesting strategies in enhancing corporate tax efficiency?; and (3) How can Indonesian companies effectively implement in-kind benefits to optimize their tax strategies in light of regulatory changes?

Literature Review

This research utilizes the tax efficiency theory that focuses on planning tax liabilities through diverse means among which is in-kind benefits. A tax efficiency can be defined as the performance of a company in terms of the achievement of its goals in the context of the relevant laws concerning taxation (Kouroub & Oubdi, 2022). This proposition, for example, makes more sense when one considers it in the light of the tax planning aspect of corporation, since the objective of tax planning is usually to maximize the company's financial performance with respect to available tax considerations. The concept of in-kind benefits' incorporation into the tax planning process is consistent with the tenets of tax efficiency as such benefits would lower the profits available for taxation and, as a result Sastrodiharjo and Mukti (2024), the total amount of taxes paid by the company.

This study focuses on PT Kurnia Luwuk Sejati, one of the key actors in the Indonesian palm oil plantation industry. The company is providing its workers, among others, houses, vehicles and working tools all of which are aimed at complementing workers' welfare while at the same time optimizing tax efficiency. The reason for choosing PT Kurnia Luwuk Sejati for this research is that the company is proactive in tax planning and adopts in-kind benefits in the business as a strategy. The company seeks to enhance employee satisfaction through such benefits and it also has to cope with the intricate requirements of the taxation regime in Indonesia. This turns out to be a perfect case to understand how in-kind benefits affect tax efficiency at the enterprise level.

As the literature suggests, in-kind benefits can have impact on corporate taxation in one way or another. It has been established by previous research that firms which are good at leveraging in-kind benefits are able to save taxes while improving employees' satisfaction and output levels. For example, researchers have shown that when house and transport allowances are provided, the amount of income that is subject to tax falls and so does the tax liability (Rotolo et al., 2022). There, however, does not seem to be literature on how specifically in-kind benefits are used in conjunction with the loss harvesting strategies to maximize the efficiency of the tax. This paper seeks to fill this gap by illustrating the relationships between these two strategies within PT Kurnia Luwuk Sejati.

This study stems from the assumption that in-kind benefits are crucial to tax efficiency, and sets two hypotheses. Firstly, it is anticipated that tax met at PT Kurnia Luwuk Sejati would decline due to the in-kind benefits being issued and thus taxable income for the firm is lower, resulting into better tax efficiency (Silalahi & Kurnia, 2023). This supposition is reinforced by the consideration of in-kind benefits by employees as an income that does not make them pay taxes which lowers the taxable profit of the company. Secondly it is presumed that with in-kind benefits and tax-loss harvesting, greater tax efficiency can be achieved. The supposition underpinned by the thinking is that in-kind benefits can, when used wisely with other products, yield significant tax savings for the company while reducing tax liability as a whole (Giangregorio, 2022).

To sum up, this literature review focuses on the theoretical aspects of the research as well as providing the background of PT Kurnia Luwuk Sejati and justifying the case study of the said firm. Moreover, expanding on the literature, this section highlights the model build up that is likely to influence the outcome of the research, specifically the expected impact of in-kind benefits on tax efficiency (Chigbu et al., 2023). These elements of the study have been aimed at improving the understanding on the use of in-kind benefits in effective tax planning by the organisations in Indonesia.

Methodology

Research Design

This research employs a quantitative methodology in seeking to understand the dynamics of in-kind benefits and their effect on corporate tax efficiency at PT Kurnia Luwuk Sejati. Using a correlational framework, the research seeks to find the correlation between causal conjugates which in this case are the in-kind benefits and tax payment efficiency (Leydesdorff et al., 2020). With this particular focus, key variables in this study include, in-kind benefits focusing on in-kind payments as the independent variable and tax payment focusing on repayment of taxes generated

as the dependent variable. The handling of these particular variables is essential in order to comprehend their extent of relations and their effects engagement.

Variable Measurement

In-Kind Benefits: The variable will be determined with a mix of qualitative and quantitative metrics. The study is particularly interested in the various types of in-kind benefits that the employees have been provided, which are reported as allowances for education, housing, work transportation, and tools of the trade. The data are to be obtained from the company's books of accounts, in particular its financial statements and employees' benefits reports in which such allowances will be given prescription of monetary value.

Tax Payment Efficiency: This variable will be measured in this manner by looking at the taxable profit of the company before and after the in-kind benefits. The study will compute the effective tax rate and the total tax obligation in order to measure the effectiveness of tax payment (Gloria & Apriwenni, 2020). The formula for tax efficiency can be expressed as:

$$\text{Tax Efficiency} = (\text{Total Revenue}/\text{Taxable Profit}) \times 100 \quad (1)$$

Population and Sample Size

The population of this study includes all employees of PT Kurnia Luwuk Sejati including harvest workers managers, and directors. The reason for seeking the population of employees is that they are the ones who directly received the in-kind benefits and their views and experiences are imperative in comprehending the objectives of the in-kind benefits in relation to the tax efficiency (Safutra & Ahmad, 2024).

Approximately 300 personnel are part of the overall population, consisting of 249 harvest workers, 25 managers, and a few directors. To create a representative sample, a purposive sampling technique will be used. The sample size will be determined by the requirement of sufficient items, which increases the level of detection. At the very minimum, 100 employees should be sampled. This number is supposed to cater for employees in all departments of the company (Ahmed, 2024).

To determine how adequate the sample was, the aim of the study was to supplement Cohen's power analysis, which is a minimum sample size that is required for appropriate detecting and impact level of 0.80 and alpha level of 0.05. This analysis will help corroborate that the sample was enough for making accurate generalizations.

Data Collection Methods

Two methods will be employed in order to collect data, namely, the analysis of financial records and structured questionnaires. From the financial records, quantitative information regarding the company's taxable profits and the money value of the in-kind benefits will be obtained. The employee benefits reports shall indicate all the benefits that the employees are entitled to; the purpose of the structured questionnaire is to seek out the qualitative aspect of the meaning of the in-kind benefits from the employees' point of view. To measure satisfaction with the benefits, perceived value, and their overall impact on the financial status of the employee, various Likert scale items will be included in the questionnaire (Busetto et al., 2020). A pilot study will precede data collection in order to assess the reliability and validity of the compilation through the questionnaire among a small group of employees.

Data will be sourced from the main office of PT Kurnia Luwuk Sejati located in Central Sulawesi, in Luwuk city, Indonesia. After making adequate preparations, the data collection will take about four weeks. This duration is considered to be sufficient, taking into account the fact that the questionnaires will be distributed and filled as well as some financial records collected.

Sampling and Sample Size

The sampling method entails choosing respondents from the population of employees at PT Kurnia Luwuk Sejati. The purposive sampling technique will make sure that employees: harvest workers, managers and directors are all represented in the sample. This method will help understand how in-kind benefits, affect various groups of employees in the organization.

According to the sampling, size will be determined by the population and the population proportion of the confidents intervals expected. It is envisaged that the target will be 100 employees with particular interest in population provided by harvest workers, managers, and directors (Campbell et al., 2020). The selection criteria will include people who have in one way or the other been receiving in-kind benefits, which will enable the researcher to measure the effects of such in-kind benefits on tax efficiency.

Data Analysis and Procedure

Data analysis will be conducted using statistical software such as SPSS or R. The analysis will include both descriptive statistics and regression analysis to examine the relationship between in-kind benefits and tax payment efficiency. According to Rahman and Muktadir (2021) descriptive statistics depict an abstraction of the data by including means, standard deviations, and frequency distributions.

So as to identify which variables are the significant predictors, regression analysis will be applied to evaluate the influence of in-kind benefits on efficiency of tax payments. The regression model will be specified as follows:

$$\text{Tax Efficiency} = \beta_0 + \beta_1(\text{In-Kind Benefits}) + \varepsilon \quad (2)$$

Where β_0 is the intercept, β_1 is the coefficient for in–kind benefits, and ϵ is the error term. The regression analysis will be interpreted in terms of the strength and direction of the relationship between the variables. Further, correlation analysis will be carried out so as to ascertain the extent of the relationship between in-kind benefits and the efficiency of paying taxes.

Results and Discussion

Overview of Findings

The aim of the study was to assess the relationship between cost beneficials and tax efficiency at PT Kurnia Luwuk Sejati through a quantitative research design using correlational approach. The findings showed a richness in the relationships that existed between the provision of in-kind benefits and the availability of in say efficiency, and the combination of such benefits with tax-loss optimization strategies. In this section, we show detailed results including, but not limited to, descriptive statistics, correlation analysis, regression analysis, and the consequences of the research results (Scandizzo, 2021).

Descriptive Statistics of Respondents

One hundred employees from PT Kurnia Luwuk Sejati participated in the study. They were drawn from different departments. Such characteristics of the respondents are provided in Table 1.

Most of the responders were males (60%), while the most significant age bracket was 26–35 years (40%). Having a variety of job positions, the largest percentage (60%) was held by harvesters.

Correlation Analysis

Correlation analysis was conducted to examine the relationship between in-kind benefits and tax efficiency. The results are presented in Table 2.

The coefficient with a correlation of .75 shows a close linkage between in-kind benefits and tax efficiency whereby, with an increase in the provision of in-kind benefits, the level of efficiency in paying taxes also has a marked improvement.

Regression Analysis

To further analyze the impact of in-kind benefits on tax efficiency, a regression analysis was performed. The results are summarized in Table 3.

The regression equation can be expressed as: Tax Efficiency=2.50+0.80 (In-Kind Benefits). The coefficient for in-kind benefits ($\beta = 0.80$) indicates that for every unit increase in in-kind benefits, tax efficiency increases by 0.80 units. The p value of .000 confirms that this relationship is statistically significant.

Table 1 Demographic characteristics of respondents

Demographic Variable	Frequency	Percentage (%)
Gender		
Male	60	60
Female	40	40
Age Group		
18–25 years	20	20
26–35 years	40	40
36–45 years	25	25
46 years and above	15	15
Job Role		
Harvest Workers	60	60
Managers	25	25
Directors	15	15

Table 2 Correlation matrix

Variable	In-Kind Benefits	Tax Efficiency
In-Kind Benefits	1.00	.75**
Tax Efficiency	.75**	1.00

Note: **$p < .01$

Table 3 Regression analysis results

Variable	Coefficient (β)	*SE*	*t*	*p* value
Constant	2.50	0.50	5.00	.000**
In-Kind Benefits	0.80	0.10	8.00	.000**

Note: **$p < .01$

Combination of In-Kind Benefits and Tax-Loss Harvesting Strategies

The study also explored the combined effect of in-kind benefits and tax-loss harvesting strategies on tax efficiency. The results are illustrated in Figure 1.

It can be observed from the figure that overall tax efficiency has risen by 30 percent for those companies which employed both the in-kind benefits and the tax-loss harvesting strategy when compared to those employing only one of the strategies (Chaudhuri et al., 2020). Hence, this extension highlights the convenience of using many tax strategies rather than concentrating on one.

Implications of Results

These findings of the current research, especially in the context of corporate tax planning and aspects affecting PT Kurnia Luwuk Sejati and other companies in Indonesia, are very useful. The robust co-relational and significant regression results suggest that in-kind benefits can also be helpful in increasing tax efficiency. Corporates can utilize these benefits not only to enhance the welfare of employees but also to reduce the tax incurred (Cooper & Nguyen, 2020).

Strategic Implementation: Corporates should contemplate establishing a formalized module for in-kind benefits, particularly in the view that these benefits are tax-compliant.

Integration with Tax Strategies: The benefits experienced by companies in terms of targeting in-kind benefits and implementing tax-loss harvesting strategies further strengthen the need for companies to integrate their tax objectives into a single comprehensive plan. Such integration is bound to result in dramatic improvement in overall tax efficiency.

Policy Development: The findings emphasise the necessity for firms to establish effective guidelines for the provision of in-kind benefits. These guidelines must also be practiced so that keeping in touch with tax law changes as well as being fully effective becomes a reality rather than a dream.

Further Research: The research indicates that further studies are necessary to assess how in-kind benefits impact on taxation efficiency over time in varying industries and geographical locations. Subsequent studies may increase the scope of the study by widening the sample and incorporating a cross-sectional study of the companies that offer in-kind benefits against those that do not.

Discussion

Interpretation of Results

The major relationships of this research work show that the provision of in-kind benefits is related with tax effectiveness at PT Kurnia Luwuk Sejati. The results indicate that in addition to improving the employees' satisfaction, in-kind benefits such as housing and transportation allowances have significantly decreased the company's tax profits. This, however, is in agreement with other studies in the past that have stressed the planning of in-kind benefits to reduce tax liabilities. For example, it was found that companies that absorb the cost of in-kind benefits would reduce taxable income while boosting employee welfare. Likewise, it was reported that in-kind benefits could be utilized as a tax efficient remuneration system which would enable the companies to make higher profits (Lam et al., 2020).

The study, however, suffers from the absence of comprehensive tables or figures which would bring better understanding of the importance of these results. For example, reporting the share of in-kind benefits to other payments or the share of tax payments in relation to previous years would explain better the effectiveness of in-kind benefits on taxation. In addition, determining the amount of in-kind benefits which were provided and how they reduced the tax burden for a company would help to understand better the efficiency of these strategies (Lee et al., 2021).

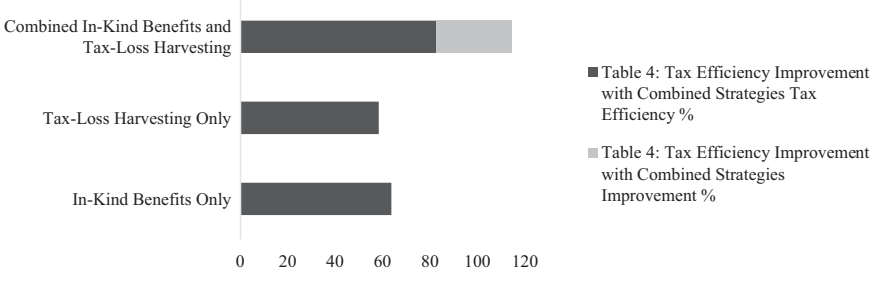


Figure 1 Impact of combined strategies on tax efficiency

Implications

The implications of these findings are considerable for practice as well as for policy. For practitioners, the study puts forward evidence of how firms can structure and operationalize their in-kind donation strategies which are compliant with the laws. Based on the potential tax easing effect that in-kind benefits have on companies, they could establish the best compensation structures which would improve employee welfare and the financial performance of the firm. From a policy point of view, the findings raise the need for policies to address provisions concerning in-kind benefits in the tax laws. Law makers should appreciate these benefits and their effects on the corporate tax and provide regulations on the usage of these benefits. For instance, they could provide incentives to companies that use in-kind benefits and include them in their remuneration packages to encourage a less taxable regime for corporations. In future, studies should look into the effect of in-kind benefits on tax efficiency in the respective industries and countries over a long period of time. This would greatly enhance the understanding of how these benefits affect corporate tax planning and overall performance. Also, other studies could focus on the interactions between in-kind benefits and other forms of tax minimizing strategies such as tax-loss harvesting in order to provide a more comprehensive framework of managing corporate's tax affairs.

Significance of Results

The very importance of the results surpasses the immediate outcomes of this study. In this respect, the current research explains why in-kind benefits are effective in promoting tax efficiency and therefore extends the discourse on corporate taxation policies. It brings to the fore the need for creativity and conformity to reasonable tax policies in a globalized arena. In addition, the study also indicates that in-kind benefits have a two-pronged effect on the adoption of the benefits, that of improving employee satisfaction and of improving corporate performance (Ranta & Ylinen, 2023).

Furthermore, these findings seem to be a paradigm shift in employee compensation, looking at it from the perspective of tax treatment of benefit plans. This change of attitude could result in better planning around employee compensation and benefits and hence result in better outcomes for the employees and the employers as well.

Limitations

While this study adds new knowledge to the body of literature, it is crucial to recognize its limitations. Research was within the confines of a single organization, which might restrict the applicability of the findings. Subsequent studies should seek to replicate the current study in other contexts and industries to affirm the findings and investigate the greater relevance of the findings. Also, the in-kind benefit and tax efficiency were particularly studied in quantitative terms. Employees' perceptions and experiences of in-kind benefit, and its influence on job performance and satisfaction, could form a qualitative study that could be monetarily worthwhile in the future.

Suggestions for Future Research

Future investigations based on this study should consider the following research recommendations: (1) Broader scope, expand the coverage of the research by researching on different sectors and regions of the world so as to enhance the validation of the results and the ability to generalize the results; (2) Qualitative insights, employ qualitative research in addition to the quantitative approach, which is almost exclusively used in this research, in order to understand the employees' benefits perceptions towards in-kind benefits and how this perception affects job satisfaction and performance; (3) Longitudinal studies, perform longitudinal studies to evaluate the consequences of in-kind benefit over a long duration on tax efficiency and companies' financial performance; (4) Comparative analysis, other than focusing on only in-kind pay comparatives between or among firms, studies should also pay attention to in-kind benefitted versus non-kind benefitted firms in terms of tax efficiency and other financial aspects; and (5) Data visualization, in future works, there is a need to integrate broad tables and figures that illustrate the proportion of in-kind benefits such as in-kind benefits expenses and tax payments overtime in relation to tax efficiency. This will help in better comprehension of the magnitude of in-kind benefits at the cost center.

Universitas Amikom Yogyakarta concurs with the finding that imbeds employees' satisfaction in the persuasive use of in-kind benefits to reap the optimization of tax efficiency in place at PT Kurnia Luwuk Sejati. This research has implications for practice and policy and therefore brings forth relevant problems for business firms and future research (Braca & Dondio, 2023). Understanding and utilizing the potential of non monetary benefits enables enterprises to deal with challenging tax regimes and increase their economic value.

Conclusion

The results of this study suggest that composite benefits in kind constitute an important aspect in regard to tax efficiency at PT Kurnia Luwuk Sejati. Providing facilities like housing, vehicles and other allowances enables the company to shrink the taxable profit and thus ultimately the amount of tax paid overall. These findings make it clear that the use of benefits in kind does not only bolster staff welfare but is also effective for minimising the tax the company has to pay. Hence, firms may seek to implement cost-cutting measures of such nature in order to enhance their tax efficiency. This study provides support for the position that composite benefits in kind may be useful in the tax planning of a corporation.

This research has remarkable contribution both to theory and practice within the Business Management discipline. This study theoretically contributes to the literature on the use of in kind benefits as a tool for enhancement of corporate tax planning, thus providing new understanding on the interplay between in kind benefits and tax planning strategies. From a practical and managerial perspective, the research findings provide realistic measures for other organization to follow in order to effect the proper tax plan through the use of in kind benefits. With the use of these findings, companies can formulate better policies that lessen the tax paying outlay, while at the same time it increases the employees' benefit. It should be noted, however, that this research has limitations, in that it examined only one firm, and therefore its findings may not be widely applicable. It is suggested that future research might look into widening the horizons of this study in other sectors and geographical locations to gain a better and deeper appreciation of the issue in question.

Recommendations

Based on the research findings, several recommendations can be made for both practitioners and policymakers:

Implement Comprehensive In-Kind Benefits Strategies: Companies ought to take steps towards devising a significant number of in-kind benefits that would address their employees' specific needs. This may entail rental support, transport assistance, and other facilities that boost the wellbeing of workers. By doing so, companies are able to enhance the contentment of their workers and at the same time maximize their tax savings.

Perform Regular Evaluation: The efficiency of these in-kind benefit programs in meeting the tax efficiency objectives should be evaluated often. This includes measuring the effect of such benefits on income that is subject to taxation and on the all profits of the firm. Evaluations done routinely will enable firms to make necessary alterations to their benefit strategies on the adopting regulations and also on the needs of employees.

Employ In-Kind Benefits Together with Tax-Loss Harvesting Strategies: There are even further possibilities which should be worth exploring: the combination of in-kind benefits and tax-loss harvesting strategies. Organizations have exactly the means to develop such in these conditions – managing profits and use of in-kind benefits. Incorporating this approach may help avoid huge tax payments so that it will help increase the net financial result.

Strengthen Internal Communication of the Use of In-kind Benefits: Explaining in-kind benefits to employees is an obligation of the company. Providing comprehensible instructional materials on how these benefits improve overall remuneration and taxation can facilitate the attitude of workers towards the appreciation and the engagement process. Cyclical seminars or such dissemination sessions can assist employees in focusing more on cost aspects of their benefits.

Policy Advocacy of Incentives: Instructions should be clear for companies regarding the adoption of in-kind benefits as part of their compensation packages and how to provide incentives for that. It could be providing tax benefits or subsidizing costs to the companies that put the health of their employees above all else by providing in-kind benefits. Such policies would lead to more companies implementing such strategies, which in turn would be a positive development for the economy.

Prospective Areas of Further Research: In the future, a greater emphasis is to be placed on the integration of the research on in-kind benefits and tax costs in different sectors and countries. A time series analysis would also enable the researcher to understand the long term effects of in-kind benefits on the business taxation approach and even on how employees perceive satisfaction of their work. Also, how organizations that spend resources on in-kind benefits compare to other organizations in similar business operation but do not spend resources on this strategy, would be of interest.

Stake Non-Financial Benefits Qualitative Research Methods: Future research should employ a qualitative approach that seeks to understand how employees view these non-financial benefits, and how they perceive their value.

Employees' understanding of the effectiveness of such benefits may contribute to a richer understanding of these benefits and also assist in better design and implementation of such benefits in future.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

Ahmed, S. K. (2024). How to choose the right sampling technique and determine the appropriate sample size for research. *Oral Oncology Reports*, *12*, 100662. https://doi.org/10.1016/j.oor.2024.100662

Allen, E. J., Allen, J. C., Raghavan, S., & Solomon, D. H. (2022). On the tax efficiency of startup firms. *Review of Accounting Studies*, *28*(4), 1887–1928. https://doi.org/10.1007/s11142-022-09677-1

Boachie, C., & Adu-Darko, E. (2024). The effect of financial inclusion on economic growth: The role of human capital development. *Cogent Social Sciences*, *10*(1), 1–18. https://doi.org/10.1080/23311886.2024.2346118

Braca, A., & Dondio, P. (2023). Developing persuasive systems for marketing: The interplay of persuasion techniques, customer traits, and persuasive message design. *Italian Journal of Marketing*, *2023*, 369–412. https://doi.org/10.1007/s43039-023-00077-0

Budiana, K., Sucherly, S., Krisna, N. L., & Sari, D. (2022). A proposed framework for the roles of digital marketing distribution and co-creation in Increasing non-tax state revenue in Indonesia. *Journal of Distribution Science*, *20*(6), 99–108. https://doi.org/10.15722/jds.20.06.202206.99

Busetto, L., Wick, W., & Gumbinger, C. (2020). How to use and assess qualitative research methods. *Neurological Research and Practice*, *2*(1), 1–14. https://doi.org/10.1186/s42466-020-00059-z

Cahyadini, A., Hutagalung, J. I. G., & Muttaqin, Z. (2023). The urgency of reforming Indonesia's tax Law in the face of economic digitalization. *Cogent Social Sciences*, *9*(2), 1–15. https://doi.org/10.1080/23311886.2023.2285242

Cai, J. Y., Wimer, C., Berger, L., & Maury, M. (2023). Intra-year employment instability and economic well-being among urban households: Mitigating effects of the social safety net. *Children and Youth Services Review*, *148*, 106855. https://doi.org/10.1016/j.childyouth.2023.106855

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing*, *25*(8), 652–661. https://doi.org/10.1177/1744987120927206

Cavaillé, C., & Ferwerda, J. (2023). How distributional conflict over in-kind benefits generates support for far-right parties. *The Journal of Politics*, *85*(1), 19–33. https://doi.org/10.1086/720643

Chaudhuri, S. E., Burnham, T. C., & Lo, A. W. (2020). An empirical evaluation of tax-loss-harvesting alpha. *Financial Analysts Journal*, *76*(3), 99–108. https://doi.org/10.1080/0015198x.2020.1760064

Chigbu, U. E., Atiku, S. O., & Du Plessis, C. C. (2023). The science of literature reviews: Searching, Identifying, selecting, and Synthesising. *Publications*, *11*(1), 2. https://doi.org/10.3390/publications11010002

Christl, M., Köppl–Turyna, M., Lorenz, H., & Kucsera, D. (2020). Redistribution within the tax-benefits system in Austria. *Economic Analysis and Policy*, *68*, 250–264. https://doi.org/10.1016/j.eap.2020.09.011

Cooper, M., & Nguyen, Q. T. (2020). Multinational enterprises and corporate tax planning: A review of literature and suggestions for a future research agenda. *International Business Review*, *29*(3), 101692. https://doi.org/10.1016/j.ibusrev.2020.101692

Fauzan, F., Ibrahim, M., & Jahja, A. S. (2022). A scholarly examination of tax compliance: A bibliometric analysis (1960–2021). *Journal of Indonesian Economy and Business*, *37*(1), 52–72. https://doi.org/10.22146/jieb.v37i1.2718

Giangregorio, L. (2022). Welfare type and income inequality: An income source decomposition including in-kind benefits and cash-transfers entitlement. *International Tax and Public Finance*, *31*(2), 367–403. https://doi.org/10.1007/s10797-022-09772-8

Gleißner, W., Günther, T., & Walkshäusl, C. (2022). Financial sustainability: Measurement and empirical evidence. *Journal of Business Economics*, *92*(3), 467–516. https://doi.org/10.1007/s11573-022-01081-0

Gloria, N., & Apriwenni, P. (2020). Effective tax rate and factors that influence it. *Accounting Journal*, *9*(2), 17–31. https://doi.org/10.46806/ja.v9i2.759

Hawkins, R. R. (2002). Popular substitution effects: Excess burden estimates for general sales taxes. *National Tax Journal*, *55*(4), 755–770. https://doi.org/10.17310/ntj.2002.4.06

Khang, K., Paradise, T., & Dickson, J. (2021). Tax-loss harvesting: An individual Investor's perspective. *Financial Analysts Journal*, *77*(4), 128–150. https://doi.org/10.1080/0015198x.2021.1963187

Kouroub, S., & Oubdi, L. (2022). Tax planning: Theory and modelling. *Journal of Applied Business Taxation and Economics Research*, *1*(6), 594–613. https://doi.org/10.54408/jabter.v1i6.100

Kraus, S., Durst, S., Ferreira, J. J., Veiga, P., Kailer, N., & Weinmann, A. (2021). Digital transformation in business and management research: An overview of the current status quo. *International Journal of Information Management*, *63*, 102466. https://doi.org/10.1016/j.ijinfomgt.2021.102466

Lam, K. Y., Kee, D. M. H., Kumar, A. C., Jain, A., Pandey, R., Singh, A., Chua, C. R., Chia, J. W., Arenas, V. T., Lopez, C. A., & Restrepo, C. A. P. (2020). How does job satisfaction affect the job performance of employees? *Asia Pacific Journal of Management and Education*, *3*(2), 22–32. https://doi.org/10.32535/apjme.v3i2.844

Lee, K. J., Tilling, K. M., Cornish, R. P., Little, R. J. A., Bell, M. L., Goetghebeur, E., Hogan, J. W., & Carpenter, J. R. (2021). Framework for the treatment and reporting of missing data in observational studies: The treatment and reporting of missing data in observational studies framework. *Journal of Clinical Epidemiology*, *134*, 79–88. https://doi.org/10.1016/j.jclinepi.2021.01.008

Leydesdorff, L., Ràfols, I., & Milojević, S. (2020). Bridging the divide between qualitative and quantitative science studies. *Quantitative Science Studies*, *1*(3), 918–926. https://doi.org/10.1162/qss_e_00061

Montgomery, D. P. (2023). "This study is not without its limitations": Acknowledging limitations and recommending future research in applied linguistics research articles. *Journal of English for Academic Purposes*, *65*, 101291. https://doi.org/10.1016/j.jeap.2023.101291

Mujiyati, M., Aris, M. A., & Zulfikar, Z. (2022). Tax amnesty and company value: Testing tax avoidance as an intervening variable. *Investment Management and Financial Innovations*, *19*(3), 176–188. https://doi.org/10.21511/imfi.19(3).2022.15

Mukherjee, S. (2020). Goods and services tax efficiency across Indian states: Panel stochastic frontier analysis. *Indian Economic Review*, *55*(2), 225–251. https://doi.org/10.1007/s41775-020-00097-z

Ngelo, A. A., Permatasari, Y., Harymawan, I., Anridho, N., & Kamarudin, K. A. (2022). Corporate tax avoidance and investment efficiency: Evidence from the enforcement of tax Amnesty in Indonesia. *Economies*, *10*(10), 251. https://doi.org/10.3390/economies10100251

Rahman, A., & Muktadir, M. (2021). SPSS: An imperative quantitative data analysis tool for social science research. *International Journal of Research and Innovation in Social Science*, *5*(10), 300–302. https://doi.org/10.47772/ijriss.2021.51012

Ranta, M., & Ylinen, M. (2023). Employee benefits and company performance: Evidence from a high-dimensional machine learning model. *Management Accounting Research*, *64*, 100876. https://doi.org/10.1016/j.mar.2023.100876

Rotolo, D., Camerani, R., Grassano, N., & Martin, B. R. (2022). Why do firms publish? A systematic literature review and a conceptual framework. *Research Policy*, *51*(10), 104606. https://doi.org/10.1016/j.respol.2022.104606

Safutra, N. I., & Ahmad, A. (2024). Analysis of mental workload of palm oil plantation employees using Subjective Workload Assessment Technique (SWAT) and work sampling. *Al-azhar Indonesia Journal Science and Technology Series*, *9*(2), 191. https://doi.org/10.36722/sst.v9i2.1842

Sastrodiharjo, I., & Mukti, A. H. (2024). Exploring the intricacies of tax planning: A novel insight from the Indonesian context. *Cogent Business & Management*, *11*(1), 1–15. https://doi.org/10.1080/23311975.2024.2348709

Scandizzo, P. L. (2021). Impact and cost–benefit analysis: A unifying approach. *Journal of Economic Structures*, *10*(1), 1–13. https://doi.org/10.1186/s40008-021-00240-w

Schlanger, T., O'Connor, B., & Ahluwalia, H. (2022). A holistic approach to creating high income portfolios that are Risk–Return efficient and tax aware. *Journal of Portfolio Management*, *49*(1), 198–212. https://doi.org/10.3905/jpm.2022.49.1.198

Silalahi, H., & Kurnia, N. B. (2023). Fringe Benefits in Tax Law: Matching principle and tax Justice perspective. *Ilomata International Journal of Tax and Accounting*, *4*(4), 684–702. https://doi.org/10.52728/ijtc.v4i4.870

Sosner, N., Liberman, J., & Liu, S. (2021). Integration of income and estate tax planning. *The Journal of Wealth Management*, *24*(1), 78–104. https://doi.org/10.3905/jwm.2021.1.134

Sumiati, S., Widyastuti, U., Mardi, M., & Respati, D. K. (2023). Analysis of financial and non-financial factors that influence tax aggressiveness in registered companies on the Indonesia Stock Exchange year of 2016–2019. *Quality – Access to Success*, *24*(193), 1–9. https://doi.org/10.47750/QAS/24.193.01

Wagmiller, R. L., Lee, K. S., & Su, J. H. (2020). The role of welfare in family income inequality: 1968–2016. *Children and Youth Services Review*, *119*, 105615. https://doi.org/10.1016/j.childyouth.2020.105615

Walker, C. C., Druckman, A., & Jackson, T. (2021). Welfare systems without economic growth: A review of the challenges and next steps for the field. *Ecological Economics*, *186*, 107066. https://doi.org/10.1016/j.ecolecon.2021.107066

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Review Article

Wisdom and Virtue in Mahāyāna Buddhism

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Abstract

This article adopted a qualitative approach using content analysis aiming to explore wisdom and virtue according to Mahāyāna, a great vehicle for carrying all beings to Nirvana. Wisdom and virtue are important characteristics that cannot be separated, and all three branches of Buddhism focus on such principles. Thus, the comprehension of distinctive points of wisdom and virtue from a Mahāyāna perspective is needed for in-depth discussion. In Mahāyāna, wisdom is emphasized as a quality for understanding the surroundings that all Buddhas and Bodhisattvas also have. Virtue is further separated into three main facets (known as the Threefold Training) with Mahāyāna Buddhist lens. They are morality, a purified mind, and perfection. The Six Perfections to improve the Threefold Training are underlined by Prajñapāramitā Sūtra for Bodhisattvas. Applying this important wisdom and morality ultimately leads to an integrated dimension of developing virtuous living in the modern world.

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Introduction

According to so-called modern scholars and its early teachings in ancient India (c. 1st century BCE onwards), three main existing branches of Buddhism include Theravāda, Vajrayāna and Mahāyāna Buddhism. Mahāyāna, the great vehicle or the great carriage, is more accurately and correctly known as the Bodhisattvayāna (the Bodhisattva's vehicle) for carrying all beings to Nirvana (Warder, 1999). It is believed that all sentient beings who practice and cultivate *bodhicitta*, based on these schools, could be called Bodhisattva. Mahāyāna can be explained as the path of the Bodhisattva who strives to become a fully awakened Buddha to benefit all sentient beings and is therefore called the *Bodhisattvayāna* (Bodhisattva's vehicle) (Keown, 2003). Bodhisattva's vehicle is the path of practice based on the aspiration of a supramundane being. According to Mahāyāna Buddhism, a Bodhisattva can be regarded as a person who has developed *bodhicitta*, which is a

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spontaneous vow, and a compassionate mind to achieve Buddhahood for the sake of all sentient beings. Under the Mahāyāna concept, a lay person or a monastic monk and nun can become a Bodhisattva. Their main vow is to assist and benefit all sentient beings who still suffer and need help to be free from *saṃsāra*. It is said that most of the Bodhisattva will offer their whole life only to help others gain happiness, enlightenment, and liberation. By accomplishing their vows, everyone can achieve full enlightenment like the Buddha.

However, the concepts and principles of Mahāyāna somehow are different from Theravāda tradition. Mahāyāna is known as "a developed Buddhist school" that does not only recognize various doctrines and texts that are not accepted by Theravāda Buddhism but also accepts the teachings and main scriptures of early Buddhism. Mahāyāna Sūtras and their emphasis on the Bodhisattva path and *prajñāpāramitā* are included.

The quintessence of Buddhism that all sects hold as the main principle is the Threefold Training. Mahatthanadull viewed it as a holistic development specifically of the mind. When the mind is focused based on such training, its quality will be gradually developed as clearer and clearer where wisdom arises at a certain level that can fully eradicate the defilements entering into the paths (*magga*), fruitions (*phala*) and Nibbāna respectively. (Mahatthanadull, 2020). Like other schools, Mahāyāna also promotes the practice of Threefold Training to eliminate ignorance, the source of suffering, and attain Nirvana to end the suffering. One must begin by eradicating ignorance through the cultivation of wisdom. Living with wisdom and awareness, a person is a virtuous person who lives with virtue and gains wisdom. Therefore, wisdom and virtue are two key important teachings in Mahāyāna Buddhism. A principal practice of Mahāyāna Buddhism emphasized mainly "*prajñāpāramitā*" as the highest wisdom for all sentient beings.

What does Wisdom Mean in Mahāyāna Buddhism?

According to Mahāyāna Buddhism, wisdom echoes in many layers such as wisdom of hearing, wisdom of reflection, and wisdom of meditation. Mahāyāna Buddhism does not recognize the normal knowledge from our daily life as wisdom. According to the Mahāyāna school, wisdom is something higher than just mundane knowledge. It does not come from learning but from awareness by practicing, meditating, and transforming. When it comes to wisdom in Mahāyāna Buddhism, such refers to the phrase "*prajñāpāramitā*" or "transcendent knowledge" or "perfection of wisdom". *Prajñāpāramitā* is the profound understanding of reality that buddhas and bodhisattvas have achieved. It is a transcendent, non-dual and non-conceptual kind of knowledge into the true nature of things (Williams, 2008). Here, Mahāyāna Buddhist wisdom refers to the concept of the "true nature of things" or "deep knowledge of reality". This wisdom can be observed and realized by comprehending the true nature of any dharma.

This wisdom together with insight into the emptiness (*śūnyatā*) of dharmas or phenomena and their illusory nature (*māyā*) is also associated (Williams & Tribe, 2002). There are two factors mentioned here: one is a deep understanding of the emptiness of all dharmas; the second is their illusory nature. The concept of the emptiness of all things is similar to is similar to non-self or *anatta* of Theravāda Buddhism. The key difference here is the illusory nature of all phenomena. They could be known as the nature of the concept of wisdom in Mahāyāna Buddhism.

Generally, "*prajñā*" is the Sanskrit word to indicate wisdom in Buddhism. The term "*pāramitā*" is explained as crossing the sea of *saṃsāra* - the cycle of rebirth- to the shore of Nirvana or enlightenment. Accordingly, *prajñāpāramitā* sometimes means crossing the sea of *saṃsāra* by means of wisdom (Hirakawa, 1990). There is nothing more complete than escaping from *saṃsāra* and achieving enlightenment and liberation, that is why wisdom in Mahāyāna Buddhism is always called the Perfection of Wisdom. Even though the term perfection is used, it is a perfection that does not aim at completion.

Prajñāpāramitā can be associated with not taking a stand on, or "not taking up" (*aparigṛhīta*), or not grasping anything in the world. It is explained by the Aṣṭasāhasrikā Prajñāpāramitā Sūtra as "not grasping at sensation, not grasping at form, perception, volitions and cognition" (Orsborn, 2012). How to gain the state of not grasping anything in the world has to do with the nature of *prajñāpāramitā* which is the emptiness of all things.

Wisdom and its Nature in Mahāyāna Buddhism

Prajñā explained in the *Prajñāpāramitā* nature is expressed through its four characteristic features, which are: Empiness, Non-Illusion, Nondualism, and Suchness (*tathatā*). First, the nature of wisdom in Mahāyāna Buddhism is built and developed based on the concept of emptiness in Buddhism. That starts with the five aggregates, the elements that make up all things whether

they are sentient or inanimate. According to Mahāyāna's concept, the five aggregates have no substance, and are not permanent, so their essence is empty. That is the meaning of "the Five Aggregates of Emptiness". When concluding "the Five Aggregates are empty", it does not mean denying the absence of the Five Aggregates. The view of emptiness is the view of the middle way which means not veering into two extremes: ultimately existent and conventionally non-existent. The five aggregates are empty, all phenomena are also empty. It is the wisdom of emptiness or non-substantiality, where practitioners cling to nothing and are bound by nothing. That is how *prajñāpāramitā* is associated with not grasping Five aggregates as well as anything in the word.

The essence of a man is "empty" because it is shaped by numerous causes and conditions. When predestined conditions dissolve, that person also disintegrates. When meeting other suitable conditions to combine with another form, the human body and mind are formed by the five aggregates which are empty, so our essence is also empty. Even these empty phenomena are also described as conceptual constructions (Williams & Tribe, 2002).

But why, when realizing the person as the five aggregates is empty, is there no more suffering? Because we think that there is a real self, that is why we suffer. If we realize that man is just five different blocks combined to form, then man is not me, that is, no-self. If it is selfless, who will it take to suffer? When we realize the empty nature of man and the universe, clinging is no longer substantial, and holding on to the old conception of this forever body also no longer exists, then that is *prajñāpāramitā*.

Second, wisdom also reflects non-illusion which is the nature of all phenomena, i.e., having no substance, and being impermanent, so their essence does not really exist. This adds up to the approximation that all phenomena (*dharmas*), without exception, have "no essential unchanging core" and the lack of an essence or inherent nature, thus they have "no fundamentally real existence" (Williams & Tribe, 2002).

Moreover, according to Interdependent Origination, since phenomena are based on various factors, if there is a lack of only one factor, the phenomena will not be formed normally or even could not be formed. One phenomenon may also depend on other phenomena. *Prajñāpāramitā* shows this kind of nature that all phenomena are interdependent with each other and nothing can exist individually. Because of this, all dharmas (phenomena), all living beings, the Buddha himself, the Buddha's Teaching and Nirvāṇa, are "illusions" or "dreams" or "magic" (*māyā*) (Huifeng, 2016). The Vajracchedikā Prajñāpāramitā Sutra or Diamond Sutta states: "All phenomena in this world are like a fantasy, a dream, bubbles, or shadows. In addition, they are like thunder, lightening and dew" (Conze, 1957). Humans are truly living in our dreams.

Third, the nature of wisdom reflects nondualism. Generally, what manifests outwardly is called appearances. The word generally understood according to the conventional truth is an external sign that can be recognized by the senses. Moreover, the lack of real existence or emptiness applies to the apparent arising and ceasing of phenomena. Accordingly, all phenomena are also described as unarisen (*anuppāda*), unborn (*ajāta*), "beyond coming and going" written in the Prajñāpāramitā literature (Orsborn, 2012). Most pronouncedly, the Heart Sutra states that "all phenomena are empty, i.e., without characteristic, unproduced, un-ceased, stainless or not stainless, undiminished, or unfilled" (Lopez, 1988). This is called nondualism. Seeing things thoroughly with the mind of nondualism, a person with the perfection of wisdom will not give rise to a discriminating mind which brings the suffering of having to choose between like and dislike.

Last, wisdom's nature characterizes suchness or *tathatā,* which refers to the ultimate absoluteness of all things. Suchness can only be immovable, permanent, beyond all cognitive reasoning. Suchness refers to the opposite of the world of mental phenomena. The perception of True Suchness means Enlightenment, going beyond the dualistic world, and realizing the unity of the object and the subject. The true likeness is synonymous with the *Tathāgata-garbha*, Buddha nature, and Dharma body. By seeing the nature of all phenomena as they really are, *prajñāpāramitā* is the wisdom that can bring one's mind to be beyond the dualism or dualistic word as explanation above. A state of fearless receptivity (*ksanti*) attained through the insight into the true nature of reality in an intuitive, non-conceptual manner is considered the *prajñāpāramitā*, or the highest spiritual wisdom. Figure 1 shows *prajñāpāramitā* nature with its four characteristic features.

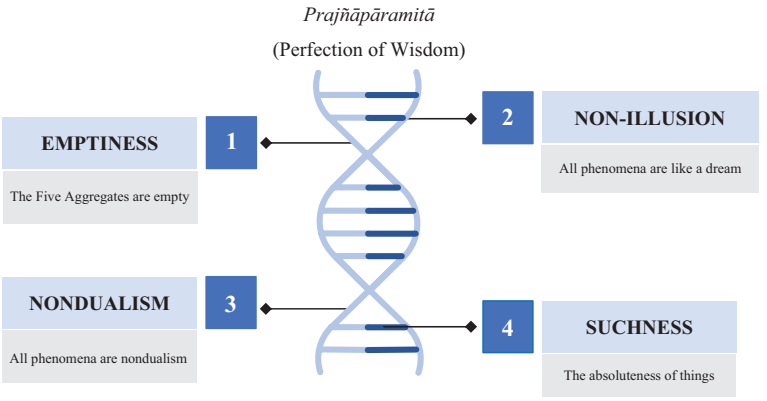


Figure 1 *Prajñāpāramitā* with its four natures

How does Mahāyāna Buddhism View Virtue?

In today's life, virtues are considered one of the essential factors for maintaining and stabilizing peace for mankind. Buddhism also attaches great importance to the preservation of virtues as an essential element to evaluate and recognize a Buddhist follower.

In Mahāyāna Buddhism, virtue depicts a broader sense of meaning covering morality (*sīla*), good conduct (*cariya*), moral conduct (*kusala-kamma*), discipline (*vinaya*), and so on. The practice of virtue is really important for practitioners on the path of *bodhisattva*. Although a Mahāyāna *bodhisattva* practitioner always focuses on the benefit of others as his goal, it is nevertheless a necessity to perfect oneself with full virtue. We cannot give to others what we do not have, neither is virtue. When a Mahāyāna Buddhist practitioner uses virtue to convert people, those who come in contact with us will see us as a virtuous person, so they appreciate that virtue. Therefore, on the path of cultivation, if there is no virtue, it is considered as non-cultivation. With the practice of virtue, one can cultivate virtue, live with virtue, and use virtue to touch people and to make them virtuous. The spread and influence of virtue from one person to another is vividly taught by the Buddha through the example of floral fragrance in the Dhammapada (Bhikkhu Thanissaro, 1997).

> "The scent of flowers does not blow against the wind, nor does the fragrance of sandalwood and jasmine, but the fragrance of the virtuous blows against the wind; the virtuous man pervades every direction.
>
> Of little account is the fragrance of sandal-wood, lotus, jasmine; above all these kinds of fragrance, the fragrance of virtue is by far the best.
>
> Of little account is the fragrance of sandal; the fragrance of the virtuous rises up to the gods as the highest."

The concept of Northern Buddhist virtue is understood as doctrines and methods related to the formation of an ethical, didactic life, a life of always doing what is beneficial to oneself and others; avoiding what harms yourself and others. Lifestyle embodies the spirit of wisdom and compassion of bodhisattva, or in other words, virtue is the manifestation of *Bodhicitta* (Dayal, 1970). Hence, living and practicing according to the *bodhisattva* path is considered Mahāyāna Buddhist virtues.

Facets of Mahāyāna Virtues

Virtues may be viewed from a broad perspective. First, virtue is viewed as morality. In all schools of Buddhism, morality or discipline is considered the fundamental virtue of practitioners. Precepts or moral guidelines in Mahāyāna Buddhism are the Bodhisattva vows and the Bodhisattva Precepts. The Bodhisattva Precepts which are derived from the Mahāyāna Brahmajāla Sūtra include the five precepts with some additions like the precept against slandering the Buddha's teachings. These existences are above and beyond the existing monastic code, or lay follower precepts (Bodiford, 2008). There are 10 major and 48 minor precepts (Bodhisattva vows) which prohibit the consumption of meat, storage of weapons, teaching for the sake of profit, and abandoning the teachings of Mahāyāna, according to the Brahmajāla Sūtra (c. 400 CE) translated by Kumārajīva (2013).

Second, virtue is a purified mind as the Four Immeasurables (*Brahmavihāra*). According to Mahāyāna Buddhism, Theravāda Buddhism's Four Immeasurables

is also a method of practicing virtue because the minds of Buddhas and Bodhisattvas always aim at saving sentient beings through giving joy and ending suffering. The characteristics of the Four Immeasurables are to eliminate suffering and bring happiness to sentient beings, so they are also considered the Virtue of Bodhisattvas. The four sublime states or the four immeasurables (*brahmavihāra*) are: immeasurable loving-kindness (*maitrī*), immeasurable compassion (*karunā*), immeasurable joy in the good fortune of others (*muditā*), and immeasurable equanimity (*upekṣā*).

Third, virtue is considered as the six *pāramitās*. As explained above, the phrase *pāramita* is understood as perfection. It means the factor that makes a being become more perfect. Perfection here implies improvement of morality, meditation, and wisdom (the Threefold Training). Six perfections are seen as a series of methods leading to moral development, concentration, and wisdom. Therefore, a Mahayanist who practices six perfections is also doing his development of virtue.

According to the Prajñapāramitā Sūtras and a large number of Mahāyāna texts, there are six perfections (Wright, 2009):

Dāna pāramitā: perfection of generosity, giving of oneself.

Śīla pāramitā: perfection of virtue, morality, discipline, proper conduct.

Kṣānti pāramitā: perfection of patience, tolerance, forbearance, acceptance.

Vīrya pāramitā: perfection of energy, diligence, vigour, effort.

Dhyāna pāramitā: perfection of one-pointed concentration, contemplation.

Prajñā pāramitā: perfection of wisdom, insight.

The three different facets of virtues according to the Mahāyāna perspective can be seen in Figure 2.

In conclusion, the three facets of Mahāyāna virtue refer to the ethical principles and practices that emphasize compassion, wisdom, and aspiration to accomplish enlightenment for the benefit of all sentient beings. They are: (1) virtue as morality, (2) virtue as purity of mind, and (3) perfections.

Bodhisattva precepts are ethical guidelines undertaken by Mahāyāna Buddhists who aspire to achieve enlightenment for the benefit of all sentient beings. The four *brahmavihāra* are considered fundamental virtues, and through meditation practices, benevolent qualities towards all beings, aiming to eliminate suffering and promote harmony can be cultivated while the six perfections represent essential virtues and practices for aspiring bodhisattvas on the path to enlightenment.

Wisdom and Virtue: Mahāyāna Modern Application

In a rapidly evolving world, the timeless principles of Mahāyāna Buddhism continue to resonate, offering profound insights into the cultivation of wisdom and virtue for compassionate sentient beings living. As we navigate the complexities of the modern age, the application of such ideals faces both new challenges and innovative opportunities, underscoring the relevance and adaptability of Mahāyāna's teachings.

One of the vital factors in application is *prajñāpāramitā*, which offers true wisdom and discernment in being aware of all things metaphysically around us and incorporating virtue into modern living, involving conscientious

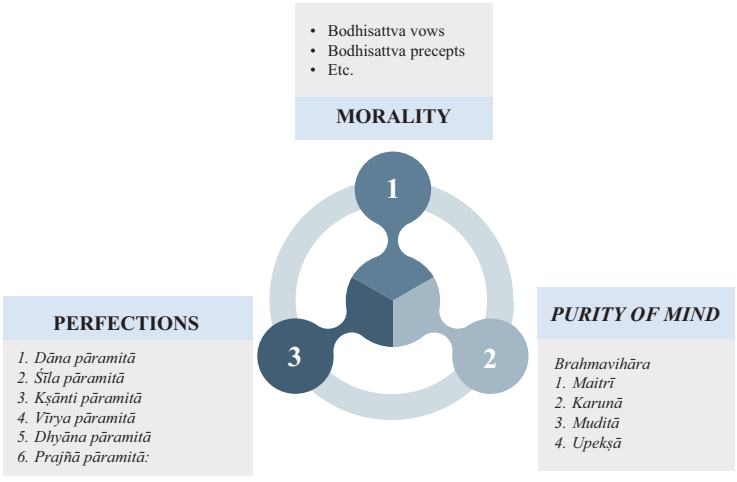


Figure 2 Three facets of Mahāyāna virtues

consumption and environmental stewardship. Sustainable practices can be adopted by practitioners to handle technology in various areas (food production, industrial manufacturing, etc.) ethically and minimize environmental impact on humans, societies, and the world. Mahāyāna practitioners embody compassion for the planet and its inhabitants, aligning with the Bodhisattva's commitment to ensure the well-being of all sentient beings. With wisdom shedding light and a purified mind, Mahāyāna's emphasis on compassion extends beyond personal practice to encompass active engagement with societal issues. Modern Mahāyāna practitioners can participate in volunteer work, humanitarian efforts, and social justice movements. By advocating for the vulnerable, marginalized, and underserved, practitioners' manifest virtue through tangible acts of compassion and altruism.

Intellectual Mahāyāna's message of universal compassion aligns with interfaith dialogue and understanding. By engaging in respectful conversations with individuals from diverse religious and cultural backgrounds, practitioners foster mutual respect, harmony, and unity demonstrating the transformative power of virtuous interactions in a globalized world. Ven. Nguyen Anh Tuan et al suggested that "apart from mindfulness being the main key in skillful communication, loving speech and deep listening are also factors that create and maintain skillful communication." (Anh Tuan, 2021). Modern Mahāyāna practitioners can embody virtue through ethical leadership and service roles in their professional lives. By integrating compassion, honesty, and integrity into their work, they contribute to positive change and create environments that inspire others to embrace virtuous principles.

The wisdom and virtues of Mahāyāna Buddhism transcend time and culture, offering a profound roadmap for virtuous living in the modern world. As practitioners strive to embody compassion, wisdom, and altruism, they engage with contemporary challenges and opportunities, enriching their lives and those of others. By infusing daily actions with the spirit of the Bodhisattva ideal, modern Mahāyāna practitioners exemplify the enduring ideal of a sustainable society with wisdom and virtue.

Conclusion

On one hand, wisdom as viewed by Mahāyāna is *prajñāpāramitā, which* refers to an ultimate knowledge of the reality of all things in nature that all Buddhas and bodhisattvas attain. It characterizes emptiness, non-illusion, nondualism, and suchness. On the other hand, virtue has a wider scope as morality (*sīla*), good conduct (*cariya*), moral conduct (*kusala-kamma*), or discipline (*vinaya*). Mahāyāna virtue refers to ethics and daily conduct based on compassion, wisdom, and dedication to achieving enlightenment, not just for one's own sake, as it is the benefit of all beings that is much more important. Mahāyāna Buddhism divides virtue into three main facets, respectively, namely: morality, purified mind, and perfection.

The wisdom and virtue according to Mahāyāna Buddhist tradition stand the test of time in this modern world. In the Mahāyāna modern application of wisdom and virtue, wisdom plays a key role as the initial necessity that a person should possess. After that, virtue reflects the Bodhisattva precepts, a purified mind, and great perfections that can ultimately guide one to lead a virtuous life together with Dhamma friends in the modern world sustainably.

Conflict of Interest

The authors declare that there are no conflicts of interest regarding this article.

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References

Anh Tuan, V. N., Dhammahaso, P. H., & Mahatthanadull, S. (2021). A buddhist approach of socially engaged Buddhism for a skillful communication. *Journal of International Buddhist Studies*, 12(2), 64–75.

Thanissaro, B. (1997). *Dhammapada: A translation*. Retrieved from https://www.buddhanet.net/pdf_file/damapada.pdf

Bodiford, W. M. (2008). *Sōtō Zen in medieval Japan*. University of Hawaii Press.

Conze, E. (1957). *Vajracchedikā prajñāpāramitā* (Serie Orientale Roma XIII). Bruno Cassirer.

Dayal, H. (1970). *The bodhisattva doctrine in Buddhist Sanskrit literature*. Motilal Banarsidass.

Hirakawa, A. (1990). *A History of Indian Buddhism from Sakyamuni to early Mahayana*. University of Hawaii Press.

Huifeng, S. (2016). Is "Illusion" a Prajñāpāramitā creation? The birth and death of a Buddhist cognitive metaphor. *Journal of Buddhist Philosophy*, *2*(1), 214–262. https://dx.doi.org/10.1353/jbp.2016.0010.

Keown, D. (2003). *A Dictionary of Buddhism*. Oxford University Press.

Kumārajīva (Trans.). (2013). *Brahmajāla bodhisattva śīla sūtra*.

Lopez, D. S. (1988). *The heart sutra explained: Indian and Tibetan commentaries*. New York State University of New York (SUNY) Press.

Sanu, M. (2020). Life coaching: A view from Buddhist psychotherapy and counseling, *Journal of International Buddhist Studies*, *11*(1), 1–24. https://so09.tci-thaijo.org/index.php/jibs/article/view/2545.

Orsborn, M. B. (2012). *Chiasmus in the early Prajñāpāramitā: Literary parallelism connecting criticism and hermeneutics in an early Mahāyāna sūtra* (Doctoral dissertation, The University of Hong Kong). http://dx.doi.org/10.5353/th_b4775259

Warder, A. K. (1999). *Indian Buddhism* (3rd ed). Motilal Banarsidass Publishers.

Williams, P. (2008). *Mahayana Buddhism: The doctrinal foundation*. Routledge,

Williams, P., & Tribe, A. (2002). *Buddhist thought: A complete introduction to the indian tradition*. Routledge.

Wright, D. S. (2009). *The six perfections: Buddhism and the cultivation of character*. Oxford University Press.



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