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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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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.

Research findings: Present the findings together with relevant supportive evidence revealed from the research, either in the forms of figures, tables or diagrams.

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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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How do personality traits contribute to work-life balance? Investigating the role of dark triad and big five personality traits on employees' work-life balance

Nurharianto Jayadi, Siti Nuzulia†,*

Department of Psychology, Faculty of Education and Psychology, State University of Semarang, Semarang City, Central Java 50229, Indonesia.

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Abstract

This study examines the role of dark triad personality – narcissism, Machiavellianism, and psychopathy – and Big Five personality traits on work-life balance (WLB) among employees in Indonesia. The results underscore the significant impact of personality traits on WLB across its resource and demand dimensions. Utilizing a quantitative cross-sectional design, data were collected from 185 employees across various jobs and companies in Indonesia through a self-report questionnaire. The findings indicate that openness, Machiavellianism, and psychopathy consistently emerge as strong predictors of WLB, exhibiting large effect sizes in both dimensions. Agreeableness demonstrates a positive correlation with the resource dimension, while conscientiousness and neuroticism show negative correlations with the demand dimension. The influence of narcissism, gender, and marital status on WLB is not significant. These results imply that personality traits often considered maladaptive may offer advantages in coping with workplace challenges and balancing competing demands. The findings suggest that organizations and individuals could benefit from considering personality traits when formulating strategies to enhance WLB, particularly in managing stress and demands of the contemporary work environment.

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Introduction

In today's rapidly evolving and interconnected society, the concept of work-life balance (WLB) has become a crucial concern, as many people find it difficult to strike a harmony between their career and personal responsibilities. A significant obstacle in achieving this balance is the growing expectations of contemporary workplaces, where extended working hours, stringent time constraints, and the constant push for high

* Corresponding author.
E-mail address: nuzulia@mail.unnes.ac.id (Nuzulia, S.).
† Co-first authors.

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performance have become standard practice. Prior research has demonstrated the impact of WLB on various outcomes, including employee performance (Attar et al., 2021), work commitment, job stress (Aruldoss et al., 2021), and life satisfaction (Cain et al., 2018). This highlights the necessity for further investigation into the predictors of WLB.

In order to comprehend the concept of WLB, it is essential to examine one of the factors that influence WLB, specifically personality (Poulose & Susdarsan, 2014). The examination of personality traits is crucial for a complete understanding of WLB, as these characteristics play a pivotal role in how individuals perceive, prioritize, and manage work and personal obligations (Wong et al., 2021). Individuals with certain personality types tend to cope, manage time and react to stress in distinct ways (Vollrath & Torgersen, 2000), influencing their ability to maintain equilibrium between professional and personal life. Rooted in stable traits like those in the big five personality traits —openness, conscientiousness, extraversion, agreeableness, and neuroticism—affect core life domains, by guiding behaviors and attitudes in predictable ways (Wright & Jackson, 2023). For instance, conscientious individuals tend to achieve more due to their disciplined nature (Kern & Friedman, 2008), while high neuroticism may lead to emotional instability and stress (Klein & Robinson, 2019). Moreover, personality interacts with external factors like culture, education, and socioeconomic conditions, creating a dynamic framework for understanding life outcomes (Ayoub et al., 2018). By serving as the lens through which individuals navigate their world, personality becomes a critical determinant of their overall trajectory and wellbeing (Fernandes & Otta, 2024). Therefore, a study on the relationship between personality and WLB is important to conduct.

Unfortunately, studies have highlighted inconsistencies in the role of personality traits (i.e., the big five personality traits: Leka & De Alwis, 2016; Weliangan et al., 2018) in influencing WLB. The findings indicated that extraversion and openness exert a beneficial influence on WLB when mediated by wellbeing (Weliangan et al., 2018), conscientiousness exerts a positive influence, neuroticism harms WLB, whereas openness is not associated with WLB (Zakaria et al., 2018). Other research findings indicate that all five dimensions within the big five personality model are associated with WLB, except for neuroticism, which has been shown to have a negative impact (Soni & Bakhru, 2019). Hence, the disparate findings across these studies highlight the necessity for further investigation into the impact of the big five personality on WLB.

Dark triad personality traits – narcissism, Machiavellianism, and psychopathy – are also important to consider in understanding WLB because they intersect with the big five personality dimensions' that influence behavior in complex ways. For instance, extraversion, a trait positively correlated with dark traits like narcissism (Paulhus & William, 2002; Garcia & Moraga, 2017), may enhance social engagement and assertiveness, potentially supporting WLB in some contexts, however it lacks consistency as a reliable predictor (Zakaria et al., 2018). On the other hand, agreeableness, which is fundamentally opposed to dark traits such as Machiavellianism and psychopathy (Paulhus & Williams, 2002) often promotes harmony and cooperative relationships, which are essential for maintaining balance, yet its low presence in individuals with dark traits could disrupt WLB. Additionally, neuroticism, characterized by emotional instability, often exhibits impulsive behaviors that can lead to poor decision making in stressful situations, negatively affecting WLB (Sauer-Zavala et al., 2017). By exploring these overlaps and contradictions, we can better understand the nuanced impact of dark personality traits on achieving a healthy WLB.

The relationship between the big five and the dark triad personality introduces the possibility that the dark personality may serve as a predictor of WLB. Unfortunately, no study has yet explored the relationship between WLB and dark triad personality. The existing research on dark personality traits primarily focused on their association with mental health and subjective wellbeing, particularly the traits of narcissism and Machiavellianism (Aldbyani & Al-Abyadh, 2022) and job satisfaction (Abbas & Kant, 2017). Therefore, research on the relationship between dark traits and WLB is crucial to ascertain the extent to which negative (i.e., dark triad traits) and positive traits (i.e., the big five) influence work-life balance.

The objective of this study is to examine the influence of the big five personality traits and the dark triad personality traits on WLB by controlling gender and marital status. Gender roles shape societal expectations, with men and women facing differing pressures in work and family domains (Xie, 2023). Marital status adds complexity, as married individuals or those with caregiving responsibilities often face additional demands that can influence how personality traits affect their ability to maintain WLB (Damariyanti et al, 2022). Understanding these interactions provides a more comprehensive view of how personality traits interact with life circumstances to impact WLB outcomes.

Literature Review

WLB is defined as the conditions enabling individuals to harmoniously manage professional and personal responsibilities. This concept encompasses equitable distribution of time and effective management of energy, attention, and engagement (Greenhaus & Allen, 2011). WLB encompasses two primary dimensions: resources and demands (Fisher et al., 2009; Haar et al., 2019). The dimension of resources illustrates how work and personal life can support and enrich each other. Work enhancement of personal life signifies how professional experiences, competencies, or resources can positively impact personal life. Personal life enhancement of work denotes the potential for personal life to positively influence work. The demands dimension indicates potential conflicts between work and personal life. Work interference with personal life signifies when work demands interfere with allocation of time and energy to personal life. Personal life interference with work occurs when responsibilities in personal life reduce focus and productivity at work. These dimensions form the foundation for comprehending WLB as a dynamic interaction between resources and demands in work and personal life (Haar et al., 2019).

These two dimensions form the foundation for understanding WLB as a dynamic interaction between resources and demands, influenced by individual differences, such as the Big Five personality traits: openness, conscientiousness, extraversion, agreeableness, and neuroticism. Openness is characterized by an inclination to accept novel experiences and challenges, conscientiousness by systematic, controlled, and goal-oriented behavior (Kundnani & Mehta, 2014). Extraversion is typified by an open, jovial, and group-loving disposition (Nuraini, 2020). Extraverted individuals typically possess effective communication skills, facilitating interpersonal relationships. Agreeableness is characterized by a receptive, trusting, cooperative nature, and avoidance of conflict (Nuraini, 2020). Neuroticism, marked by anxiety and emotional lability, can impede work tasks, leading to elevated stress (Fillhumaam et al., 2019) and increased conflict in work and non-work settings (Leka & De Alwis, 2016).

Prior research has shown that Big Five personality dimensions are associated with WLB (Soni & Bakhru, 2019). Openness has a significant positive effect on WLB (Köse et al., 2021), enabling individuals to adapt and circumvent pressure (Fillhumaam et al., 2019). The prudence, orderliness, and goal-orientation of highly conscientious individuals contribute positively to various work types (Sleem & El-Sayed, 2011) and facilitate work-life balance (Akanni & Oduaran, 2017). Agreeableness, with its capacity to accept differences and engage in cooperative behavior (Sabira & Kustanti, 2022), enables individuals to achieve work-life balance (Akanni & Oduaran, 2017). Neuroticism's anxiety and emotional lability may impede task completion, leading to stress and conflict in work and non-work contexts (Fillhumaam et al., 2019; Leka & De Alwis, 2016).

H1: Extraversion, openness, agreeableness, conscientiousness, and neuroticism are predictive of WLB.

The dark triad personality comprises three dimensions of sub-clinical personality traits: narcissism, Machiavellianism, and psychopathy (Jones & Paulhus, 2009). Narcissism manifests in behaviors such as self-promotion, seeking admiration, and striving to be perceived as exceptional (Paulhus & Williams, 2002). Machiavellianism is a proclivity for manipulative behavior, particularly regarding others (Odiakosa, 2018). This tendency often serves one's interests, even when involving manipulation. Psychopathy is typified by a lack of empathy and self-control, disregard for social norms, impulsivity, and diminished guilt when causing harm to others (O'Boyle et al., 2012).

It is hypothesized that these three traits exert a dual influence on WLB, both beneficial and detrimental. A primary characteristic of individuals with dark personality traits is their capacity to withstand high stress, particularly in narcissism (Lyons et al., 2019). This is because individuals with dark personality traits require recognition (Paulhus & Williams, 2002), power (Jones & Paulhus, 2009), and exhibit emotional shallowness (O'Boyle et al., 2012). These traits are anticipated to prompt individuals to prioritize success or power, potentially neglecting personal aspects of their lives. Such individuals may make opportunistic decisions at work (D'Souza & Lima, 2015), even if it disrupts or endangers their personal lives.

Furthermore, an excessive drive for success and desire to excel may result in overworking or persisting in work activities beyond the conventional workday. For example, individuals with narcissistic personality traits may neglect their personal lives to seek validation from their professional environment. Moreover, a deficiency in empathy may result in individuals with elevated dark traits, particularly psychopathy, failing to prioritize relationships in both personal and professional lives. This can potentially give rise to discord in both domains.

H2: Narcissism, psychopathy, and Machiavellianism are predictive of WLB.

Methodology

Research Design

This study employs a cross-sectional research design. This design enables researchers to examine data from a population at a specific point in time (Wang & Cheng, 2020).

Participants

A minimum of 134 sample size is required, as determined by the calculation of G-Power 3.1.9.7 software, with an effect size of odds ratio (*OR)* = 2.36 (Nuzulia & Why, 2020), $\alpha = .05$, and statistical power of .95. In this study, 185 participants were collected using quota sampling. Eighty- three (44.86 %) participants are female, 102 participants (55.13 %) are single, 52 (28.10 %) participants have managerial positions. Data collection was conducted online through social media platforms. The criteria for inclusion were that participants must be employees in Indonesia aged between 20 and 45 years. Setting the age at 20 to 45 years old ensures the study participants are more likely to have relevant experiences with balancing professional and personal domains, providing more meaningful insights into WLB dynamics.

Instrument

The Big Five Personality Inventory (BFPI) (Goldberg, 1992), adapted in Indonesian by Ramdhani (2012), measures the Big Five Personality. The instrument has 28 items: five for extraversion, seven for agreeableness, six for conscientiousness, four for neuroticism, and six for openness. The internal consistency Cronbach's Alpha (α) for each dimension is 0.73 (extraversion), 0.76 (agreeableness), 0.78 (conscientiousness), 0.74 (neuroticism), and 0.79 (openness). Answer options range from 1 (strong disagreement) to 7 (strong agreement). Higher scores indicate higher trait levels.

The dark triad personality is quantified through the Short Dark Triad Personality Scale (SD3) scale (Jones & Paulhus, 2014), modified by Hasanati (2019). The measuring instrument comprises 16 items across three dimensions: narcissism (five items), Machiavellianism (five items), and psychopathy (six items). The internal consistency of the dimensions is 0.778 for Machiavellianism, 0.73 for narcissism, and 0.823 for psychopathy. Participants indicate their agreement with statements on a six-point scale: strongly disagree, disagree, undecided, agree, and strongly agree. Higher scores indicate higher levels of the traits.

The concept of WLB is assessed using the 17 items of Work-Life Balance Questionnaire by Fisher et al. (2009), adapted into Indonesian by Gunawan et al. (2019). The questionnaire comprises two dimensions, demands and resources. The demands dimension includes "work interference with personal life" and "personal life interference with work". The resources dimension includes "work enhancement of personal work" and "personal life enhancement of work". The measuring instrument has six answer options from never to very often. Higher scores on the demands dimension indicate lower WLB, while higher scores on the resources dimension indicate higher WLB. The instrument's validity was calculated using CFA, with SLF results exceeding 0.5. Its reliability is indicated by a CR value of 0.976 and VE value of 0.707, suggesting the instrument is reliable.

Procedure

An announcement posted on social media (i.e., LinkedIn, X, and Facebook). Interested participants completed an online consent form, then filled out the questionnaire.

Data Analysis

The data analysis in this study was conducted using JASP (Jeffreys's Amazing Statistics Program) software, which employs multiple linear regression analysis.

Result

Table 1 presents the mean (*SD*) and zero-order correlation for the variables. The intercorrelation analysis shows significant relationships between the big five personality, dark triad traits, and WLB dimensions (i.e., resource and demand).

Table 2 illustrates the impact of predictor variables on both WLB dimensions. The analysis on Resource dimension demonstrates that extraversion (effect size (*r)* = 0.30), agreeableness ($r = 0.34$), openness ($r = 0.19$), Machiavellianism ($r = 0.32$), and psychopathy ($r = 0.27$) significantly influence the WLB resource dimension, with effect sizes ranging from small to moderate. Extraversion showed a negative relationship, indicating that higher levels of extraversion are associated with lower WLB

Table 1 Intercorrelation between big five personality, dark triad personality, and WLB (n = 185)

Predictor	Mean (*SD*)	Intercorrelations								
		1	2	3	4	5	6	7	8	9
1	37.95 (7.41)	-								
2	43.66 (4.30)	.46***	-							
3	42.96 (8.27)	.68***	.62***	-						
4	31.74 (7.52)	-.73***	-.32***	-.77***	-					
5	50.57 (7.44)	.59***	.42***	-.38***	-.25***	-				
6	33.29 (6.97)	.30***	.28***	.07	.08	.68***	-			
7	27.80 (4.33)	.38***	.05	-.05	-.00	.52***	.56***	-		
8	25.79 (7.39)	-.07	-.35***	-.47***	.40***	.33***	.57***	.62***	-	
9	21.47 (4.89)	-.02	.19**	-.14*	.27***	.47***	.67***	.41***	.55***	-
10	36.33 (10.62)	.03	-.05	-.29***	-.35***	.50***	.75***	.60***	.81***	.69***

Noted: *p<.05; **p<.01; ***p<.001; 1 = extraversion; 2 = agreeableness; 3 = conscientiousness; 4 = neuroticism; 5 = openness; 6 = Machiavellianism; 7 = narcissism; 8 = psychopathy; 9 = resource; 10 = demand

Table 2 Effect of big five personality and dark triad personality variables on WLB (resource and demand dimension) (n =185)

Predictors	Resource Dimension					Demand Dimension				
	β	SE	95% *CI*		*p*	*β*	*SE*	95% *CI*		*p*
			LL	UL				LL	UL	
Extraversion	-.41	.06	-.40	-.14	< .001	-.01	.10	-.22	.17	.81
Agreeableness	.35	.08	.23	.57	< .001	.05	.13	-.12	.39	.29
Conscientiousness	-.10	.06	-.18	.05	.29	-.11	.09	-.33	.02	.10
Neuroticism	-.13	.06	-.21	.04	.18	.06	.09	-.10	.28	.35
Openness	.20	.05	.02	.24	.01	.11	.08	.008	.33	.04
Machiavellianism	.36	.05	.14	.37	< .001	.38	.08	.41	.75	< .001
Narcissism	.006	.08	-.16	.17	.93	.01	.13	-.21	.30	.73
Psychopathy	.36	.06	.11	.37	< .001	.48	.10	.49	.88	< .001
Gender	-.004	.47	-.97	.89	.92	.06	.71	-.10	2.72	.07
Marital Status	.02	.48	-.67	1.21	.57	.00	.72	-1.31	1.55	.86

Note: CI = Confidence Interval; LL = Lower Level; UL; Upper Level.

in this dimension. In contrast, agreeableness, openness, Machiavellianism, and psychopathy displayed positive relationships, suggesting that higher levels of these traits contribute to better WLB. Meanwhile, conscientiousness, neuroticism, narcissism, gender, and marital status did not show significant effects. Overall, the model explains 61 percent of the variance in WLB, highlighting its robust explanatory power.

The analysis on demand dimension reveals that the model explains a substantial 81 percent of the variance in the demand dimension of WLB, highlighting its strong predictive power. Among the predictors, openness, Machiavellianism, and psychopathy have significant positive relationships with this dimension and exhibit large effect sizes (r = 0.46 and r = 0.47 respectively), while openness shows a small effect (r = 0.15), indicating that higher levels of these traits contribute to worse WLB. Other variables, such as extraversion, agreeableness, conscientiousness, neuroticism, gender, and marital status, do not show significant contributions.

Discussion

This study's findings highlight personality traits' influence on WLB across resource and demand dimensions. Openness, Machiavellianism, and psychopathy consistently emerge as significant predictors, with Machiavellianism and psychopathy demonstrating large effect sizes in both dimensions. Agreeableness, openness, Machiavellianism, and psychopathy positively influence the WLB resource dimension, associating with more favourable outcomes. Extraversion negatively associates with this dimension, suggesting higher extraversion links to lower WLB resource dimension. In the demand dimension, openness, Machiavellianism, and psychopathy exhibit significant positive effects, indicating association with poorer WLB outcomes. Other predictors (conscientiousness, neuroticism, narcissism, gender, and marital status) did not contribute significantly to WLB. These findings underscore personality's nuanced roles in shaping WLB, where traditionally maladaptive

traits may offer advantages in navigating workplace challenges.

Openness affects WLB in a complex manner, due to its nature encouraging creativity, flexibility, and openness to new experiences. Individuals with high openness tend to demonstrate higher adaptability (Lakhani et al., 2007), creativity, and capacity to devise innovative solutions that harmonize professional and personal domains (Clark et al., 2009). They perceive challenges as opportunities for growth (Rostyslav & Vsevolod, 2024), fostering a symbiotic relationship between the two domains. However, this trait can also decrease WLB because open individuals tend to be involved in many activities, both at work and in their personal lives. These activities can cause difficulties in setting boundaries and increase interference between work and personal life.

This research is corroborated by several previous studies. Kaufman and Gregoire (2015) demonstrated that individuals with high openness exhibit superior adaptability in managing work and personal demands, supporting work-life equilibrium. Zhou et al. (2018) found that open individuals tend to be more flexible in managing stress and conflict between work and personal life, finding creative solutions to these problems. However, Greenhaus and Allen (2011) revealed that openness can increase the risk of work-personal life interference, especially if individuals pursue many opportunities distracting them from managing time and energy effectively. Kumar and Ranjan (2017) further support that this exploratory nature can influence individuals to set high goals, often leading to decreased WLB.

Meanwhile, agreeableness has a notable positive impact on WLB only for the resource dimension. This result is consistent with previous research indicating a negative correlation between agreeableness and WLB (Anggraini & Rozana, 2014). This is due to the cooperative, helpful, friendly, and sympathetic characteristics that enable individuals with high agreeableness to garner support and experience minimal conflict with others (Silaen, 2023). This finding is supported by a study that demonstrated agreeableness exhibited the lowest burnout score among the other dimensions of the big five personality (Hardiyanti, 2013). The tendency to perceive everything positively makes agreeableness effective in avoiding burnout in the work environment (Hardiyanti, 2013). Considering these circumstances, it is unsurprising that agreeableness exerts a beneficial impact on WLB.

The extraversion trait negatively impacts the WLB resource dimension; as extraversion increases, the relationship between personal and professional lives becomes less mutually reinforced. The results diverge from previous research (Köse et al., 2021). This discrepancy is thought to be due to highly extraverted individuals becoming workaholics (Booket et al., 2018). Extraversion, typified by high energy, activity, and proclivity for diverse experiences, often manifests in engaging in numerous work-related activities and taking calculated risks (Ahmadi et al., 2010). The work environment quality in extraversion can influence WLB efficacy. Extraverted individuals in monotonous fields with minimal interaction may experience depression and lack of enjoyment. This occurs because extraverts are warm, active, and happy, seeking excitement. Consequently, a monotonous environment and minimal social interaction can cause extraverts to become bored and depressed (Köse et al., 2021).

This study yielded intriguing findings on the impact of dark triad personality on WLB. Machiavellianism and psychopathy were found to exert a significant positive influence on WLB, both in resource and demand dimensions. While traditionally viewed as maladaptive, these traits may provide unique advantages in balancing work and life by enabling individuals to manage resources strategically and maintain emotional detachment under demanding circumstances (Tucker et al., 2016). This highlights the importance of context in understanding how personality traits influence outcomes like WLB. According to Jonason and Webster (2010), individuals with elevated Machiavellianism exhibit proficient interpersonal skills and superior efficiency in achieving objectives (Blötner, 2024), including adept management of resources to facilitate work-life balance (Aldbyani & Al-Abyadh, 2022). These individuals employ social networks and manipulative strategies to ensure work enriches personal life and vice versa (Chandler et al., 2020). Rauthmann and Kolar (2013) noted that Machiavellian individuals effectively utilize resources in managing flexibility and social interactions, enhancing the equilibrium between these domains.

However, Machiavellian traits can augment demands in an individual's life. Mayer et al. (2012) revealed that individuals with Machiavellianism are driven to achieve success and have high ambitions, leading to involvement in more activities or roles in work and personal life. This heightened engagement leads to an augmented perception of demands, as these individuals often grapple with delineating clear boundaries between professional and personal domains, amplifying potential discord. Zettler et al. (2011) found that Machiavellian individuals engage in numerous activities and seek control in various aspects

of their lives, potentially increasing demands in work and life. These findings imply that, while Machiavellianism can facilitate effective resource management, its manipulative character may also augment demands in balancing professional and personal domains.

Psychopathy has a notable positive impact on WLB in terms of resource aspect. These findings align with Aldbyani and Al-Abyadh's (2022) study, which demonstrated a positive correlation between psychopathy and subjective wellbeing. Blasco-Belled et al. (2024) also shows a positive correlation between trait psychopathy and well-being, particularly in boldness psychopathy associated with high self-confidence and low neuroticism (Blasco-Belled et al., 2024). In the workplace, this trait is associated with enhanced job performance, adaptability, and career success (Nuzulia & Why, 2020; Nuzulia et al., 2024).

Psychopathy positively influences WLB of both resources and demands dimensions, due to characteristics inherent in this personality type. Psychopathy is linked to high self-confidence, emotional resilience, and composure under pressure (Lilienfeld et al., 2015). These traits may facilitate using work as a resource enhancing personal life, including social status, career achievement, or satisfaction, contributing to personal life enhancement in the workplace (Babiak et al., 2010). These traits also enable individuals to focus on priorities and use personal life to support work success, enhancing personal life in relation to work (Mullins-Sweatt et al., 2010). However, exploitation and impulsivity in individuals with psychopathy can increase the demand dimension in WLB. They may make risky decisions, pursue ambitious goals, or engage in numerous activities without considering WLB impact (Boddy, 2011). Their tendency to disregard boundaries or emotional needs of others can result in work-life conflicts, such as work interference with personal life and vice versa (Jones & Paulhus, 2014). The study found no evidence that narcissism, gender, or marital status were associated with work-life balance, in terms of resources or demands.

These personality traits interact in complex ways, influencing WLB with both positive and negative contributions. Dark personality traits, often associated with challenges, can also support WLB under specific conditions. Similarly, traits within the Big Five, typically regarded as beneficial, may create difficulties, straining the balance between professional and personal life. This interplay underscores the multifaceted nature of personality influences, where traits perceived as positive or negative can exert dual impacts, depending on the context.

Conclusion and Recommendation

The findings of this study have significant implications for human resource management. Understanding personality's influence on WLB can assist in recruitment by identifying employees whose traits align with the company's culture and can maintain work-life balance. The findings can inform tailored employee welfare initiatives and help manage conflict, particularly among employees with dark personality traits. Theoretically, these findings suggest a more integrated view of personality in relation to WLB, challenging the traditional dichotomy of "good" and "bad" traits. While cross-sectional design is practical for examining relationships at a specific point, it is less ideal for elucidating causal processes or long-term relationships. Future researchers should consider alternative designs, such as longitudinal studies, to examine personality's influence on work-life balance. Additionally, future research may explore specific fields of work, like start-ups or state-owned enterprises, as each presents unique opportunities for analysis.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Happiness, religion, and creativity: The trend of subjective and psychological well-being

Muhamad Parhan[a,*], Abdul Karim[b,†], Shirin Kulkarni[c,†], Yusuf Ali Tantowi[d,†], Nisrina Nurul Insani[e,†]

[a] *Department of Islamic Religious Education, Faculty of Social studies, Universitas Pendidikan Indonesia, Bandung, West Java 40154, Indonesia*
[b] *Department of Leadership and Educational Management, Faculty of Education, Unviersitas Muhammadiyah Cirebon, Cirebon, West Java 45153, Indonesia*
[c] *Department of Education, Faculty of Education, Tampere University, Kalevantie 4, Tampere 33100 , Finland*
[d] *Department of Arabic Language Education, Faculty of language and literature, Universitas Pendidikan Indonesia, Bandung, West Java 40154, Indonesia*
[e] *Department of Civic Education, Faculty of Social studies, Universitas Pendidikan Indonesia, Bandung, West Java 40154, Indonesia*

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Abstract

The pursuit of happiness, which includes both social and economic dimensions affecting an individual's life, ought to be the paramount objective of government. Moreover, the well-being of students represents a significant challenge that must be prioritized in the pursuit of happiness through holistic methods. This stands in stark contrast to a notable limitation of traditional utility theory, which fails to adequately consider the enjoyment individuals derive from goods, services, activities, or amenities. This research is characterized as descriptive qualitative; the methodology implemented involved a literature review; the instrument utilized consisted of a compilation of keywords; the articles were gathered through online applications and generators; and the data analysis was facilitated by analytical applications and subsequently validated through confirmation. The findings revealed that happiness is characterized as a condition of well-being and contentment, whereas creativity is both innovative and requires applicability to various activities. The summary of this study shows that happiness, defined as well-being and satisfaction, is associated with higher levels of creativity, longer lifespan, and a tendency for religious individuals to be happier, and highlights the importance of subjective experience in psychological well-being and quality of life. This study contributes a clear definition, action, and integration of happiness, religion, creativity, subjectivity, and psychological well-being.

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* Corresponding author.
E-mail address: parhan.muhamad@upi.edu (Parhan, M.).
† Co-first authors.

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Introduction

These decades have shaken confidence in the patterns of all the pathways for achieving happiness that it once assumed. As a result, the gross domestic product (GDP) has faced mounting scrutiny, as it has been highlighted that numerous elements contributing to human well-being elude adequate description. Nevertheless, the relationship between income and happiness remains positively correlated in both temporal data and cross-national analyses, regardless of the degree of prosperity (Khalil, 2022). Therefore, happiness, which encompasses the social and economic dimensions of a person's life, should be regarded as an ultimate goal of government policy (Agrawal et al., 2024). Likewise, it has been demonstrated that the teaching profession engenders negative emotions that impact the quality of the teaching-learning process. Furthermore, the well-being of students represents a paramount challenge that necessitates prioritization through holistic methodologies.

Happiness is defined as a state of subjective well-being characterized by positive emotions, life satisfaction, and an overall sense of contentment. It encompasses immediate feelings of joy, known as hedonic happiness, as well as the pursuit of meaningful experiences and a sense of purpose in life, which is referred to as eudaimonic happiness. This multifaceted construct indicates that happiness is not merely a transient emotion but a more stable condition influenced by various factors such as relationships, personal achievements, and life circumstances (Milovanska-Farrington & Farrington, 2022).

Furthermore, mental well-being is defined by flourishing and thriving, a sense of community and belonging, personalization to meet individual needs, alignment with core values, and a collaborative approach. While discussions on happiness and well-being have traditionally belonged to philosophy and psychology, an increasing number of economists are now exploring these topics (Jaswal et al., 2024). Positive psychology, in particular, rigorously investigates the elements that contribute to optimal human functioning.

The dialogue around "happiness," or more broadly, subjective well-being, acts as an overarching concept that captures the distinctions between evaluative and hedonic perspectives. Subjective well-being is often developed within the context of hedonism, incorporating aspects like self-fulfillment and autonomy. In the educational landscape, the emotional state and well-being of teachers have a direct impact on student performances and overall happiness. Failing to adopt effective strategies can lead to increased anxiety and depression (Ryff, 2023). It is recognized that contemporary generations place a high value on life satisfaction, effective stress management, sustainability, and social awareness.

Engaging with current events surrounding happiness and well-being has become increasingly relevant, particularly due to the recent global challenges posed by the COVID-19 pandemic. The pandemic has had a profound impact on psychological well-being, resulting in heightened levels of anxiety, depression, and social isolation. With restrictions on social interactions and disruptions to daily routines, many individuals experienced a significant drop in happiness and life satisfaction (Das et al., 2020). Moreover, the pandemic underscored the vital importance of community and social support in enhancing well-being. Those who maintained connections, whether virtually or in person, were often better equipped to navigate the stresses of isolation. This underscores the necessity of fostering resilience and seeking creative ways to maintain happiness during challenging times. Participating in arts, discovering new hobbies, or engaging in community service can function as essential coping mechanisms (Abdullahi, 2020).

In this context, religion has also gained prominence, as many turned to spiritual practices for comfort and guidance during uncertain moments. Religious communities offered support and belonging, positively impacting their members' overall well-being. These trends highlight the interconnections between happiness, creativity, and community, especially during crises, pointing to the need for policies that bolster mental health by promoting social engagement, creativity, and spiritual practices in both personal and communal contexts (Formoso-Suárez et al., 2022). Addressing these contemporary issues adds depth to the conversation surrounding happiness and well-being, demonstrating that they are fluid concepts shaped by external factors and shared human experiences.

Current phenomena show that the World Happiness Report (WHR) identifies gross domestic product (GDP) as a significant factor influencing life evaluations. Countries with high GDP per capita tend to rank among the happiest, while those with low GDP per capita often exhibit lower levels of happiness. Nonetheless, the correlation is not ideal. In 2011, the United Nations (UN) published a report on global happiness, focusing on Bhutan's Gross National Happiness (GNH).

This framework was subsequently organized into the annual World Happiness Reports (WHR), which address key questions to measure, rank, and emphasize

happiness globally. In 2014, UNESCO Asia-Pacific offices initiated the 'Happy Schools' project, aimed at promoting happiness and well-being (Handa et al., 2023). They reported that Finland has been recognized as the happiest country in the world for five consecutive years.

The above phenomena give rise to several problems, including a lack of precise data regarding the application of positive psychology, and modeling is essentially a non-special education (Rivera et al., 2023). In addition, a significant limitation of traditional utility theory is its inability to consider individuals' enjoyment of goods, services, activities, or amenities. Again, there exists a distinction between the terms "happiness" and "subjective well-being."

Research on the relationship between happiness, education, and income levels is also notably scarce. Moreover, there are significant concerns regarding the measurement of indicators, the conceptualization of happiness, and the specific forms of happiness and well-being that are emphasized (Khalil, 2022). Creativity refers to the ability to generate novel and useful ideas, solutions, or expressions. It involves the process of thinking outside traditional boundaries and utilizing imagination to develop innovative concepts or approaches. This form of creative thinking manifests in various ways, including artistic endeavors, problem-solving in everyday situations, and the development of new products or ideas in professional contexts. Creativity is often celebrated for its importance in personal expression and is intrinsically linked to enhanced emotional well-being. By facilitating innovative thought, creativity empowers individuals to navigate challenges effectively and explore a myriad of possibilities (Dwivedi et al., 2020).

Religion is defined as a structured system of beliefs, practices, and values centered around the worship of a higher power or deity. This framework provides individuals with moral and ethical guidelines, fostering a sense of community and belonging among its adherents. Through rituals, traditions, and teachings, religion aids individuals in navigating life's uncertainties, offering comfort and a sense of purpose during challenging times. Research has demonstrated that engagement in religious practices can enhance happiness, provide increased social support, and contribute to a more fulfilled life, thus underscoring the profound influence of religion on personal well-being. By establishing clear definitions of creativity and religion, readers are better equipped to grasp the intricate interrelationships among happiness, creativity, and religion. Understanding these terms is essential for appreciating their implications for subjective and psychological well-being, thus enriching the discourse on how these constructs influence individual experiences and societal dynamics. The concepts of happiness, creativity, and religion are interrelated in complex and significant ways, influencing individuals' overall well-being and life satisfaction. Understanding these relationships can illuminate the pathways through which each element impacts the others. Happiness and Creativity: Happiness often serves as both a catalyst and a product of creativity. Individuals who experience higher levels of happiness tend to exhibit greater creativity. This is because happiness fosters an open mindset, allowing individuals to explore new ideas and think divergently. Conversely, engaging in creative activities can enhance happiness by providing a sense of accomplishment, self-expression, and flow—a state where individuals lose themselves in their creative processes. As such, creativity can act as a channel through which individuals manifest their happiness, leading to increased life satisfaction and emotional well-being. Creativity and Religion: Religion can provide a fertile environment for creativity to flourish. Many religious traditions often encourage artistic expression as a form of worship or a way to connect spiritually. Creative acts—such as music, art, or writing—aligned with religious beliefs may create meaningful experiences that resonate deeply with individuals, leading them to feel a sense of purpose and fulfillment. Additionally, certain spiritual practices such as meditation or contemplation can enhance creative thinking by promoting mental clarity and focus. Therefore, creativity can be seen as both a personal expression of spirituality and a means of engaging with the divine in a culturally relevant way. Happiness and Religion: Research consistently shows that individuals who participate in religious practices and maintain spiritual beliefs report higher levels of happiness compared to those who do not. This may be attributed to several factors, including the moral framework, community support, and social connections that religion provides. Religious involvement often fosters a sense of belonging and purpose, contributing to emotional well-being. Religious practices such as prayer and meditation can significantly enhance mental health by reducing stress and promoting positive emotional states. Thus, religion emerges as a vital contributor to achieving happiness and a general sense of well-being (Ryff, 2023). The interplay between happiness, creativity, and religion creates a dynamic interaction among these concepts. For instance, an individual's sense of religious fulfillment can lead to increased happiness, which in turn can facilitate greater creativity. Conversely, engagement in creative activities can enhance one's spiritual experience,

ultimately resulting in improved mental health and overall happiness. This blend of elements suggests that cultivating a balanced relationship among happiness, creativity, and religion can enrich an individual's quality of life, encouraging deeper engagement with both their inner selves and their communities.

In summary, happiness, creativity, and religion are intricately interwoven, with each influencing the others in profound ways. Recognizing and nurturing the connections among these concepts allows individuals and communities to promote overall well-being and a richer, more fulfilling life experience. However, within the educational context, teachers often face various stressors, including fatigue, classroom anxiety, and ongoing pressure from society and parents. The assumptions and alternative solutions proposed by this study favor the term "well-being," which does not encompass empirical studies involving variables associated with non-substantive satisfaction. This research emphasizes the importance of defining well-being distinctly apart from mental health (Ruggeri et al., 2020).

Recent research indicates that the trend and relevance of happiness, learning, and creativity suggest individuals with higher levels of spirituality tend to experience greater happiness. Religious individuals generally report higher levels of happiness, characterized by a small yet stable and statistically significant effect. In a world marked by uncertainty and rapid change, the quest for happiness and well-being has never been more critical. Recent global challenges, such as the COVID-19 pandemic, have exposed the fragility of mental health and the profound impact of social connections on individual happiness. This study aims to illuminate the intricate relationships between creativity, happiness, and the role of religion in fostering psychological well-being, an area that remains under-explored in existing literature (Jaswal et al., 2024).

Despite a growing awareness of the interconnectedness of these elements, there is a significant gap in research regarding how creativity and religious practices contribute to happiness and subjective well-being across various contexts, particularly in educational environments. Many existing studies have focused narrowly on individual factors impacting happiness, overlooking the synergistic effects of community support, creative expression, and spiritual involvement. This oversight underscores the need for a comprehensive analysis that integrates these dimensions into a cohesive understanding of well-being (Fan & Cai, 2020).

The significance of this study is twofold. First, it aims to contribute to academic discourse by providing a comprehensive framework that captures the multifaceted nature of happiness, creativity, and religion. This effort seeks to inform educators, policymakers, and mental health practitioners about the critical interplay among these factors in fostering resilience and overall well-being, especially among students. Second, the findings are intended to guide the development of targeted interventions and policies that not only enhance individual happiness but also promote a more supportive and creative educational atmosphere. As contemporary society grapples with ongoing global challenges, understanding and addressing the dynamics of happiness and well-being has become imperative for cultivating healthier and more fulfilling lives.

In contrast, current happiness index values indicate a below-average level of satisfaction. Significant deficiencies persist in the domain of 'Quality of Life,' highlighting the need for substantial improvements (Alexander et al., 2020). Research has also demonstrated that maintaining an active lifestyle can mitigate the effects of anxiety, depression, and stress on overall well-being. Meanwhile, the challenges of integrating a new educational paradigm with established practices, cultural norms, and human development remain a crucial topic for discussion. Furthermore, such posits a clear correlation between the quality of a country's educational system and its overall well-being. The provision of quality education in developing nations is a crucial factor in enhancing a country's overall well-being and happiness (Aldridge & McLure, 2023). The trend of publications related to this topic is illustrated in Figure 1.

This paper presents novel insights into the relationship between creativity and happiness, adopting a comprehensive perspective on progress that equally values non-economic factors while emphasizing the determinants of happiness. It also highlights the significant 'real world impact' of education within this deeply cultural context. The current shift towards prioritizing happiness is acknowledged, and the concept of happiness is further explored. Additionally, the paper aims to reconcile global educational frameworks with local cultural characteristics and a broader understanding of the Happiness Studies Movement (Diržytė et al., 2021).

The introduction of this research explains the importance of happiness as a primary goal in an individual's life, which includes both social and economic dimensions. Previous research shows that happiness is closely related to creativity and psychological well-being. Therefore, this study aims to explore the relationship between happiness, creativity and religion, and the

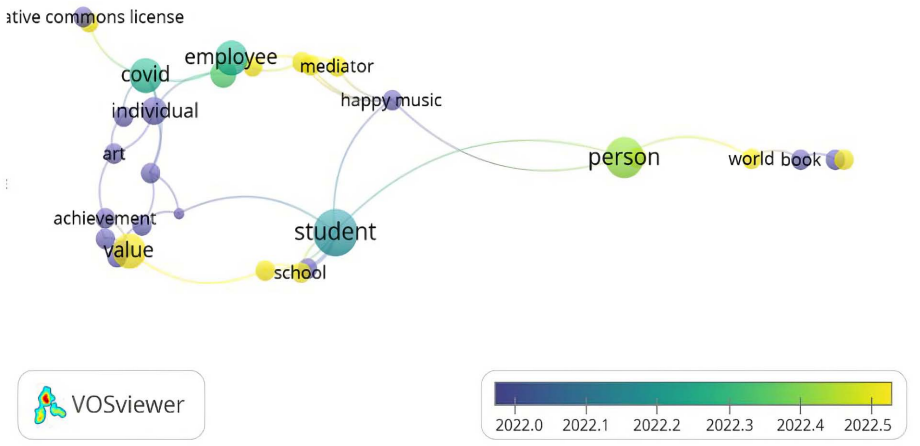


Figure 1 Trend publication

influence of subjective experience on well-being. By understanding these linkages, it is hoped that policies can be more effective in improving people's quality of life, especially among university students as a group that faces significant challenges in achieving well-being (Rivera et al., 2023).

This study is guided by the following research question, reflecting the significance and novelty of this research avenue: How are creativity and happiness being understood? How does creativity contribute to happiness? Does religion influence an individual's happiness? Moreover, how is the integration between subjective and psychological well-being? Then, the objectives of this study are to define creativity and happiness, explore the contribution of creativity to happiness, draw the roles of religion to happiness, and analyze the integration between subjectivity and psychological well-being.

Literature Reviews

This literature review explores the interrelated concepts of happiness, religion, and creativity, highlighting their roles in subjective and psychological well-being.

Happiness

Happiness has emerged as a pivotal focus in psychological and social scientific research over recent decades. Broadly defined, happiness encompasses a state of subjective well-being, which includes positive experiences, life satisfaction, and a minimal occurrence of negative experiences. Research indicates that happiness significantly influences individual quality of life, social interactions, and productivity (Singh et al., 2023; Somoğlu et al., 2025). Scholars often categorize happiness into two major perspectives: Hedonic happiness, which emphasizes pleasure-seeking and pain avoidance, and eudaimonic happiness, which pertains to the pursuit of meaning and purpose in life (Milovanska-Farrington & Farrington, 2022). This distinction is crucial, as it recognizes different pathways to achieving well-being and offers a comprehensive framework within which to understand the dynamics of happiness.

Happiness also serves as a primary goal in individuals' lives, influencing a wide range of decisions and behaviors. Individuals who cultivate happiness often experience improved health, stronger relationships, and greater life satisfaction, emphasizing the importance of this emotional state in shaping overall life trajectories.

Religion and Happiness

Religion is frequently positioned as a major contributor to happiness. Numerous studies suggest that individuals engaging in religious practices report higher levels of happiness compared to their non-religious counterparts. Religion provides a moral framework, a sense of community, and social support, all of which are critical for individual well-being (Kate et al., 2017). In many instances, religious practices such as prayer and meditation correlate with reduced stress and improved mental health, thereby enhancing overall happiness (Formoso-Suárez et al., 2022).

Moreover, religion can offer solutions to existential uncertainties and emotional tumult, leading to greater emotional regulation (Huynh et al., 2024). For many individuals, their faith serves as a source of strength during life's stresses, fostering resilience and a deeper sense of belonging. This underscores the vital role that religion plays not only in supporting happiness but also in promoting a sense of purpose and meaning in life.

Creativity and Well-Being

Creativity plays an integral role in the pursuit of happiness and psychological well-being. Engaging in creative endeavors often correlates with a state of 'flow,' where individuals experience deep engagement in activities, leading to profound satisfaction and fulfillment ((Patel & Singh, 2024). Research consistently indicates a positive relationship between creativity and happiness, as creative individuals frequently exhibit heightened levels of happiness derived from self-expression and innovative problem-solving (Tan et al., 2021).

Furthermore, creativity functions as a powerful coping mechanism, enabling individuals to navigate emotional challenges and stressors effectively. Engaging in creative pursuits not only allows individuals to explore and express their emotions but also enhances their problem-solving skills and overall resilience, further contributing to well-being (Agrawal et al., 2024). The relationships among happiness, religion, and creativity are summarized in Table 1.

The Relationship between Happiness, Religion, and Creativity

The interplay between happiness, religion, and creativity is complex and multifaceted. Prior research posits that religion can cultivate a supportive environment conducive to creativity, inspiring individuals to produce work that resonates with their spiritual values (Pöhls, 2021). Additionally, individuals who experience happiness tend to be more open to new experiences and exhibit enhanced creative thinking. Thus, the interaction among these elements is key to understanding their collective impact on individual well-being and societal health.

Literature suggests that happiness, religion, and creativity are intrinsically linked—each contributing uniquely to subjective and psychological well-being. Happiness, characterized by positive experiences and life satisfaction, is amplified by the social support and moral guidance provided by religion. Meanwhile, creativity not only enhances happiness but also thrives within supportive religious contexts (Singh et al., 2022). This interconnectedness indicates that fostering an environment of creativity and religious engagement could be beneficial for enhancing individual well-being.

Subjective and Psychological Well-Being

Subjective well-being encompasses how individuals evaluate their lives, integrating life satisfaction as well as the presence of positive and negative emotional experiences. In contrast, psychological well-being focuses on domains such as personal development, autonomy, and relationships. Understanding the interplay of happiness, creativity, and religion is vital in exploring how these dimensions contribute to both subjective and psychological well-being (Abdullahi et al., 2020).

Table 1 Relationships among happiness, religion, and creativity

Variable	Key Insights	Impact on Well-Being
Happiness	- Encompasses subjective well-being and life satisfaction. - Positive experiences correlate with improved health and productivity.	- Acts as a primary goal influencing life choices. - Enhances social interactions and overall life satisfaction.
Religion	- Provides moral framework and community support. - Associated with higher reported happiness levels among practitioners.	- Acts as a source of strength, fostering resilience and emotional regulation. - Enhances life purpose and meaning.
Creativity	- Engages individuals in activities that promote a state of 'flow.' - Serves as a coping mechanism for stress and emotional challenges.	- Improves problem-solving skills and overall engagement. - Correlates positively with happiness and psychological resilience.
Interconnections	- Happiness and creativity foster mutual enhancement. - Religion provides a context that can inspire creative expression.	- Collective contributions of the triad create a holistic approach to well-being. - Supports educational and therapeutic interventions for improving mental health.

This understanding can inform interventions aimed at enhancing overall life satisfaction and emotional health. The relationship between these constructs is not merely academic; it holds practical implications for policy and programming in educational and therapeutic settings. By understanding how happiness, creativity, and religion interplay, stakeholders can design interventions that holistically support well-being (Diržytė et al., 2021).

Implications for Policy and Practice

This research aspires to investigate the relationship between happiness, religion, and creativity further. By yielding insights, this study can inform policies aimed at promoting well-being, especially among university students who face significant psychological and emotional challenges during their educational journeys.

Methodology

The objects of this research are the meaning of happiness and creativity, the contribution of creativity to happiness, the roles of religion in happiness, and the integration between subjective and psychological happiness. The distribution of publications and journal sources analyzed in this study is presented in Figure 2.

Research Design and Location

This study is a descriptive qualitative literature review that aims to explore the concepts of happiness, creativity, and the role of religion in the context of subjective and psychological well-being. The research site was virtual, with data collected from various online sources, including scholarly journals, academic articles, and other relevant publications accessible through research platforms such as Publish or Perish (PoP) and Dimensions. The research design was designed to explore multiple perspectives within the existing literature.

Research Population

The population in this study consisted of scholarly articles that addressed the relationship between happiness, creativity and religion. Inclusion criteria included: (a) Articles published in peer-reviewed scientific journals. (b) Articles relevant to the topics of happiness, creativity, and the role of religion. (c) Publication within an indefinite time span to capture recent developments in the literature. After the screening process, a total of 75 relevant articles were identified for further analysis. The distribution of publications by year is presented in Figure 3.

Data Collection

Data were collected through the following steps: (1) Keyword Identification: The researcher formulated relevant keywords such as ‘happiness,’ ‘creativity,’ ‘religion,’ ‘subjective well-being,’ and ‘psychological well-being.’ (2) Article Search: Using the Publish or Perish (PoP) and Dimensions applications, the researcher searched for articles that matched the predefined keywords. This process lasted for 1 month. (3) Article

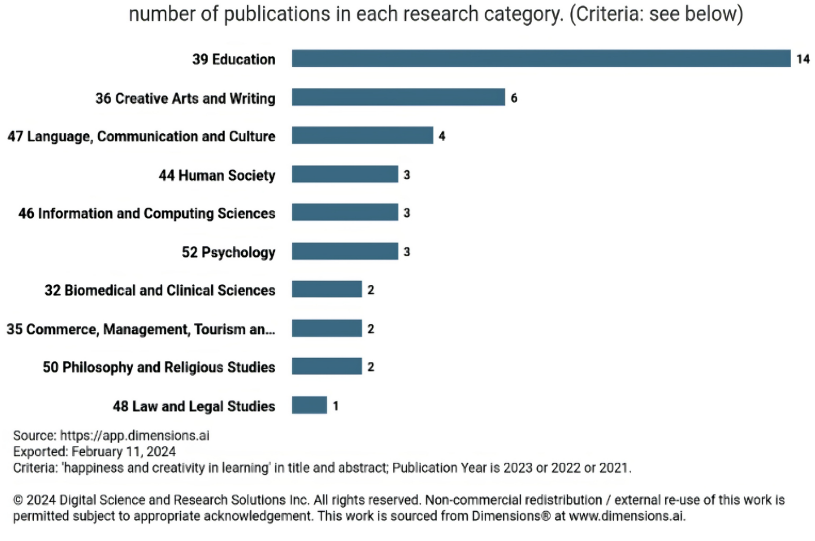


Figure 2 The publications and journals’ name

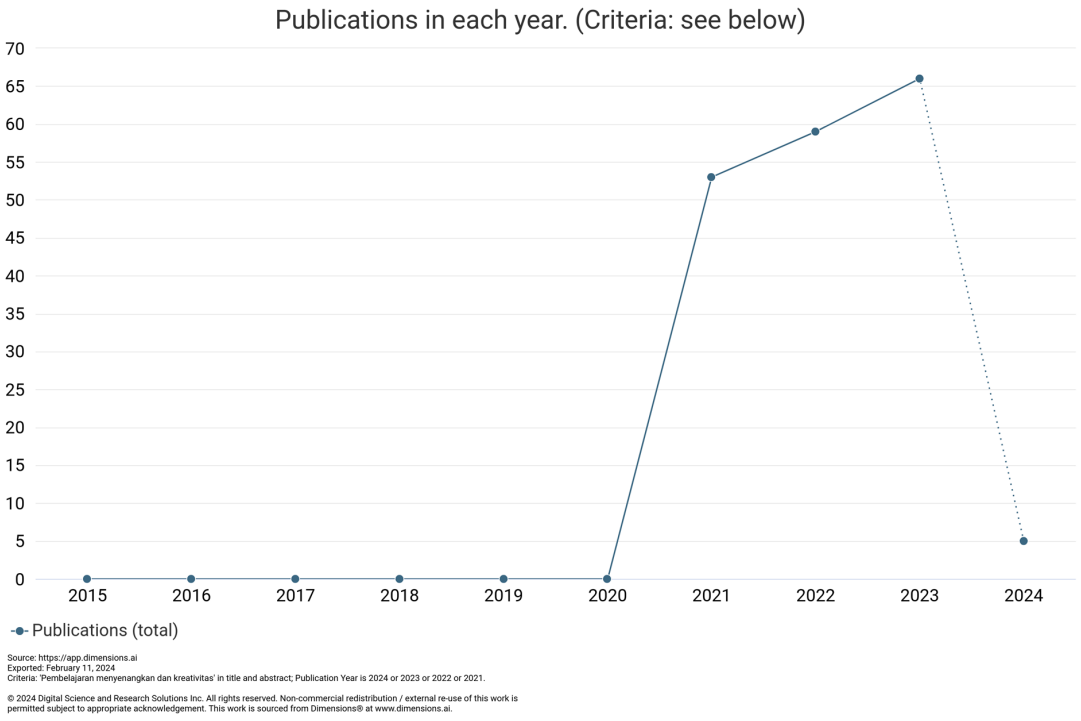


Figure 3 The publications year collected

Selection: The articles found were then screened based on relevance to the research topic. This study focused on articles that demonstrated the relationship between the three concepts: Happiness, creativity and religion. (4) Additional Data Collection: The researcher also collected additional articles from references contained in the selected articles to broaden understanding and ensure diversity of perspectives.

Data Processing Method

Data processing was conducted using the following steps: (1) Transcription and Summary: Selected articles were read in depth, and key information and findings were summarised. The Resoomer app was used to effectively summarise the content. (2) Reference Management: Mendeley was used to manage references and create appropriate citations for the analysed articles. (3) Data Analysis: The summarised data were analysed using VOSViewer and Citespace. These applications were used to identify patterns, themes and trends in the relevant literature. Analyses were conducted to extract information on how happiness, creativity and religion interact with each other.

Data Analysis

Data analysis was conducted thematically with a focus on: (1) Identification of Major Themes: The researcher identified key themes from the articles reviewed, including the relationship between happiness and creativity, and the impact of religion on individual happiness. (2) Data Triangulation: Results from the analysis applications (VOSViewer and Citespace) were compared and verified to ensure consistency of findings. This process is important to increase the validity and reliability of the data. (3) Interpretation of Results: Findings from the data analysis were interpreted in the context of existing theory and relevant literature. The researcher noted patterns, similarities and differences that emerged from the various sources to provide a comprehensive picture of the relationship between the 3 variables.

Results and Discussion

The Meaning of Happiness and Creativity

The data collected and analyzed showed that the meaning of happiness is a psychological concept, a positive monotonic function of income, a state of well-being and contentment, unchanging across human experience, a personal experience influenced by relationships, and a long-term state focusing on quality of life. The meaning of creativity is novel, and it needs usefulness to increase activities (Khalil, 2022). These conceptual definitions of happiness and creativity are illustrated in Figure 4.

Happiness represents a multifaceted psychological construct, encompassing various definitions and dimensions, and is often equated with terms such as gladness, vitality, and cheerfulness. Happiness exhibits a consistent and positive relationship with income (Khalil, 2022). The concept of happiness is far from straightforward and ought not to be treated as if it possesses a singular definition. Meanwhile, the other notion of "happiness" represents an alternative perspective on satisfaction that aims to transcend the conventional economist toolkit, namely, a form of non-substantive satisfaction.

Happiness can also be understood as a function of well-being that exists within a specific context. Happiness is a state of well-being and contentment. In the meantime, the numerous collectives—past and present—that make up our common humanity all strive for happiness. In the complexity of human experience, happiness must be viewed as both universal and constant, yet it also depends on the situations and eras in which individuals find themselves. Happiness at the individual level is a subjective feeling that is influenced by relationships, employment, interests, and mental well-being. Happiness is a long-term condition that emphasizes relationships, personal relationships, and quality of life. Generally speaking, people are happy when their lives are in line with their beliefs, aspirations, and positive interpersonal interactions. Accordingly, happiness is typically less reliant on external factors and more stable than satisfaction.

Since happiness and education are intimately intertwined, many academics think that happiness should be the primary objective of education. This means that people can attain their goals and occasionally more. Happiness can be conveyed through emotional display rules, where smiling and expressions of joy serve a social purpose. The concept of happiness can often be influenced by societal expectations and limitations, which may adversely affect both individuals and groups in their pursuit of true contentment. Happiness encompasses various dimensions of subjective well-being (SWB): The fleeting sensations of joy and pleasure (affective or hedonic), the assessment of life satisfaction (evaluative), and the realization of one's life purpose (eudaimonic).

Additionally, happiness is a person's assessment of the degree or amount of quality desirability in his or her entire life, as well as the steady, pleasant, and good moods used to evaluate environmental information. Conversely, creativity requires novelty and freshness in the first place, and it also requires usefulness; that is, it must answer some of the limits and requirements in the chosen field and boost activities. Giftedness is strongly associated with creativity, imagery, and intuition. Even if a person has intrinsic abilities, they will not be apparent

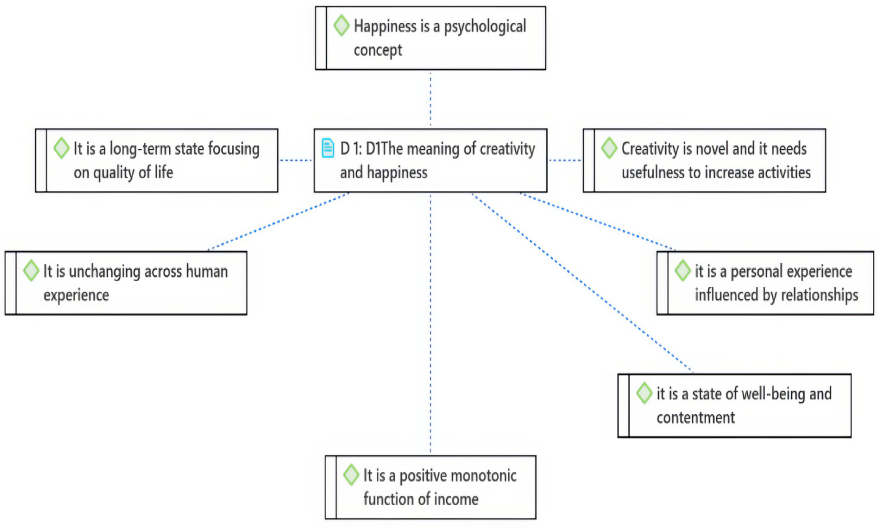


Figure 4 The meaning of happiness and creativity

without good methods and skills (Fan & Cai, 2020).

Creativity and Happiness

The results of this research revealed that education policies can increase creative consumption; principals' creativity can build institutional happiness, and teachers with creative personalities tend to show care and concern. Teachers with positive emotions show more happiness and creativity, which encourages students' creativity. It can then foster students' happiness. Students with higher levels of happiness perform better. Creative individuals can solve problems, making them happy. Happy individuals have increased creativity and longer lives, and happy individuals are more capable of creating relationships (Fan & Cai, 2020). These contributions of creativity to happiness are illustrated in Figure 5.

A favorable correlation exists between principals' creativity—encompassing invention, motivation, flexibility, and tolerance—and institutional happiness. School principals should introduce novel concepts and innovations to transcend undesired limitations and create a more positive environment for students.

The perceived creative personality of teachers and the subjective happiness of students were found to be highly significant. The educators' relatively high self-assessments regarding their creative personalities were bolstering positive behavior, employing preventive and intervention techniques to handle classroom conduct, exhibiting care and concern for students, showcasing adaptability, engaging in reflection, and displaying warmth and enthusiasm.

Cognitive and non-cognitive skills are influenced not only by genetic factors but also by decisions made primarily by others, such as parents, and by the environmental context in which a child develops. Individuals may involuntarily develop preferences that necessitate advanced consumption skills, essential for appreciating more creative consumption styles, primarily due to constraints related to skill and income.

The significant influence of education and consumption exposure in childhood on preference formation and skill acquisition suggests that effective education policies could enhance the potential for creative consumption. In this policy framework, the primary attribute of any effective measure is its ability to assist individuals in identifying their talents. Happy people gain numerous advantages. They not only feel happy, but they are also more productive and creative, thanks to increased flexibility, more rewarding relationships, better physical health, and even longer life.

This study verified that students who worked with positive emotions integrated into the specific contents of the subjects studied and with a methodology that encouraged their creativity demonstrated higher levels of happiness and creativity than those who studied using a standard methodology. Such emphasize the importance of teachers creating a good classroom atmosphere to support student development and learning (Rodríguez-Muñoz et al., 2021).

The research findings revealed a significant relationship among happiness, subjective well-being, creativity, and the job performance of teachers. Individuals who experience happiness tend to exhibit higher levels of extroversion and demonstrate greater abilities in forming and enhancing relationships with others. Content individuals find joy whether they are alone or with others, appreciating their own company as well as that of others. They thrive in both rural and urban settings and can be fulfilled in solitary or social occupations.

The findings of this study indicate a significant positive correlation between creativity and happiness among students. Students who experience greater happiness and life satisfaction tend to engage more actively with their homework, achieve higher performance in their assignments, and complete their tasks more effectively

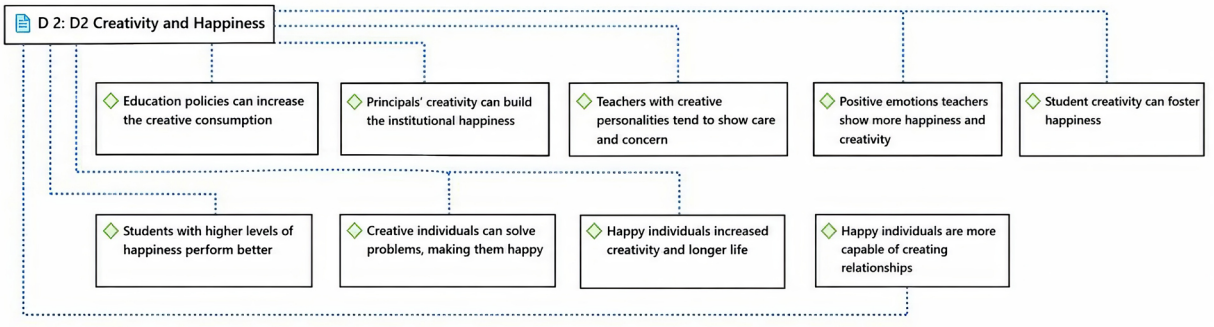


Figure 5 The contribution of creativity to happiness

due to their personal capabilities; they also demonstrate a better ability to manage psychological pressures.

These students are capable of collaborating effectively with peers and educators, leading to the development of improved solutions for problem-solving. In educational settings, various factors, including the pursuit of academic objectives, completion of assignments, preparation for future employment, financial independence, and the development of social skills for effective communication with peers and educators, present significant challenges. It can be inferred that an individual who demonstrates creativity has undergone positive and constructive evaluation prior to this stage and will inherently experience a sense of achievement and satisfaction through the generation of a new idea. Creative individuals possess the ability to alter circumstances and address challenges, which contributes to their sense of fulfillment.

Religion to Happiness

The findings of this study demonstrate that religion provides solutions to uncertainty. Religion aids in regulating anger from an emotional perspective. In general, individuals who are religious report higher levels of happiness. The relationship between theology and wellbeing highlights the significance of self-understanding, suggesting that wellbeing has important implications for theological study. Engaging in meaningful activities can lead to happiness and contribute to a sense of purpose in life. Unanticipated passages from sacred texts can foster happiness, while contemporary interpretations of religion frequently bolster this sentiment. Moreover, religious traditions provide perspectives that enhance the concept of happiness. Religious activities correlate with increased levels of happiness (Huynh et al., 2024), particularly among rural respondents. These relationships are summarized in Figure 6.

Happiness transcends a mere fleeting emotion; it significantly influences our overall well-being. Research indicates that happy individuals tend to have stronger immune systems and demonstrate greater creativity, productivity, and willingness to help others. Religion plays a crucial role in nurturing happiness by providing comfort amid uncertainty and alleviating the fear of death. While death is an inevitable part of life, religious beliefs can instill a sense of hope and offer a supernatural remedy that goes beyond conventional medical solutions.

Spirituality also contributes to happiness by aiding individuals in managing their emotions, particularly anger, and fostering accountability during conflicts. Empirical studies show that religious individuals often report higher levels of happiness, supported by three key assumptions: The measurable nature of happiness, the relevance of religiosity in contemporary identity, and the effectiveness of correlational studies in establishing the link between religion and happiness (Pöhls, 2021).

Exploring the intersection of religion and well-being has significant implications for theology and public policy. Engaging in meaningful activities, characteristic of an autotelic personality, allows individuals to uncover authentic happiness. This journey involves connecting to something greater, seeking deeper significance in experiences, and adapting to life's challenges. Ultimately, a sense of meaning and purpose enhances individual well-being, underscoring the vital role of spirituality in our lives.

The relationship between religion and happiness is often examined through conventional lenses, yet deeper insights can be derived from unexpected passages in sacred texts. While it is essential to explore global religions' perspectives on fulfillment, it is equally important to address how modern interpretations of happiness and religion interact. Viewing religion solely as a means to compensate for happiness disparities reinforces limited secular notions of joy, potentially overlooking the rich and diverse experiences that religious traditions can provide, which can lead to profound happiness.

Research shows a strong correlation between religious activities and increased happiness levels, particularly in rural contexts, even within atheistic societies. This contrasts with urban settings, where such a correlation is less evident, aligning with secularization theories. The literature indicates that happiness encompasses both hedonic (pleasure-seeking) and eudaimonic (meaningful existence) dimensions, with creativity playing a vital role in enhancing life satisfaction. Creative expression, often nurtured within religious frameworks, significantly contributes to emotional fulfillment.

Moreover, religion fosters community support and moral guidance, further enhancing happiness. By integrating subjective and psychological well-being, it becomes clear that happiness, creativity, and religion are interconnected. A holistic approach to well-being should consider these relationships, advocating for policies that recognize the importance of spiritual and creative dimensions in enhancing individual happiness.

Subjective and Psychological Well-Being Integration

The integration of subjective and psychological well-being reveals that SWB is a domain within psychology

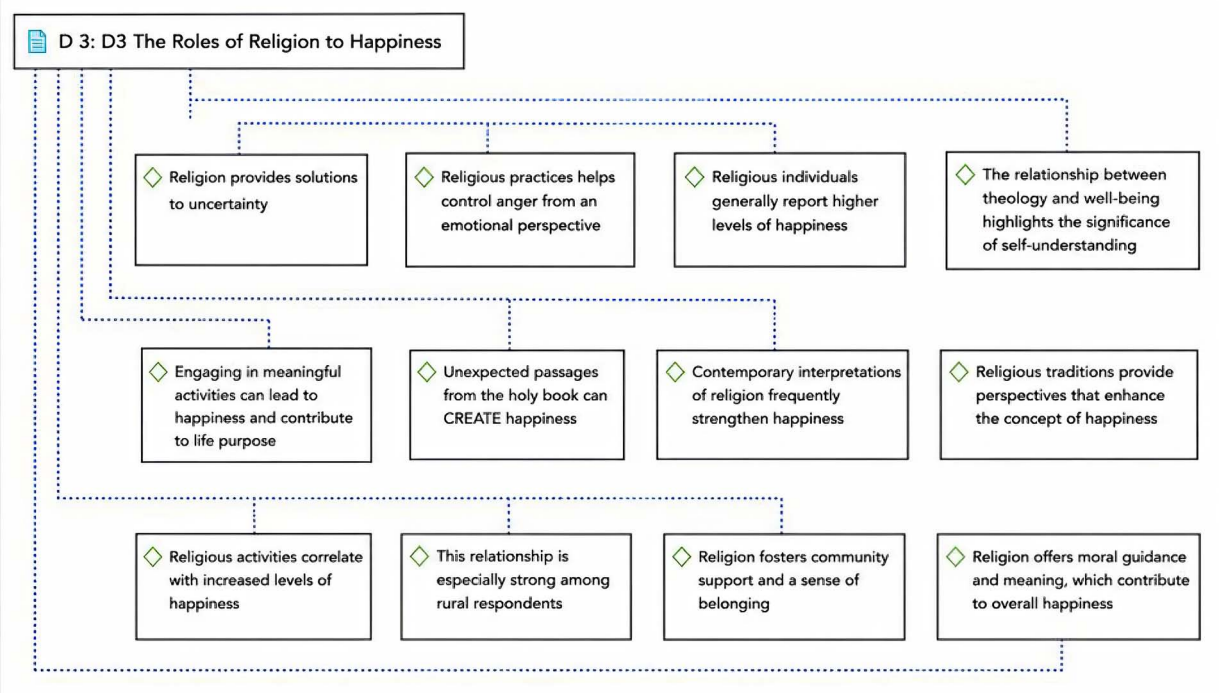


Figure 6 The roles of religion to happiness

focused on quality of life, which is not synonymous with psychological health. It is assessed through an individual's self-reports, setting it apart from traditional psychology. Positive subjective well-being leads to a variety of favorable psychological results. SWB can be examined through psychological lenses, utilized in behavioral sciences, and is a multifaceted concept with significant implications for psychology. SWB will increasingly integrate with psychology, tracking subjective and psychological well-being to inform policymakers. Measures of psychological well-being will address psychosomatic aspects, while current well-being assessments mainly concentrate on life satisfaction and the underlying psychological processes that influence well-being (Das et al., 2020). The conceptual relationship between these dimensions is illustrated in Figure 7.

The concept of subjective well-being (SWB), introduced by Diener (1984), centers on understanding individuals' evaluations of their quality of life (QoL), encompassing both cognitive assessments and emotional responses. SWB reflects how people perceive their lives, particularly the degree to which their reflective appraisals and emotional experiences indicate that their lives are fulfilling and progressing positively. It is essential to distinguish psychological well-being from eudaimonic well-being, the latter representing a specific type of psychological health rather than encompassing all forms of well-being.

Positive subjective well-being should not be conflated with mental health; individuals may report high levels of subjective well-being despite experiencing significant psychopathology, and *vice versa*. SWB is characterized by internal experiences assessed through self-report measures, setting it apart from clinical psychology. Research indicates that positive SWB often precedes various favorable personal, behavioral, psychological, and social outcomes.

Additionally, some psychologists mistakenly view subjective well-being as a distinct field of study. In reality, it can be examined from multiple perspectives within psychology. Understanding SWB is vital for policy decision-making, as it significantly influences behavior across various domains. Psychologists should also consider the limitations of current well-being measures and explore additional indicators of psychological health, such as relationship strength, mastery, loneliness, and existential meaning. While many countries emphasize life satisfaction, a more comprehensive approach to assessing well-being is necessary for effective policy design. Identifying the aspects of psychological well-being most relevant to specific policy studies remains a critical research priority (Das et al., 2020).

Significant research on SWB extends beyond simple cross-sectional correlations of self-reported measures,

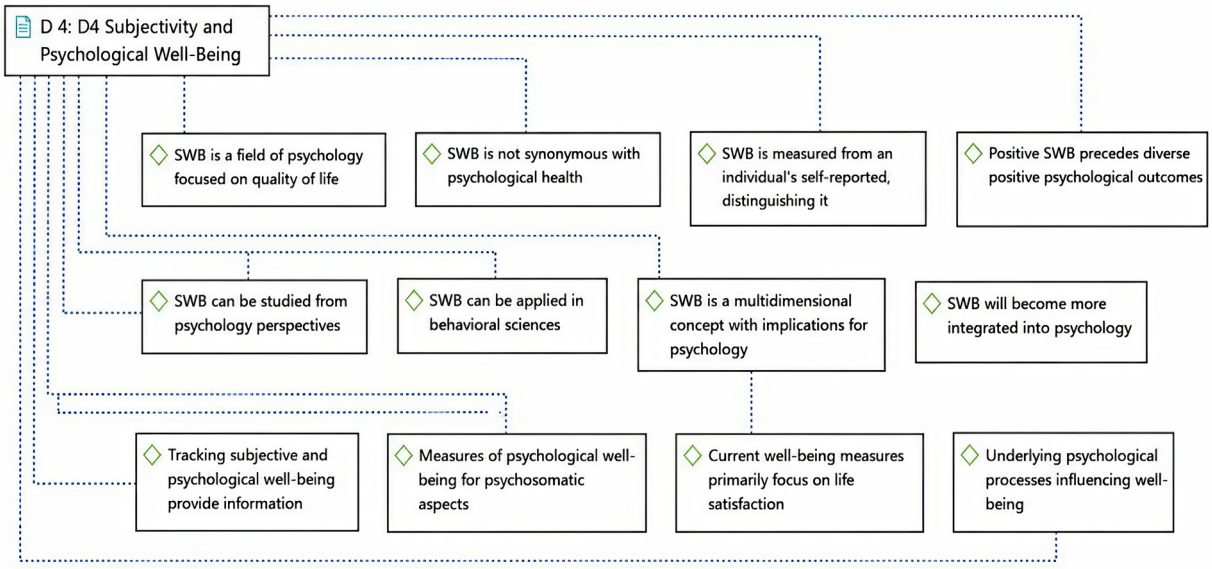


Figure 7 The integration of subjective and psychological well-being

incorporating experimental and longitudinal designs to investigate the underlying psychological mechanisms influencing SWB. This interdisciplinary approach, which includes social, behavioral, and neurological sciences, uncovers complex relationships between happiness, creativity, and religion, emphasizing their collective contribution to overall well-being (Buecker et al., 2023).

The findings suggest that practitioners in educational and therapeutic settings should integrate creative activities and spiritual practices into programs designed to enhance well-being. For example, curricula that encourage creative expression through art, music, and writing can provide students with valuable outlets for exploring their emotions. Furthermore, discussions about values and community support, often rooted in religious contexts, can cultivate a deeper sense of belonging and purpose.

Policymakers are encouraged to develop initiatives that enhance mental health by promoting access to creative arts programs and supporting spiritual communities. Mental health programs should acknowledge the roles of creativity and spirituality in fostering resilience, particularly among vulnerable populations.

Implications for Policy

The findings of this research reveal a significant relationship between happiness, creativity, and religion, illustrating how these constructs collectively contribute to both subjective and psychological well-being. Given these insights, it is crucial for policymakers, especially in the educational sector, to incorporate these elements into their frameworks to enhance individual and community well-being.

Significance of creative activities in education

The study underscores that creative activities are instrumental in fostering happiness, particularly among students who face various emotional and psychological challenges throughout their educational journeys. This insight implies that educational policies should prioritize curricula that integrate creative expression through arts, music, and writing. Such an approach promotes a holistic education model that values emotional and psychological health alongside traditional academic achievement, thereby cultivating resilient and well-rounded individuals.

Comparison with existing literature

The current study aligns with prior research emphasizing that creativity enhances happiness and that religious involvement can act as a protective factor against stress. For example, studies have consistently shown a correlation between religious practice and higher levels of happiness (Alexander et al., 2020; Dwivedi et al., 2020). However, this research adds a new dimension by exploring the interactive roles of creativity and religion, suggesting that a synergistic approach, one

that does not treat these elements in isolation, may yield greater benefits for student well-being.

Recommendations for Future Research

To build on these findings, future research should examine the long-term impacts of incorporating creative practices and religious teachings in educational settings. Longitudinal studies would be particularly beneficial in evaluating how arts-based curricula influence student happiness and psychological resilience over time. Furthermore, qualitative interviews with both educators and students could provide valuable insights into the emotional and spiritual effects of these programs (Buecker et al., 2023).

Practical Applications

Adopting policies that improve access to creative arts programs and strengthen ties with spiritual communities offers transformative potential. Educational institutions could collaborate with local religious organizations to design initiatives that explore the intersection of creativity and spirituality. Additionally, mental health programs should acknowledge and integrate the roles of creativity and spirituality in building resilience among vulnerable groups. This research emphasizes the importance of merging happiness, creativity, and religious frameworks in educational and community policies to significantly enhance overall well-being. By promoting creative engagement and investigating spiritual dimensions, policymakers can implement strategies that not only improve educational outcomes but also foster a holistic approach to individual happiness and community health. Future research should keep investigating the benefits of these integrated methodologies to deepen our understanding of how they can be effectively operationalized within modern educational systems.

Moreover, future studies aimed at understanding the causal relationships between happiness, creativity, and religion should take into account demographic variations. It is crucial to explore how age, gender, socio-economic status, and educational background influence the interplay among these constructs. For instance, examining how different age groups children, adolescents, adults, and seniors perceive and engage with happiness, creativity, and religious practices could yield important insights into developmental factors affecting well-being.

Cultural contexts also play a significant role in influencing the relationships between happiness, creativity, and religion. Comparative studies in various cultural environments could reveal how unique cultural beliefs and practices shape individual experiences. Researchers should consider diverse definitions and expressions of happiness and creativity across cultures, as these might significantly impact how individuals relate to these concepts.

Furthermore, studies focused on specific settings can enhance our understanding of how environments, such as educational institutions, influence the relationship between creativity and happiness. For example, investigating the pressures experienced by students in academic contexts could illuminate how these stressors affect their creative expression and overall well-being. Similarly, exploring religious environments such as churches, synagogues, and temples might highlight how communal activities and teachings contribute to personal happiness and stimulate creative outlets. Implementing longitudinal studies will be essential for tracking changes in happiness, creativity, and religious participation over time. Such research can identify trends and causal relationships, particularly as individuals experience life transitions such as job changes, family dynamics, and health issues. Combining these studies with qualitative narratives that capture personal experiences regarding happiness, creativity, and spirituality will provide a richer understanding of the complex interactions involved (Buecker et al., 2023).

Finally, researchers should investigate practical applications by designing targeted interventions that nurture creativity within religious communities. By measuring the impact of such programs on individual happiness and community well-being, practitioners can develop initiatives that harmoniously connect art, spirituality, and wellness practices. Examining the effectiveness of these integrated approaches in various settings such as schools, workplaces, and community centers can yield valuable insights that enhance the quality of life for individuals and communities alike (Aldridge & McLure, 2023). By focusing on these specific areas, future research can uncover the intricate dynamics between happiness, creativity, and religion, leading to actionable insights that promote well-being across diverse populations.

Conclusion and Recommendation

This study examines the relationship between creativity, happiness, and the role of religion in the context of subjective and psychological well-being. Findings suggest that creativity and happiness

are interconnected psychological constructs, where both reflect an individual's state of well-being and satisfaction influenced by personal experiences and social interactions. Creativity, characterised by novelty and utility, contributes to happiness by enhancing an individual's ability to solve problems and engagement in various activities.

The role of religion in happiness is seen from several aspects, including religion's ability to regulate emotions, such as anger management, as well as theological contributions to well-being and self-understanding. In addition, unexpected insights from sacred texts can provide inspiration and happiness for individuals. Subjective well-being (SWB) is also an important domain in psychology that focuses on quality of life and personal experiences.

The implications of these findings point to the importance of integrating happiness, creativity and psychological well-being in educational and community policies. Policies that encourage participation in creative activities can improve people's quality of life and happiness. As a recommendation, it is important for policy makers to consider a holistic approach in formulating programmes that support the development of individual creativity and well-being. In addition, further research is needed to explore the interactions between these psychological factors in a broader context, as well as to understand the specific role of different aspects of religion in facilitating happiness and creativity. As such, this research not only provides insights into the relationship between happiness, creativity and religion, but also offers direction for policies and practices that can enhance subjective and psychological well-being in society.

Conflicts of Interest

The authors declare no conflicts of interest.

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Development of innovative mobile applications for dementia prevention in at - risk elders

Renu Kwanyuen†, Orranuch Chusri*, Doungnetre Thummakul, Sresuda Wongwiseskul, Natrapee Jaingam

Faculty of Nursing, Suan Dusit University, Bang Phlat, Bangkok 10700, Thailand

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Abstract

Social isolation has been associated with negative health outcomes. In response, we developed and implemented a mobile application to promote social engagement among older adults living in their communities. This research and development (R&D) study aimed to 1) develop a dementia prevention mobile application called SDU Brain Training for older adults at risk of dementia and 2) examine the application's quality among a sample of 35 older adults who were at risk of dementia and living in Bang Len, Song Phi Nong, Suphan Buri. Data were collected through the Dementia Prevention Mobile Application Effectiveness Evaluation Survey and analyzed using descriptive statistics.

The SDU Brain Training application comprised two modules: 1) a 40-item self-assessment test with immediate result interpretations and recommendations and 2) cognitive rehabilitation exercises consisting of brain exercise, meditation exercise, food tips for brain health, 4-step brain development, brain-healthy environment tips, and brain training games, e.g. Sudoku and photo hunt games. The application was evaluated for content validity by three experts using the index of item-objective congruence (IOC), resulting in IOC scores ranging from 0.67 to 1. The experts' feedback on format, content, and images was incorporated into the application development for Android and iOS operating systems. The application achieved a β value of .78 and was found compatible with devices running iOS 12 or Android 8 or higher through ∝ testing. Additionally, the application effectiveness evaluation yielded an overall mean score at the highest level (M = 4.84, SD = .38). These results indicate that the SDU Brain Training application is an effective tool for assisting older adults in dementia prevention and cognitive rehabilitation.

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* Corresponding author.
E-mail address: orranuch_chu@dusit.ac.th (Chusri, O.).
† Co-first authors.

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Introduction

In the face of present challenges, technology has emerged as a powerful force improving the quality of life for both independent and dependent older adults. Driven by a rapidly ageing population, Thailand became an aged society in 2005 with its older population projected to reach 28 percent by 2031 (National Statistical Office, 2023). A survey by the Division of Strategy and Plan, Department of Older Persons reveals that the number of Thai older adults increased to 12.5 million (19%) and 12.6 million (19.21%) in 2021 and 2022, respectively, with the 60−69 age group being the largest, followed by those aged 70−79 (Department of Older Persons, 2023). Thailand's transitioning to a "complete aged society" raises concerns about ageing health issues, particularly physical decline, age-related memory loss, and dementia, a common chronic disease that can affect any older adults. In Thailand, dementia is found in 12.4 percent of individuals aged 60 and over, with more women affected than men (15.1% and 9.8%, respectively) and prevalence increasing with age from 7.1 percent in those aged 60–69 to 14.7 percent in the 70–79 age range to ultimately 32.5 percent in those over 80 (Saipany, 2022). The data from the Foundation of Thai Gerontology Research and Development Institute (2021) indicate that 651,950 Thai adults were living with dementia in 2020, with women constituting the majority. Worsening dementia places a heavier burden on families. However, it can be effectively prevented by regular exercise, regular socializing, stress management, annual health checks, and regular brain training (Ye et al., 2023). Due to limited social participation caused by the COVID-19 pandemic, a dementia prevention mobile application can offer an alternative solution for Thai older adults who are at risk of dementia by helping stimulate their cognitive function through exercises and games instead of social activities. This innovation tool will not only enhance the quality, effectiveness, and convenience of self-care practices, but will also improve the satisfaction and quality of life for older people and their families.

Literature Review

Dementia is a common public health issue among older adults that negatively impacts the physical, psychological, behavioural, social, and economic aspects of life for both individuals and families, including their quality of life (Suwan, 2017). In the meantime, technology has become an integral part of people's life today serving the desires and needs of all genders and age groups, especially in medical care and public health. Digital technology and health innovations are playing an increasing role in supporting health operations to increase people's access to modern health services, while simplifying their daily activities for greater convenience and efficiency. In an ageing society, empowering current and future older adults to maintain their independence for as long as possible is crucial. This can be achieved by promoting their ability to take care of their own physical and mental health and use new technologies to communicate with their family members, leading to a happy, independent life within the community. To address the challenges of an aging society, technological advancements are being harnessed across various areas, including health, social connection, living environments, and economic security. In regard to health, they are being utilised to enhance older people's physical and mental well-being, improve their self-care ability and self-esteem, and reduce their risk of health problems, particularly dementia, that becomes more common with advancing age.

Dementia in Older Adults

Dementia is a decline in cognitive function commonly found in adults over 60, with a significant impact on the professional and personal lives of both those living with dementia and their caregivers. Most people with dementia typically display abnormal behaviours related to memory, calculation, decision-making, imagination, and language and exhibit personality changes as the disease progresses. There are three stages of dementia in older adults: early, middle, and late. In the early stage, individuals will experience mild memory loss, particularly regarding recent events, and frequently misplace objects. During the middle stage, they will have difficulty remembering the names of new people and places, forget their own personal history, and become confused about date, time, and place. Finally, in the late stage, they will stop recognising things and lose the ability to respond to their environment. To reduce older adults' risk of dementia, it is important to promote and stimulate their cognitive skills related to perception, thinking, and understanding to delay the decline of their brain function. In addition to memory, attention and focus skills should also be nurtured, as they affect an individual's overall perception, thinking, and understanding. Such skills can be improved by repeatedly reviewing information, doing brain exercises, and playing a variety of games, e.g.

memory games, sorting games to improve concentration, sequencing games to improve thinking skills, matching or hidden-object games to improve observation and visual discrimination skills, and chess, mah-jong, or puzzle games to improve problem-solving skills. Dementia risk in older people can also be minimised through moderate physical exercise and social activities that encourage older adults' active participation to help them stay socially connected and avoid feelings of isolation and being undervalued (Ye et al., 2023).

How to Prevent Dementia in Older Adults

Dementia prevention is crucial in safeguarding older adults' memory function, as dementia is caused by neurodegeneration and cannot be cured (Limsakul et al., 2023; Muangpaisan, 2021). To prevent dementia, the following actions should be taken: 1) avoiding substances or medications that damage the brain, e.g. alcoholic beverages, and unnecessary medications, particularly sleeping pills; 2) avoiding foods high in fat, sugar, and salt; 3) doing brain exercise regularly to improve thinking skills, memory, concentration, and problem-solving skills by reading, writing, calculating, taking quizzes, learning new tools, playing mind-sharpening games that are not overly complicated or stressful (individual and/or group games played on paper, computers, tablets, etc.), and more importantly, doing new activities; 4) doing physical activity, e.g. strolling and Tai Chi, for 30 minutes 3−5 times a week to slow dementia and enhance brain function; 5) participating in social activities, e.g. visiting temples, attending social gatherings, and joining social clubs; 6) having annual health checks or regular health checks for monitoring and ongoing treatment in cases of chronic diseases, e.g. hypertension and diabetes; 7) taking precautions to prevent falls, accidents, etc. that can result in brain injuries; 8) paying attention to the present moment and maintaining constant focus; and 9) minimising stress by doing relaxation activities, as stress and depression can impair memory (Livingston, et.al.,2024). As indicated above, regular physical exercise and cognitive training can help reduce older adult's risk for developing dementia. This can be explained by Atkinson and Shiffrin (1968)'s multi-store memory model illustrated in Figure 1.

According to a study on technology learning by Suthatipkul and Siriwong (2018), most older adults start using smartphones to enjoy everyday convenience and fulfill their desires to communicate with others and learn how to use the devices which are playing an increasingly important role across all ages. Health system agencies are adopting medical communication technology as a tool for enhancing the efficiency of public health services in communities to reduce disease transmission and health problems, promote self-reliance, and ultimately alleviate hospital overcrowding. A study by Ali et al. (2024) and Ye et al., 2023 suggests that playing brain training games at least 3 days a week can help relieve stress and stimulate cognitive function in older adults with dementia risk. These indicate that mobile applications can be a suitable tool to assist older people in preventing dementia. The researchers therefore developed a dementia prevention mobile application called SDU Brain Training to help at-risk older adults identify their signs of dementia through a self-assessment test and enhance their cognitive abilities, i.e. memory, learning, visual perception, reaction time,

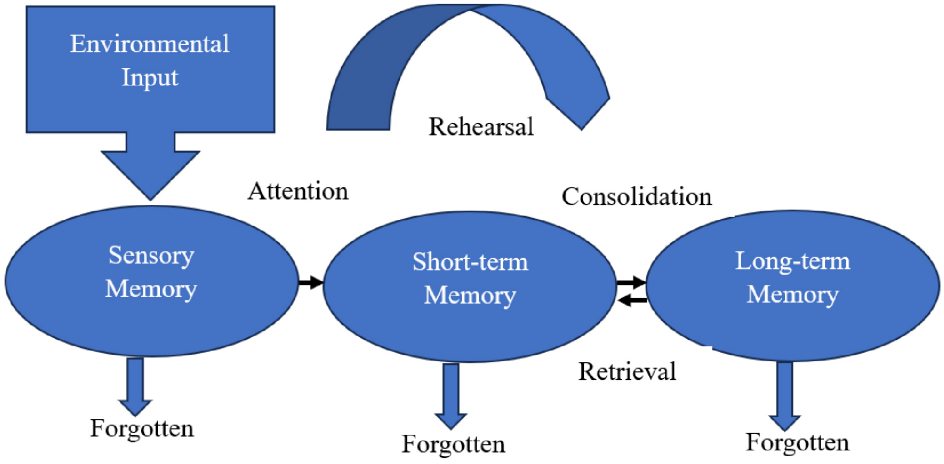


Figure 1 Multi-store memory model

planning, and decision-making, and their self-esteem through in-game challenges.

Mobile Learning Applications

This study employed the ADDIE model developed in 1967 by Reiser and Mollanda, a popular framework for instructional design, to create a mobile application suitable for older adults' learning (Fajrin et al., 2023). Following the model, the application development process consisted of five phases: 1) analysing application content, 2) designing content and image layouts, 3) developing the application, 4) implementing the application for testing, and 5) evaluating the results. Previous research has applied the ADDIE model to design computer lessons for a mobile application (Figure 2) (Khunsang & Khunsang, 2022) and develop mobile applications to help assess dementia and improve dementia prevention and care knowledge among village health volunteers (Magteppong et al., 2022; Pornudomthap et al., 2021).

Based on the ADDIE framework, the researchers developed a dementia prevention mobile application called SDU Brain Training to promote self-assessment and proactive engagement in preventative cognitive rehabilitation for older adults at risk of dementia. The application was expected to enable older people, despite ongoing social restrictions, to increase their self-care knowledge and skills and stimulate their cognitive abilities related to perception, thinking, and understanding, leading to successful dementia prevention and enhanced quality of life for both older adults and their caregivers in the community.

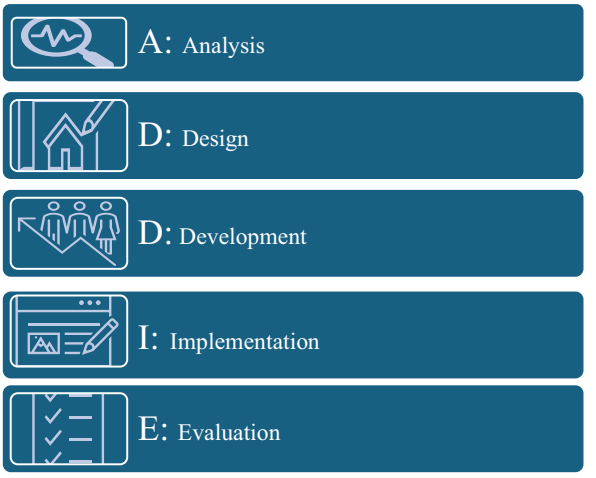


Figure 2 ISD model featuring the ADDIE process

Methodology

Participants and Procedures

This research and development study aimed to: 1) develop a dementia prevention mobile application called SDU Brain Training for older adults at risk of dementia and 2) examine the application's quality. The study's conceptual framework emerged from a community-based dementia study and a review of relevant literature on dementia, self-assessment, preventative activities, mobile application development, and computer-assisted instruction lesson design. The SDU Brain Training application was developed based on the concept of cognitive training aimed at stimulating cognitive function. See Figure 3 below.

Participants

The study was conducted from September 2022 to September 2023 comprising an initial literature review and needs-analysis phase, followed by application piloting and data collection with human participants conducted under ethical approval SDU-RDI-HS 2023-013 (18 May 2023 – 17 May 2024). The data collection phase involved a sample 35 adults who were at risk

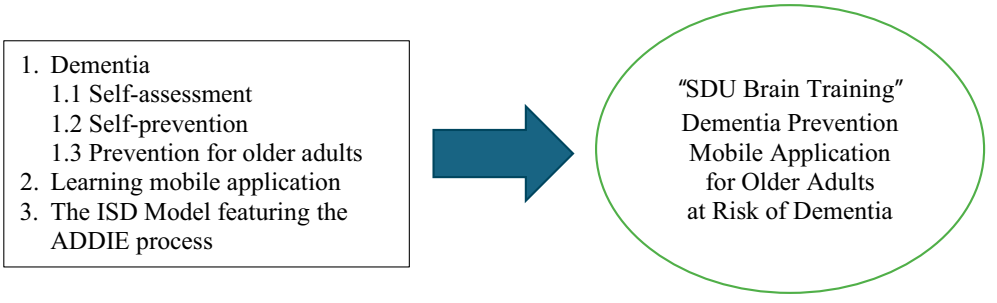


Figure 3 Conceptual framework

of dementia and living in Bang Len, Song Phi Nong, Suphan Buri. The sample was selected through purposive sampling based on the following criteria: 1) older adults diagnosed by a doctor with a non-communicable disease (i.e. hypertension, diabetes, hyperlipidemia, or stroke) and currently on medication, with a body mass index (BMI) classified as obese, 2) possession of a mobile phone compatible with the SDU Brain Training application, 3) willingness to participate in the study, 4) fluency in Thai, and 5) no mental health records (e.g. depression and schizophrenia). The exclusion criteria were: 1) development of complications from pre-existing conditions during the study, 2) inability to participate throughout the study, and 3) development of physical and mental conditions during the study. The research instruments consisted of application development tools and a data collection tool as detailed below.

Application development tools

Firebase was used to create the dementia prevention mobile application SDU Brain Training for Android and iOS operating systems by building, improving, and compiling tools for the application. The ADDIE model was employed to develop multimedia content through five phases: 1) analysis, 2) design, 3) development, 4) implementation, and 5) evaluation and to establish two application modules: self-assessment and cognitive rehabilitation.

Data collection tool

The SDU Brain Training Mobile Application Effectiveness Evaluation Survey was used to collect data in this study. The survey consisted of three parts: 1) general respondent information; 2) application effectiveness evaluation (five dimensions: features (9 items), design (5 items), result interpretation (4 items), instructions (5 items), and overview (4 items)); and 3) suggestions for the application (five-point rating scale: strongly agree (5), agree (4), not sure (3), disagree (2), and strongly disagree (1), with highest and lowest totals achieved = 135 and 27, respectively)

Instrument quality assessment

1. The SDU Brain Training application was evaluated for content validity by two geriatric nursing experts and one specialist in education and games using the index of item-objective congruence (IOC). The evaluation yielded IOC scores ranging from 0.67 to 1. The researchers modified the text, images, and content sequencing based on the experts' feedback and conducted a beta test resulting in a β value of .78.

2. The SDU Brain Training Mobile Application Effectiveness Evaluation Survey was evaluated for content validity by two geriatric nursing experts and one specialist in education and games using the index of item-objective congruence (IOC). The evaluation yielded IOC scores ranging from 0.67 to 1. The researchers modified the survey based on the experts' feedback and piloted it with a group of 30 older adults with similar characteristics to the target sample. The survey's reliability and internal consistency were assessed using Cronbach's alpha coefficient, resulting in a value of 0.946, which indicated sufficient reliability.

Procedures

The current study adopted a research and development (R&D) approach to create the dementia prevention mobile application SDU Brain Training for older adults at risk of dementia. Following the software development lifecycle (SDLC), the application was developed through a 3-phase process as described below.

Phase 1. The process begun with an analysis of the characteristics and application development needs of older people with dementia risk and a literature review on dementia, self-assessment tools, result interpretation, self-care and prevention methods, mobile application development, and lesson creation. The acquired data were synthesised to develop a framework for the application's content and modules. See Figure 4 for a process overview.

Phase 2. In this phase, the application was designed following the steps below.

1. Content, activities, and graphics were designed to enhance users' learning and cognitive training. The application consisted of two key modules: 1) a 40-item self-assessment test where users sorted colors, animals, fruits, and provinces to receive interpretations and basic recommendations and 2) cognitive rehabilitation exercises consisting of a "Brain Button Exercise" clip, a "Standing, Sitting, and Lying Down Meditation" clip, food tips for brain health, 4-step brain development (Step 1 – Build achievement motivation, dreams, hopes, and perseverance, Step 2 – Implant positive thoughts into the subconscious mind, Step 3 – Cultivate a self-image, and Step 4 – Align the brain with nature), brain-healthy environment tips, and brain training games, e.g. photo hunt games, math card games, and Sudoko. This activity will help stimulate the elderly's cognition.

2. The application was piloted with a group of 10 older adults to test its quality and identify areas for improvement. The β testing achieved a value of .78, while the ∝ testing revealed that the application required mobile

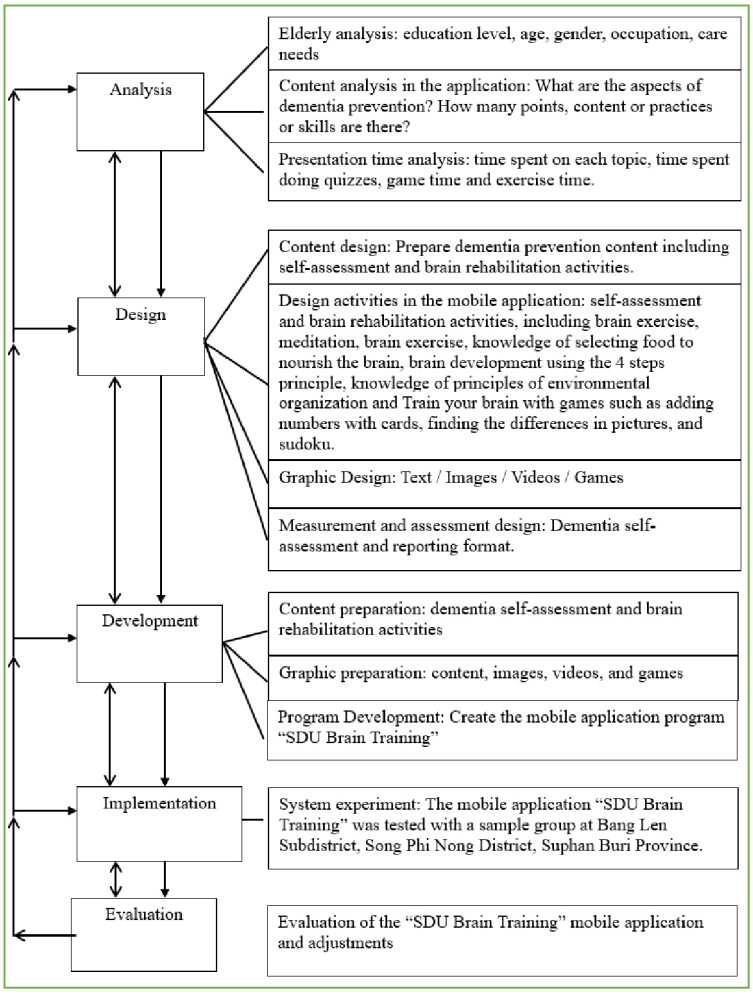


Figure 4 SDU brain training application development process based on the ADDIE model

devices running iOS 12 or Android 8 or higher for image display, especially when playing games. Additionally, the application could not be installed on mobile devices with lower performance than the minimum requirements.

3. A data collection tool called the SDU Brain Training Mobile Application Effectiveness Evaluation Survey was developed and assessed for quality.

Phase 3. To evaluate the application's effectiveness, a training workshop was conducted with 35 older adults who were at risk of dementia and living in Bang Len, Song Phi Nong, Suphan Buri, following the steps below.

1. A sample of 35 at-risk older adults was selected according to the inclusion criteria.

2. The participants received an explanation of the study procedures and signed informed consent letters.

3. The researchers conducted a training workshop to introduce the SDU Brain Training application to the participants.

4. The participants tested the application with guidance from the researchers and assistants.

5. The researchers collected data through observation and a training checklist.

6. At the end of the workshop, the participants evaluated their experience using the SDU Brain Training Mobile Application Effectiveness Evaluation Survey.

7. The collected data were entered into the computer and analysed.

8. The results were used to fix the identified issues to improve the application.

Data Analysis

A data analysis was performed using descriptive statistics, i.e. mean and standard deviation, to assess the

application's quality.

Results and Discussion

Results of the SDU Brain Training Application Development

The results consisted of the application's modules and content relevance as described below. Modules of the SDU Brain Training Application (Figure 5)

The Figure 6 below shows that a user had installed the SDU Brain Training application on their mobile phone.

In Figure 7, the mobile screen displayed a description of dementia and two modules: self-assessment and cognitive rehabilitation.

The self-assessment module consisted of a two-part set test: questions and result interpretation. In Part 1, the screen would display a memory challenge consisting of 10 animal names, 10 color names, 10 fruit names, and

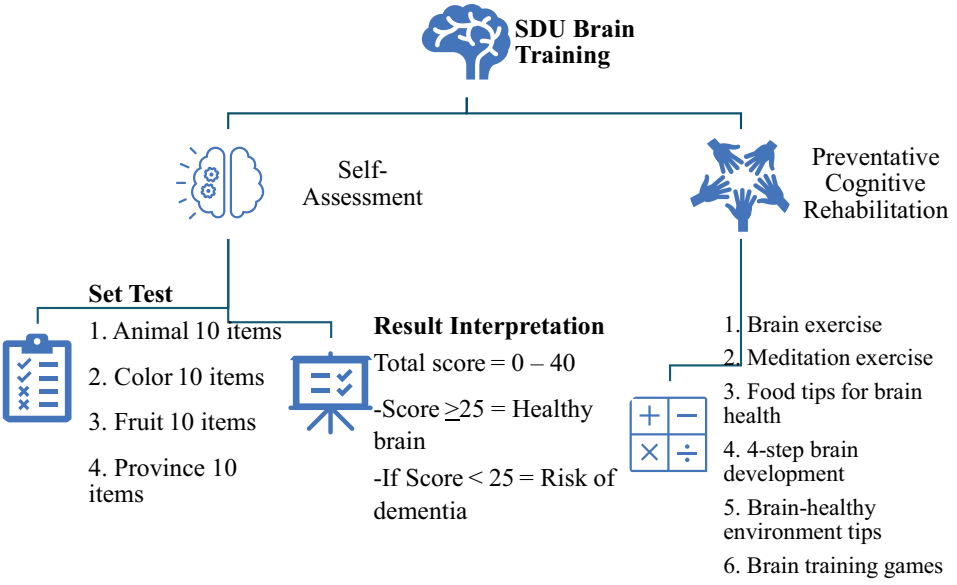


Figure 5 SDU brain training application development model

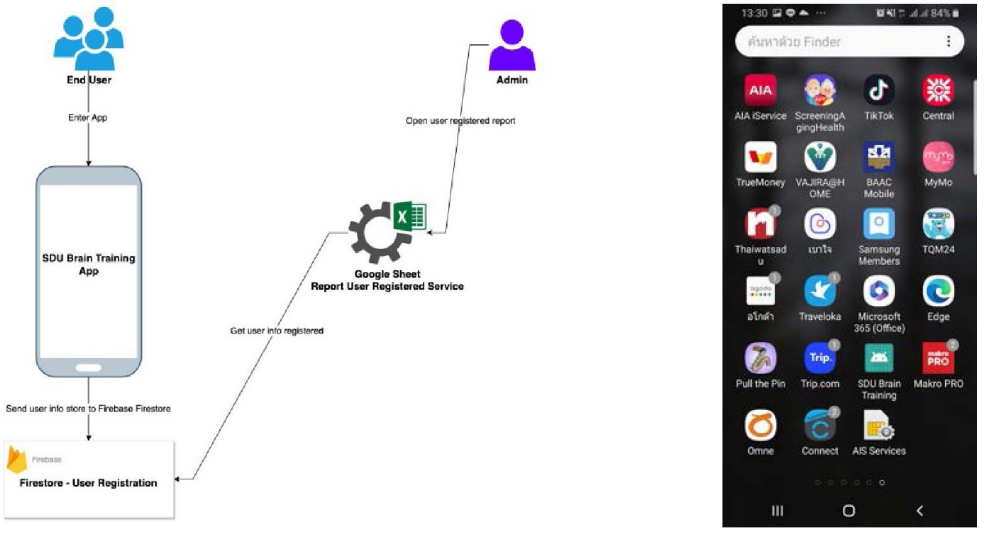


Figure 6 Installation of the SDU brain training application

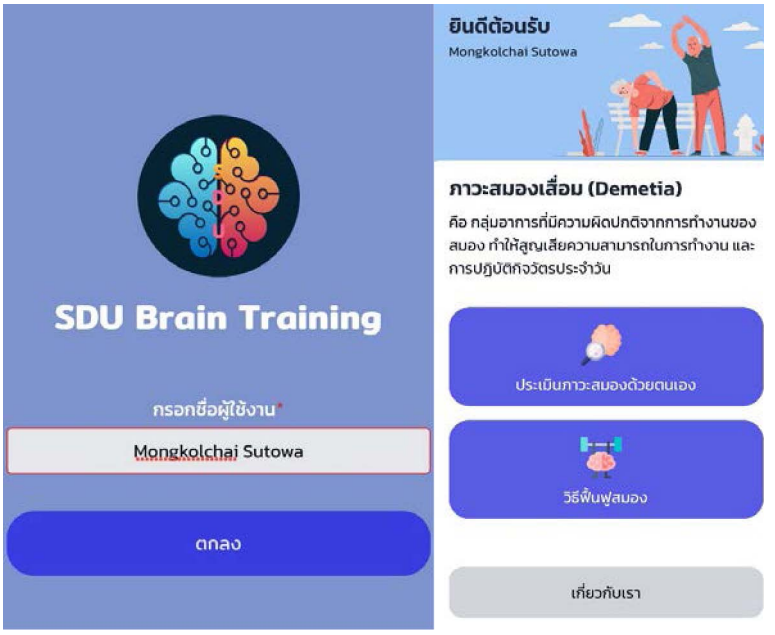


Figure 7 SDU brain training application home screen

10 province names. Each category contained more than 10 items to ensure random shuffling during each test, preventing users from relying on short-term memory. Test scores would be presented as an overall score and individual category breakdowns. In Part 2, a result interpretation would be provided for each category and overall. Users would be classified as healthy brain or at risk of dementia and receive basic recommendations for care practice. The scoring system was: 1 point for a correct answer and 0 point for an incorrect answer, with the highest and lowest possible scores being 40 and 0, respectively. See Figure 8 below.

The cognitive rehabilitation module consisted of six parts: brain exercise, meditation exercise, food tips for brain health, 4-step brain development, brain-healthy environment tips, and brain training games for the elderly to participate in activities at least 1 time a day and 5 days a week to stimulate brain cognition in the elderly. See Figure 9 below.

2. Results of the Application Effectiveness Evaluation



Figure 8 Self-assessment screen of the SDU brain training application

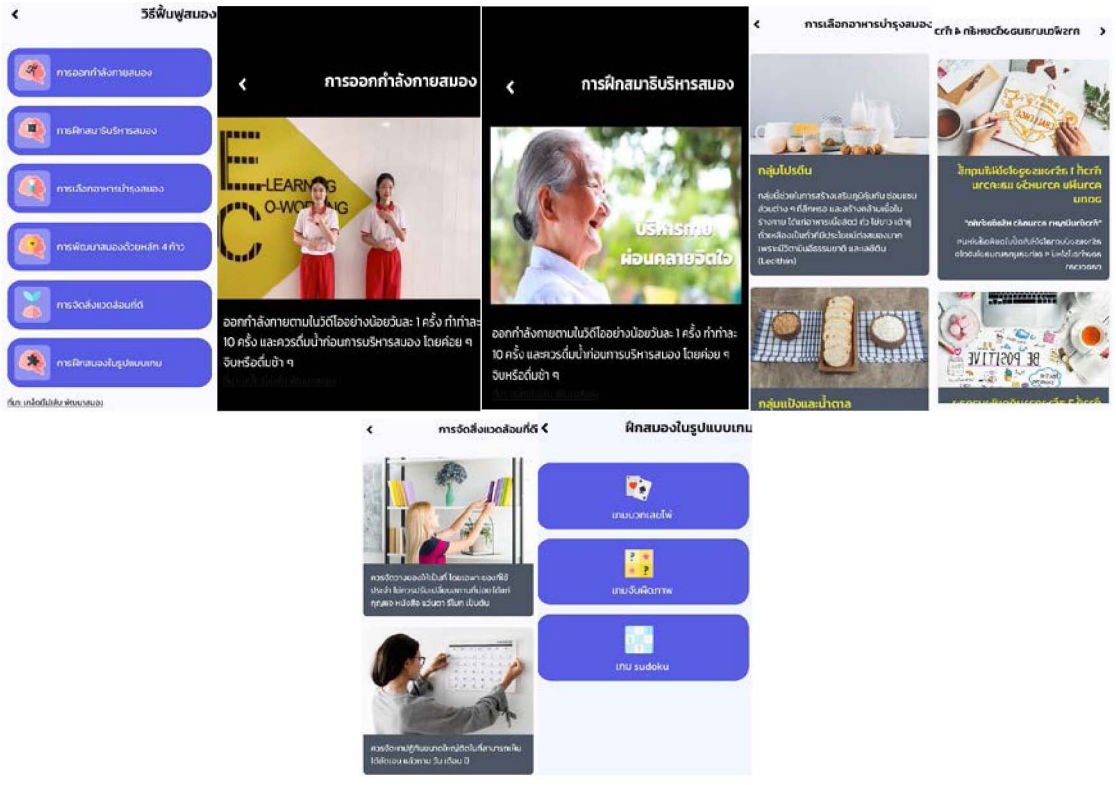


Figure 9 Cognitive rehabilitation screen of the SDU brain training application

The results showed that the participants were mostly female (88.57%), with an average age of 61.95 years, married (71.43%), and having a secondary level of education (52%). The evaluation achieved an overall mean score at the highest level (M = 4.84, SD = .38). Among all aspects, the propriety of the application had the highest mean score (M = 4.90, SD = .30), followed by the accuracy of the application and its score reporting (M = 4.88, SD = .33). On the contrary, the feasibility of the application (M = 4.78, SD = .48) had the lowest mean score (M = 4.78, SD= .48), followed by the utility of the application (M = 4.80, SD = .41). See Table 1 for more details.

Conclusion

Conclusion and Recommendations

The SDU Brain Training application for older adults at risk of dementia consisted of two modules: self-assessment and cognitive rehabilitation. The self-assessment module included a cognitive assessment where users identified the names of 10 animals, 10

Table 1 Mean Score (M), Standard Deviation (SD), and interpretation of effectiveness of the sdu brain training application

Evaluation aspect	Effective level		
	M	SD	Result interpretation
1. Utility of the application	4.80	.41	Most effective
2. Feasibility of the application	4.78	.48	Most effective
3. Propriety of the application	4.90	.30	Most effective
4. Accuracy of the application and its score reporting	4.88	.33	Most effective
Total	4.84	.38	Most effective

colors, 10 fruits, and 10 provinces. Users would receive 1 point for each correct answer and 0 point for each incorrect answer. The highest and lowest possible scores were 40 and 0, respectively. Scores >25 indicated healthy brain function, while those <25 suggested a risk of dementia and a recommended consultation with a health professional. The cognitive rehabilitation module incorporated knowledge and brain training methods consisting of brain exercise, meditation exercise, food tips for brain health, 4-step brain development, brain-healthy environment tips, and brain training games, e.g. photo hunt games, math card games, and Sudoko. The testing results showed that the application was compatible with iOS 12 and Android 8 and was usable (β testing = .78), with no installation or usage issues. However, users were required to have a communication device that meets the application's requirements for installation and image display. No delay in the application performance was found. To examine the application's effectiveness, a user evaluation was conducted using Stufflebeam et. al.'s evaluation standards adopted by the Committee on Evaluation Standard Development for Educational Documents and Projects (Kanjanawasee, 2021). The following aspects were evaluated: feasibility, accuracy, propriety, and utility. The application achieved an overall mean score at the highest level (M = 4.84, SD = .38), with propriety having the highest mean score (M = 4.90, SD = .30), followed by accuracy (M = 4.88, SD = .33), and feasibility having the lowest mean score (M = 4.78, SD = .48).

Discussion

The study's results demonstrate that the SDU Brain Training application is an effective and feasible tool to help prevent dementia in at-risk older adults, aligning with several previous studies. For instance, a study on cognitive stimulation in individuals with mild cognitive impairment by Kuha et al. (2016) suggests that cognitive activities can be beneficial to both preventing dementia and improving cognitive function in those already experiencing mild neurocognitive disorder (NCD) and mild cognitive impairment and early assessment can lead to approaches to preserving cognitive function. Another study Chansod and Kongtaln (2023) indicates that a brain training programme targeting attention, visuospatial function, memory, and executive function can improve older adults' scores on the Mini-Mental State Examination (MMSE) and the Montreal Cognitive Assessment (MoCA). Ye et al. (2021) highlight the need for dementia care support applications among older adults with dementia and their families and the usability and potential of smartphone applications for assessing dementia and stimulating cognitive function. This possibility is supported by Eggink et al. (2021)'s study, which demonstrates that mobile applications can be a viable and sustainable solution to dementia prevention based on their findings of an 18-month follow-up in at-risk older adults aged 55−75 years with more than two risk factors. In Tahmassebi (2018)'s interview with 50 older persons aged 65−90 years, most respondents expressed interest in playing games, but lacked technical knowledge and needed assistance in using devices and playing games. Integrating user-friendly technology into eldercare can help promote older adults' access to technology and enhance caregivers' experiences (Gately et al., 2020). A study by Bahar-Fuchs et al. (2020) confirms that computerised cognitive training can improve self-care practices among older people living with dementia.

The SDU Brain Training application is a practical innovation tool that can assist in dementia prevention among at-risk older adults. It can also be applied in other communities to effectively monitor and promote older people's health, leading to reduced healthcare costs, less burden on public health personnel, and enhanced eldercare systems for families and communities.

Acknowledgments

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Quality of life development of the elderly through the management of nursing homes for supporting the aging society

Pattama Pasitpakakul[a,*], Somrak Chaisingkananont[b,†]

[a] *Faculty of Liberal Arts, Rajamangala University of Technology Thanyaburi, Pathumthani 12110, Thailand*
[b] *Research Institute for Languages and Cultures of Asia, Mahidol University, Nakhon Pathom 73170, Thailand*

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Abstract

This qualitative study examines the physical and social conditions within a nursing home in Bangkok— Nursing Home A—to determine their impact on the quality of life of the elderly. Utilizing structured interviews and observational techniques with 20 selected participants, the study scrutinizes the administrative and operational frameworks of these facilities, aiming to pinpoint exemplary practices and pinpoint potential enhancements for elderly care amid Thailand's demographic shifts toward an older population. The research indicates that well-managed facilities, tailored care approaches, and thorough training of staff substantially boost the satisfaction and general wellness of residents. Identified challenges include the necessity for improved physical accessibility and the constraints on resident autonomy due to stringent health safety measures. The research underscores the critical role of consistent involvement in physical, cognitive, and social activities in mitigating loneliness and mental decline. It advocates for infrastructural enhancements, broader wellness initiatives, augmented staff training, and the broader application of technology to elevate care quality and administrative efficacy. These findings enrich the ongoing dialogue on elderly care, providing a model for other entities to emulate and refine to enhance elder care quality.

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Introduction

Thailand has been an aging society since 2005 when the elderly population first exceeded 10 percent, meaning one in ten Thais was elderly. This trend has intensified, particularly from 2006 to 2010, as noted by Chayowan (2008). Projections by the National Economic and Social Development Board indicate that in 2010, 12.9 percent of Thailand's 66 million people were elderly. By 2030, it's estimated that 25.8 percent of the population will be

* Corresponding author.
E-mail address: pattama@rmutt.ac.th (Pasitpakakul, P.).
† Co-first authors.

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elderly, qualifying Thailand as a fully aged society. By 2038, the proportion of those over 65 will rise to 24.1 percent, placing Thailand into the category of a super-aged society.

The National Plan on the Elderly, 2nd Edition (2002–2021), is based on a philosophy of fostering an environment where the elderly are self-reliant, supported by family, community, and state social welfare. The plan aims to ensure the elderly enjoy good physical and mental health, financial security, and are integrated and valued within their communities. Research by the Health Promotion Department of the Ministry of Public Health identifies that the elderly face issues in health, economics, social integration, psychological well-being, familial support, and shifting values. Key challenges include social, economic, and physical aspects of their living conditions. Changing family dynamics and smaller household sizes mean fewer families can care for their elderly, leading to an increase in elderly living alone—from 3.6% in 1994 to 10.8 percent in 2017 (National Statistical Office, 2017).

Providing appropriate residential facilities for the elderly, funded by both state and private investments, is crucial. The economic standing of the elderly, often bolstered by savings, pensions, dividends, and other investment returns, underscores the need for well-designed elderly residences. As of June 30, 2017, there were 800 registered elderly care businesses, accounting for 78.88 percent of the market. These facilities vary, offering models where elderly do not own their homes but have life residency, and others tailored to their needs with emergency medical features and comprehensive on-site services. These developments aim to transform the traditional notion of elderly homes into one of investment in a high-quality lifestyle.

The challenges and importance of these issues have led researchers to examine the management of elderly homes, focusing on the physical and social environments, amenities, and activities that contribute to the health and wellness of the elderly. This holistic approach to well-being ensures that the elderly can live with dignity, independence, and remain integral and supportive members of their communities. As Thailand edges closer to becoming a fully aged society, enhancing the quality of life for the elderly through effective policy implementation and management of elderly care facilities is paramount for fostering their societal value and well-being.

Literature Review

Physical and Social Environment

The design and atmosphere of nursing homes are crucial in shaping the quality of life for elderly residents, significantly influencing their mental and physical well-being. Thoughtful facility layouts, combined with supportive social environments, can enhance both psychological comfort and physical health. Natural light, for example, regulates sleep patterns, improves mood, and boosts cognitive function (Figueiro et al., 2014). The choice between private and shared rooms also affects mental health—private rooms offer privacy and personal space, while shared rooms encourage social interaction and help prevent isolation (Ko et al., 2018). Accessibility features like wide corridors and handrails promote mobility and independence, reducing fall risks and fostering autonomy (Gitlin et al., 2006). Equally important is the social environment. Positive interactions between residents and staff can reduce stress, combat loneliness, and create a supportive community. Staff training in empathy and communication is vital for fostering respectful and positive relationships, which improve care quality and resident satisfaction (Zimmerman et al., 2005). Social activities, such as group exercises and social events, further promote mental and physical well-being by encouraging engagement and building social bonds (Cohen-Mansfield et al., 2003). The integration of physical design and social interaction creates an environment that supports the diverse needs of elderly residents. By balancing privacy with socialization, and combining accessible design with effective staff management, nursing homes can enhance the overall well-being of residents. As the demographics and needs of elderly populations evolve, continued research and adaptation in these areas are essential to creating supportive, life-enhancing nursing home environments.

Management Systems

Efficient management practices are essential for improving the quality of life and care in nursing homes. Key elements include person-centered care, comprehensive staff training, and responsive healthcare services, all of which contribute to operational efficiency and resident satisfaction. Person-centered care adapts services to meet the unique needs and preferences of

each resident, promoting autonomy and enhancing well-being by involving residents in their care decisions. Comprehensive staff training, especially in areas like dementia care and emergency response, ensures that caregivers are well-equipped to address complex health needs, which improves care quality and reduces staff turnover (Zimmerman et al., 2014). Proactive healthcare services, such as regular assessments and rapid response systems, further support residents' evolving needs. Technologies like telehealth and electronic health records enhance care precision and responsiveness (Grabowski & O'Malley, 2014). Leadership plays a vital role in creating a positive work culture through open communication, transparency, and staff empowerment, leading to better care delivery and employee morale (Caspar et al., 2018). Sound financial management and strategic resource allocation ensure facilities are well-equipped and staffed, enabling investment in advanced care technology and facility improvements (Harrington et al., 2017). Compliance with regulatory standards is another critical aspect, with regular audits ensuring adherence to national guidelines for safe and effective care (Castle & Ferguson, 2010). In conclusion, effective nursing home management balances operational efficiency, regulatory compliance, and resident-centered care to enhance both the daily experience and long-term health outcomes of residents. This comprehensive approach ensures that residents receive high-quality, personalized care in a well-managed, supportive environment.

Wellness and Activity Programs

Structured wellness and activity programs play a vital role in enhancing the overall health and well-being of elderly residents in nursing homes by addressing their physical, cognitive, and emotional needs in a holistic manner. Physical exercises, such as strength training and aerobic activities, are fundamental for maintaining mobility and reducing risks associated with inactivity, including falls, cardiovascular diseases, and physical decline. Research by Cadore et al. (2020) demonstrates that even moderate regular physical activity can significantly improve strength and balance in older adults, which are critical factors in fall prevention—a common cause of injury among the elderly. Similarly, aerobic exercises have been shown to maintain or improve cardiovascular fitness, enhancing heart health and stamina in seniors (Vaz Fragoso & Gill, 2012). These physical improvements not only support independence but also contribute to a longer, healthier life. Cognitive stimulation is equally essential in mitigating cognitive decline, which is often associated with aging. Activities such as puzzles, memory games, and digital applications specifically designed for cognitive training help maintain mental sharpness and improve executive functioning, which is crucial for daily living. Mowszowski et al. (2010) found that structured cognitive interventions enhance cognitive processing speed and executive functions, providing elderly individuals with a sense of accomplishment and mental clarity. Engaging in these activities can delay or even reverse certain aspects of cognitive decline, which is key to maintaining autonomy. Equally important is the social aspect of wellness programs. Social engagement in nursing homes, facilitated through group activities, social gatherings, and community-building exercises, plays a critical role in combating loneliness and depression—common psychological challenges faced by the elderly. Chen and Schulz (2016) found that social interactions significantly improve psychological well-being, fostering a sense of belonging and happiness among residents. Meaningful social engagement also encourages residents to form relationships, which contributes to a supportive community atmosphere, promoting mental and emotional health. The success of these wellness programs lies not only in their design but in their adaptability. Regular assessment and adjustment of activities ensure they meet the changing needs and abilities of elderly residents. For instance, programs might start with gentle physical activities and progressively increase in intensity as participants' strength and stamina improve. This adaptive approach allows all residents to engage safely and maximize their benefits. Incorporating these structured wellness programs into the daily routines of nursing home residents leads to sustained improvements in their overall health and well-being. By addressing physical, cognitive, and social needs, these programs contribute to a more fulfilling and active lifestyle, prolonging residents' independence and improving their quality of life. In conclusion, structured wellness and activity programs are indispensable in elderly care, offering a comprehensive and adaptive approach to ensuring that nursing home residents not only maintain their health but thrive physically, mentally, and emotionally.

Methodology

This research is a qualitative study aimed at investigating the physical and social environments of a nursing home to improve the quality of life for the elderly,

and to study the management systems of nursing homes to enhance the quality of life for the elderly in support of Thailand's aging society. The research methodology is as follows:

Key Informants

In this qualitative study, the target group was meticulously chosen using purposive selection to encompass a nursing home in Bangkok, Nursing Home A, exemplifying private sector management. The total sample of 20 individuals was segmented into three groups: one business operator or nursing home administrator, six staff members or caregivers, and thirteen elderly residents from the facility, providing a diverse range of perspectives as detailed in Table 1. The study focused on gathering detailed insights into the administrative and operational challenges, the effectiveness of care practices, and the lived experiences of residents to assess overall satisfaction and quality of life. By employing structured interviews and observational methods, the research aimed to uncover themes related to job satisfaction, administrative efficiency, and resident well-being, with the goal of identifying areas for improvement in management and care practices within this nursing home. The methodological approach, including in-depth interviews and thematic analysis, was chosen to ensure comprehensive data collection and analysis, providing valuable insights into the operational dynamics and care outcomes in these settings, as supported by established qualitative research methods (Creswell & Poth, 2016; Patton, 2014).

Research Tools

The study utilized meticulously structured instruments for data collection, focusing on gathering comprehensive information across various dimensions. The primary tool was a multi-part interview form, designed to capture a wide range of data. The first section collected general demographic and contextual information, establishing a foundation for deeper inquiry. The second section focused on the quality of life of elderly residents, exploring four key areas: physical, mental, social, and environmental well-being (Baltes & Baltes, 1990). This approach provided a holistic understanding of how these aspects contribute to overall resident welfare. The third section gathered suggestions for improvements in nursing home care and management, directly from those with lived or professional experience. In addition to the interviews, an observation form was employed to objectively assess the physical environment of the nursing homes. This tool allowed researchers to evaluate the actual living conditions and compare them with residents' reported experiences, adding validity to the qualitative data (Kawulich, 2005). Together, these structured interviews and systematic observations provided a comprehensive methodological framework, yielding multi-dimensional insights that can inform better practices and improve the quality of life for elderly residents in the nursing home.

Data Collection

Data collection for the nursing home study was rigorously executed using a combination of document reviews, in-depth individual interviews, and observational methods. This integrated approach allowed for a comprehensive examination of both the theoretical and practical aspects of elderly care in the nursing home. The research team reviewed relevant literature and existing studies to build a foundational understanding, which was then enriched through direct observations in the nursing home to capture the actual conditions and interactions within these environments. To delve deeper into personal experiences and insights, in-depth interviews were conducted with various stakeholders, including

Table 1 Reordered background and characteristics of key informants

Group	No. of Participants	Average Age	Gender	Work Experience (Years)	Key Characteristics	Purpose of Inclusion
Business Operator/ Administrator	1	45	1 F	15+	Responsible for overall management and operations	To gain insights into administrative and operational challenges
Staff Members/ Caregivers	6	35	2 M, 4 F	5-10	Provide day-to-day care and support to residents	To understand care practices and job satisfaction
Elderly Residents	13	75	3 M, 10 F	N/A	Residents living in the facility, providing insights into lived experiences	To evaluate satisfaction, well-being, and quality of life

caregivers and residents. These interviews provided nuanced perspectives on the daily operations and quality of life within the facilities. To ensure the reliability and validity of the collected data, triangulation was employed, corroborating information from different sources, times, and contexts. This methodological strategy, endorsed by scholars like Angrosino (2007) and Carter et al. (2014), helped to minimize biases and enhance the depth of the findings, providing a robust basis for subsequent analysis and conclusions.

Data Analysis

Data analysis in the study was meticulously conducted through content analysis, a methodological approach that involves categorizing voluminous amounts of data to identify core consistencies and meanings. Specifically, the data obtained from interviews and observations were systematically sorted into distinct categories, which were then scrutinized for patterns and themes that could elucidate the underlying dynamics within the nursing home. To align with best practices for narrative data, thematic analysis was applied alongside content analysis to enhance the depth of interpretation. This approach involved identifying, analyzing, and reporting themes within the narrative data to capture patterns of meaning more effectively (Braun & Clarke, 2006). This categorization facilitated a comparative analysis where responses from various respondents were analyzed side by side to discern commonalities and deviations that could suggest deeper insights into the quality of care and resident satisfaction (Elo & Kyngäs, 2008). Further, the integration of thematic analysis allowed for a richer exploration of the participants' narratives, focusing on their lived experiences and perspectives, which provided contextually grounded insights. This approach allowed the researchers to construct logical connections between categories, enabling the identification of cause-and-effect relationships that were anchored in the established theoretical frameworks guiding the study. These connections were pivotal in framing the conclusions that captured the nuanced phenomena observed within the data. Ultimately, the findings were articulated through an analytical description that not only narrated the facts but also systematically explained and presented the data within the context of the predefined research framework, thus providing a coherent and comprehensive depiction of the outcomes (Hsieh & Shannon, 2005). By employing both content and thematic analysis, the study ensured that the narrative data were thoroughly analyzed, allowing for a deeper understanding of patterns and themes related to care quality and resident satisfaction. This method of data analysis ensured that the results were both robust and replicable, offering valuable insights with implications for improving practices in nursing home management and care.

Ethical Considerations

This study adhered to ethical principles by obtaining informed consent from participants, ensuring confidentiality and anonymity of their data, respecting autonomy, and minimizing harm or discomfort. Participants were treated with fairness, dignity, and respect, and cultural sensitivities were considered. Potential conflicts of interest were disclosed, and the study received ethical approval. These measures aimed to protect participants' rights and well-being while contributing valuable insights to the field of elderly care in Thailand.

Results

Physical and Social Environment

The in-depth interviews conducted at Nursing Home A provide a comprehensive overview of the efforts to enhance the quality of life for its residents, showing a facility that is continuously evolving to meet the needs of its elderly population more effectively. Through these interviews, facility managers discussed ongoing structural modifications aimed at increasing accessibility and safety, noting,

"Some parts may need more leveling to facilitate the movement or walking of the elderly, because we have both strong individuals and those who need walkers or wheelchairs. If the floors are uneven, it poses a risk of accidents."

This proactive approach is reflective of a broader commitment to making the living environment as safe and comfortable as possible.

Furthermore, the facility's dedication to maintaining a clean and pest-free environment is evident, with regular pest control measures and installations like mosquito screens, as one administrator explained,

"Rooms are equipped with mosquito screens to protect against mosquitoes and insects, and regular mosquito spraying is conducted."

These measures are vital for preventing discomfort

and disease, underscoring the center's commitment to the well-being of its residents.

Social interaction is also a critical component of life at the center, with numerous activities designed to foster a sense of community among the residents. This aspect of their care is highly valued, with one resident expressing,

"Granny can do all activities, is satisfied, and never feels lonely. If a friend feels lonely, she comforts them... Friends in the same dorm help each other out a lot."

Such testimonials highlight the positive social environment fostered by the center, which is crucial for the emotional well-being of its residents.

However, the interviews also highlighted challenges, particularly relating to the restrictions imposed by necessary health and safety protocols. One resident described the impact of these restrictions on their independence, saying,

"Currently, you can't just go out; when you return, you have to be quarantined for several days to prevent the risk of spreading COVID-19... It affects our independence."

These measures, while essential for safety, evidently constrain the residents' freedom to engage with the community outside the center.

Overall, the findings from the interviews underscore the center's comprehensive approach to elder care, which involves not only enhancing physical infrastructure and safety protocols but also nurturing a supportive and active social environment. By continuously adapting and responding to feedback, Nursing Home A aims to strike an optimal balance between safety and quality of life, ensuring that it not only meets but strives to exceed the necessary standards for exceptional elder care.

Management Systems

Based on the in-depth interviews conducted at Nursing Home A, the findings provide a comprehensive understanding of the facility's environment, its operations, and the overall satisfaction and challenges experienced by the residents.

Resident satisfaction and facility adaptations

The elderly residents generally reported high satisfaction with the living conditions, citing well-maintained facilities and responsive adaptations to their individual needs. One resident highlighted the comfort provided by environmental adjustments, saying,

"In the residence, there are no issues at all. I had problems before, but not anymore. We talk nicely. I don't like the fan. If it's on, it's only at speed one. Those who like the fan stay over there."

This response illustrates the center's efforts to accommodate personal preferences and ensure comfort for all residents.

Engagement and social interaction

Activities and social interactions form a vital part of the residents' daily life, contributing to their emotional and psychological well-being. The center organizes a variety of activities that encourage social engagement and mental stimulation. An elderly resident shared their experience, stating,

"I can do all the activities. I am satisfied and happy, never lonely. If someone else is lonely, I console them. The staff are okay. You never really know what others think of you—some good, some bad, it's mixed. Activities like playing games, dominos, word and proverb games are enjoyable. The caretakers make it enjoyable or sometimes we do crafts. I like doing crafts; it's fun."

This highlights the role of activities in fostering a vibrant community spirit and reducing feelings of isolation among the elderly.

Autonomy and movement restrictions

While the center is commended for its care and facilities, restrictions on movement, especially due to safety protocols like those implemented during the COVID-19 pandemic, have posed challenges to resident autonomy. The limitations have affected residents' freedom to move independently within and outside the facility. A resident voiced their inconvenience,

"Now there are no toilets in each room. Getting to the toilet is not very convenient... which is currently being coordinated with the design department to evaluate for improvements using the center's budget before calling new people to come in."

This statement reflects the ongoing efforts to improve facilities while balancing safety concerns.

Relationships between staff and residents

The bond between caregivers and residents is crucial in creating a nurturing environment. The center employs a strategy of compassion and attentiveness, which is deeply valued by the residents. One poignant remark from a resident illustrates this relationship,

"Most move back home or are in a condition where their family is happy to take them back or go to another care place as appropriate. The room must then be returned to the center to call in the next case in line."

This comment underscores the transitional nature of the care provided and the importance of maintaining a

respectful and caring interaction.

Professional care and staff development

The center not only focuses on the well-being of its residents but also places a high emphasis on staff training and development. This ensures that the care provided is up-to-date and of high quality. Staff members, including social workers, nurses, and support personnel, receive ongoing training to enhance their caregiving capabilities. One staff member explained the importance of external training,

"We invite outside experts for training. Recently, a mental health center provided training on mental health care for ourselves and the elderly."

Comprehensive health services

Maintaining the health of elderly residents is a priority, and the center facilitates comprehensive healthcare services to meet this goal. Regular health assessments and specialized medical treatments are provided by external professionals. A resident discussed the healthcare logistics,

"If they are sick, they must go according to the hospital where they have rights. Here in Bangkok, it's different from the provinces; you can't just go to any nearby hospital."

In conclusion, the in-depth interviews at Nursing Home A reveal a complex but well-managed facility that strives to balance care quality, resident independence, and safety. The personal accounts of the residents and staff reflect a collective effort to foster a supportive and engaging community for the elderly.

Wellness and Activity Programs

This study examines the comprehensive care initiatives targeted at improving the physical, emotional, and social well-being of the elderly, as implemented by Nursing Home A. These programs are designed to enhance the quality of life for the elderly through structured activities, specialized services, and environment management.

Physical well-being initiatives

Nursing Home A conducts simple morning exercises to energize its elderly residents. These activities stimulate circulation and promote overall vitality. Additionally, the center has introduced the HAPPY HOME program, offering muscle relaxation massages to alleviate muscle tension, improve circulation, and facilitate relaxation. Regular grooming services such as haircuts, nail trimming, and skin care are provided by the building managers and caregiver staff to maintain hygiene and appearance.

Environmental and emotional well-being

The center's environment is deliberately designed to impact the mood positively. It features lush green spaces where the elderly can relax and engage in light physical activities like planting, which fosters a communal spirit and enhances emotional well-being. The landscape is regularly maintained to ensure areas for relaxation are attractive and comfortable. Social workers organize spiritually enriching activities, including reading religious texts, chanting, and listening to religious talks, which contribute significantly to mental peace and contentment.

Social interaction and activities

To combat loneliness and enhance social interactions, the center permits family visits and engages external agencies to host recreational activities and cater meals. These social gatherings provide enjoyable experiences and are crucial for maintaining the emotional health of the residents.

Nursing home a residential project for the elderly: best practice

Nursing Home A operates under a condominium-like management structure with a juristic person responsible for the common areas and coordination among residents. The facility is equipped with advanced security and safety features, including CCTV and comprehensive fire protection systems. Specialized healthcare services are available within the project, such as Thonburi Bamrungmuang Hospital, which offers treatments for age-related diseases and conditions like Alzheimer's and stroke. The project provides amenities tailored for the elderly, including exercise pools, gyms, and wheelchair-accessible facilities. It supports a range of social activities facilitated through karaoke rooms, outdoor activity courts, and meditation spaces. Safety and emergency services are bolstered by a smart tracking system and 24-hour nursing support. For those residing in the nursing home section, Nursing Home A ensures regular medical oversight and nursing care. Activities are specifically designed to aid cognitive and sensory development, encouraging social interaction and emotional engagement, which are essential for the holistic well-being of the elderly.

The elderly care programs at Nursing Home A represent comprehensive approaches to supporting the elderly in various aspects of their lives. By integrating physical health services, emotional support activities,

and secure residential facilities, these programs provide a robust framework for elderly care that can be replicated and adapted by other similar institutions aiming to enhance the lives of the elderly.

Comprehensive Activity Guide for Promoting Wellness in the Elderly

As individuals transition into their senior years, maintaining a healthy lifestyle with balanced nutrition and consistent physical activity is crucial. However, cognitive exercises are equally important in mitigating the risks associated with cognitive decline, which can be a consequence of conditions such as Alzheimer's, Parkinson's, and stroke-related dementia. The International Alzheimer's Association emphasizes the critical need for dementia awareness and estimates that by the year 2050, over 131.5 million individuals worldwide might be living with this condition. In nations like France, Germany, and Japan, there is an increasing recognition of the benefits that cognitive engagement through games and toys offers in preventing dementia among the elderly. Toys designed for the elderly should focus on enhancing cognitive abilities such as observation and problem-solving, which help mitigate memory degradation and encourage social interaction. These toys are characterized by their straightforward designs and the use of universal symbols to ease comprehension and usage. Based on these observations, the proposed activity kit includes:

Hand Exercise Balls: These balls are designed to improve hand muscle flexibility and nerve function, reduce stiffness, and activate brain connections. Regular use can decrease common age-related issues like muscle weakness and numbness in fingers, providing a way to divert attention from stressful situations and aiding relaxation through repetitive squeezing.

Music Boxes: Equipped with simple mechanisms, these music boxes play gentle, soothing tunes that aid in emotional and mental relaxation. The auditory stimulation from these boxes can significantly enhance mood, creating a serene and uplifting environment for the elderly.

Educational QR Plates: These are accessible information sources featuring QR codes, which seniors can scan using smartphones to access valuable tips and information on topics including sleep improvement techniques, physical exercises, nutritional advice, and proper medication usage. This tool aims to promote self-care and empower the elderly with knowledge to manage their health better.

Cognitive-Stimulating Toys: Designed to foster mental agility, these toys challenge the mind through puzzles and other problem-solving activities that enhance cognitive functions. They also facilitate social interactions among seniors, thus improving their social ties and emotional health. This type of engagement is critical in maintaining not only mental sharpness but also in cultivating a supportive community among the elderly.

This activity guide serves as a foundation for enriching the lives of the elderly by focusing on holistic approaches to health and well-being, integrating physical, mental, and social elements to enhance their quality of life during the golden years.

Table 2 provides a structured overview of the main results related to the research objectives, organized into five key themes: physical environment enhancements, social interactions, resident autonomy and safety, staff development, and health and wellness programs. Each theme includes detailed findings, such as structural modifications to improve accessibility, activities fostering social engagement, and wellness initiatives targeting holistic well-being. Supporting evidence from participant interviews highlights real-life examples, such as the impact of uneven floors on safety and the role of social activities in reducing loneliness. Additional insights emphasize the significance of balancing safety protocols with autonomy and the value of ongoing staff training in enhancing caregiving quality. The implications underscore the need for accessible infrastructure, vibrant community engagement, and comprehensive care models to improve elderly residents' quality of life, offering a replicable framework for similar facilities. This detailed analysis aligns with the research objective of understanding and improving nursing home care practices.

Discussion

Nursing Home A exemplifies how the integration of both physical and social enhancements can significantly improve the quality of life for elderly residents. Structural modifications like leveling floors not only boost safety and mobility for those using aids but also contribute to a sense of independence and comfort (Gitlin et al., 2006). Additionally, proactive measures such as pest control and the installation of mosquito screens further underline the facility's commitment to maintaining a healthy and secure living environment. However, while these physical enhancements are commendable, they reveal an over-reliance on structural adjustments

Table 2 Summary of main results

Theme	Key Findings	Supporting Evidence	Additional Insights	Implications
Physical Environment Enhancements	Structural modifications include leveling uneven floors, installing ramps for wheelchair access, and pest control measures to ensure cleanliness and safety.	"Some parts may need more leveling to facilitate the movement or walking of the elderly... Floors that are uneven pose a risk of accidents."	Managers highlighted the need for regular inspections and redesigning spaces to accommodate residents with varying mobility needs.	Enhancements improve safety, reduce risks of accidents, and create a more accessible environment for residents.
Social Environment and Interactions	Organized group activities such as games, crafts, and community events foster social interaction and reduce loneliness among residents.	"Granny can do all activities, is satisfied, and never feels lonely... Friends in the same dorm help each other out a lot."	Residents emphasized the importance of companionship and mutual support, which significantly improves their emotional well-being.	Encourages a supportive and vibrant community, improving emotional health and reducing isolation.
Resident Autonomy and Safety	Strict health protocols, including quarantine requirements, limit residents' ability to move freely within and outside the facility, impacting their sense of independence.	"Currently, you can't just go out; when you return, you have to be quarantined... It affects our independence and freedom."	The necessity for a balance between health safety and resident autonomy was evident, as residents value their independence highly.	Calls for innovative approaches to maintain safety without compromising resident independence.
Staff Development and Professional Care	Regular training for staff in areas like mental health care and caregiving skills is conducted with the help of external experts, ensuring continuous professional development.	"We invite outside experts for training. Recently, a mental health center provided training on mental health care for ourselves and the elderly."	Staff members expressed appreciation for the training, noting that it equipped them to handle complex caregiving challenges more effectively.	Fosters a skilled workforce capable of delivering high-quality care and addressing diverse resident needs.
Health and Wellness Programs	Wellness initiatives include morning exercises, massages, grooming services, and cognitive games to improve overall health and promote mental stimulation.	"HAPPY HOME program offers massages for relaxation, educational QR plates for self-care tips, and group games for cognitive engagement."	Programs that integrate physical, cognitive, and social activities were noted as effective in improving the residents' quality of life and well-being.	Provides a model for comprehensive care that integrates health, mental well-being, and social engagement, which can be adopted by similar facilities.

rather than addressing the broader systemic challenges, such as the financial and administrative constraints that often limit such upgrades in other facilities. Social interactions, facilitated through diverse activities, are crucial for combating loneliness and enhancing mental health (Cohen-Mansfield et al., 2003), demonstrating the positive impact of a vibrant social environment on overall well-being. Nonetheless, the reliance on social activities to offset systemic deficiencies, such as limited autonomy due to restrictive health protocols, raises critical questions about the sustainability of such initiatives without broader policy support. The COVID-19 pandemic introduced challenges, especially in maintaining a balance between ensuring safety and preserving residents' autonomy and freedom. This delicate balance highlights the persistent tension in elderly care settings, where regulatory requirements may inadvertently undermine the very principles of person-centered care they aim to support. This mirrors broader concerns in elderly care facilities, as highlighted by Grabowski and O'Malley (2014), where stringent health protocols sometimes limit residents' independence. Nursing Home A's approach aligns with established research on person-centered care, where adaptive environmental controls and engaging social activities are central to improving residents' satisfaction and well-being (Caspar et al., 2018; Zimmerman et al., 2014). The facility's emphasis on maintaining positive staff-resident relationships and investing in ongoing staff development also echoes best practices for enhancing care quality and reducing staff turnover (Harrington et al., 2017). However, a critical limitation is the potential mismatch between staff training initiatives and the practical challenges faced by caregivers, such as heavy workloads and emotional burnout, which are not sufficiently addressed in the current model. In addition to these physical and social supports, the wellness

programs at Nursing Home A highlight the importance of structured physical, cognitive, and social activities. These initiatives are in line with research showing that tailored physical exercises improve strength, balance, and cardiovascular health in the elderly (Cadore et al., 2020; Vaz Fragoso & Gill, 2012). Furthermore, cognitive and social activities aimed at reducing loneliness and stimulating mental function reflect studies emphasizing their role in sustaining emotional and cognitive well-being (Chen & Schulz, 2016; Mowszowski et al., 2010). Yet, these programs risk becoming less effective without continuous feedback mechanisms and resource allocation to maintain and innovate such activities over time. The facility's innovative model, combining condominium-style living with advanced healthcare services and security, ensures comprehensive care that addresses both preventive and emergency needs. Nevertheless, while this model provides a template for comprehensive elderly care, its scalability and affordability for broader application remain uncertain, particularly in resource-limited settings. This holistic approach, paired with regular program assessments, ensures that Nursing Home A can continually adapt to the evolving needs of its elderly residents, maximizing the benefits of its wellness and care initiatives.

Recommendations

To enhance the quality of life for elderly residents in a nursing home, it is recommended that facilities prioritize the physical safety and comfort of their environments through infrastructural modifications such as leveling floors and ensuring accessible facilities. Additionally, expanding wellness programs to include a variety of physical, cognitive, and emotional activities tailored to individual capabilities can significantly benefit residents. Continuous and comprehensive training for caregiving staff is essential to improve proficiency in delivering person-centered care, with a focus on communication skills and emergency response. Furthermore, increasing opportunities for social interaction within and outside the nursing home can combat loneliness and promote mental health. Integrating technology like telehealth services and electronic health records can enhance care delivery and management. Regular assessments of resident satisfaction should inform continuous refinements in care practices, while management practices should focus on transparency, quality assurance, and creating an empowering work culture. Lastly, strengthening connections with the community and encouraging family involvement can enhance the support networks for residents, fostering a greater sense of belonging and community engagement.

Conclusion

In conclusion, this comprehensive qualitative study of two nursing homes in Bangkok, representing both private and public sectors, highlights the vital impact of physical, social, and managerial factors on the quality of life for elderly residents. Regular exercise routines and wellness initiatives effectively boost physical health, while thoughtfully designed environments promote emotional and mental well-being. Social activities foster community engagement and mitigate loneliness, playing a crucial role in residents' emotional health. Additionally, person-centered management practices and continuous staff training are essential for delivering high-quality care and ensuring adaptability to the evolving needs of an aging population. These findings underscore the importance of integrating health services, engaging activity programs, and responsive management systems to improve elder care. The study offers a scalable framework that aligns with Thailand's vision for a compassionate society, ensuring elderly individuals thrive in their environments.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Author Contribution

PP conceptualized the research framework, developed the theoretical foundation, and conducted the literature review on factors contributing to child abuse in Thailand. PP and SC 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 PP managing journal correspondence and the final revision. Both PP and SC approved the final manuscript for submission.

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Digital divergence: How online media and techno-stress shape communication competencies across higher education roles

Teerada Chongkolrattanaporn[a,*], Prichaya Manmin[b,†]

[a] *Department of Public Relations, Faculty of Communication Arts, Chulalongkorn University, Bangkok 10330, Thailand*
[b] *Department of Creative Commercial Communication, Albert Laurence School of Communication Arts, Assumption University, Samut Prakan 10570, Thailand*

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Abstract

This study aimed to explore the utilization of online media and its impact on techno-stress and communication competence among higher education personnel, including students, faculties, institutional administrators and staff. Drawing from a sample of 2,500 respondents across Thailand, our findings revealed a significant reliance on platforms like Facebook, Line, and Zoom for academic tasks. The study identified a moderate level of techno-stress, with techno-insecurity and techno-uncertainty being the most pronounced stressors. Despite these challenges, higher education personnel reported high communication competence, particularly in content and knowledge creation and collaboration aspects. Notably, the impact of techno-stress varied among groups, with students and institutional administrator showing increased communication competence by 1.8 percent and 10.2 percent respectively, while instructor and staff groups indicated prediction percentages of 1.3 percent and 6.9 percent. The data also reveal that the relationship between the independent variables and the dependent variable is predominantly positive if present. Online media usage positively impacts communication competence across all these groups. In contrast, techno-stress positively influences the communication competence of students and institutional administrator only. The structural model confirmed that online media usage and techno-stress collectively accounted for 2.7 percent of the variance in communication competence. This influence, though modest, underscores the intricate interplay between technology and communication skills in academia and suggests the need for targeted interventions and support mechanisms for different groups within the higher education sector.

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* Corresponding author.
E-mail address: Teerada.c@chula.ac.th (Chongkolrattanaporn, T.).
† Co-first authors.

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Introduction

The outbreak of Covid-19, declared a global health emergency in early 2020 (World Health Organization, 2020), caused a significant disruption to education worldwide. In Thailand, the pandemic necessitated the closure of educational institutions under the Infectious Disease Act of 2015, prompting a rapid transition to online learning (Faculty of Medicine Ramathibodi Hospital, 2020; Hill, 2020). Online learning, characterized by computer-mediated communication and multimedia content delivery (Sikhaman, 2011; as cited in Banlue, 2017; Siriwon, 2005, as cited in Yeesai, 2013), offers flexibility but also introduced challenges, particularly in adapting to unfamiliar technologies.

The abrupt shift in technological environment increased stress for both students and instructors as well as academic staff. Li and Wang (2020) have characterized this "techno-stress" into four types: Techno-Overload, Techno-Complexity, Techno-Insecurity, and Techno-Uncertainty. Studies have shown that the pandemic heightened anxiety, depression, and workload pressures among students and instructors (Moawad, 2020). Yang et al. (2021) observed that online learning not only increased students' workloads but also intensified feelings of isolation. Similarly, Fawaz and Samaha (2020) reported higher rates of anxiety and depression, especially among first-year students, while Fruehwirth et al. (2021) highlighted the psychological toll of remote learning and social isolation. Therefore, examination of such phenomenon in Thailand would shed light on the issue and yield alternatives to tackle the future higher education management.

Despite extensive research on the stressors associated with online learning, there remains a significant gap in understanding how these stressors collectively referred to as techno-stress impact on communication competencies across different roles in higher education. While studies have examined the challenges posed by techno-stress on teaching and learning outcomes, little focus has been put on how these challenges influence the ability of students, faculty members, administrators and staff to communicate efficiently in an academic setting. Communication competence is crucial in this context, as it underpins collaboration, content creation, and problem-solving, which are key factors for academic and professional success.

This study aims to address these gaps by exploring the interplay between online media usage, techno-stress, and communication competence among higher education personnel in Thailand. By examining the experiences of students, instructors, institutional administrators, and academic staff across six regions and 24 provinces, this research seeks to provide insights into how online media and technology-driven stress influence communication competence. The findings will edify strategies for enhancing digital adaptation and resilience within the higher educational sector, ensuring preparedness for the "New Normal" of education in a post-pandemic era.

Literature Review

Trends in Online Media Usage and Learning

Online media, described by Wongsathitsathien (2006, as cited in Pansung, 2016) as "New Media," bridges interpersonal and mass communication through real-time interaction and user participation. In the context of higher education, online media tools have become indispensable for academic tasks, with platforms categorized into three main types: Social Media, Chat Applications, and Online Meeting Platforms. This classification reflects their integration into teaching, learning, and communication activities within academic environments.

Studies consistently highlight the extensive engagement of students with online social networks, especially during the evening. For instance, Facebook remains the most popular platform for both entertainment and academic activities (Thongmeekhaun et al., 2020). Students reportedly spend an average of 4–5 hours daily on social media, often during peak hours from 8 PM to midnight (Eiamrit, 2016). These behaviors emphasize the dual role of these platforms in supporting both leisure and educational pursuits, with students frequently using them to retrieve information, contact instructors, and watch educational videos (Phookwantong et al., 2020). This aligns with findings from Sarawanawong et al. (2017), which observed widespread digital media use among university students, peaking from evening to early morning, with Line, YouTube, and Facebook being the platforms of choice.

Instructors and students also rely on online meeting platforms such as Zoom, which has demonstrated advantages over alternatives like Skype in facilitating interactive learning. For example, Dharma et al. (2017) found that using Zoom for teaching basic Japanese grammar significantly improved learning outcomes among Indonesian students aged 20–30. Similarly, Yamsri (2019) showed that Zoom enhanced students' knowledge and skills in pregnancy care training compared

to traditional methods. Supporting these findings, Chooha et al. (2018) reported high student satisfaction with Zoom's features, which effectively replicate a traditional classroom environment, highlighting its potential for improving communication and collaboration in higher education.

Exploring Techno-Stress in the Modern Era

Types and Emotional Impacts of Techno-Stress

Christian et al. (2020) categorized the techno-stress into four distinct types:

1. Techno-Overload: Stress from heightened expectations due to technology's convenience, leading to potential burnout and both physical and mental exhaustion.

2. Techno-Complexity: Stress arises from the intricacies associated with mastering new technology. The abrupt shift to online teaching methods, distinct from traditional face-to-face interactions, can induce feelings of anxiety and reduce long-term efficiency.

3. Techno-Insecurity: Rooted in doubts about technology's reliability, this stress manifests as concerns about unstable internet connections during pivotal online sessions or fears of technology superseding human roles in education.

4. Techno-Uncertainty: Stress induced by the relentless evolution of technology. With frequent software updates and changing platforms.

The emotional toll of these stressors is significant. Studies by Alibak et al. (2019), Fawaz and Samaha (2020), and Yang et al. (2021) highlight how techno-stress contributes to anxiety, stress, and depression, adversely affecting academic performance and overall well-being.

Christian et al. (2020) found that in Jakarta, techno-complexity and techno-insecurity were significant stressors for instructors, reducing teaching performance, while techno-overload sometimes led to positive productivity outcomes. Li and Wang (2020) observed similar patterns in China. In Lebanon, Fawaz and Samaha (2020) reported increased stress and dissatisfaction among students using platforms like Zoom. Fruehwirth et al. (2021) and Moawad (2020) noted that the sudden transition to online learning heightened anxiety and depression, especially among first-year students. In other contexts, Upadhyaya and Acharya (2021) in India identified that techno-overload and techno-uncertainty negatively impacted academic productivity. Oladosu et al. (2020) observed that technology use for academic purposes increased stress among students, further exacerbated by environmental factors like noise and heat during online learning sessions.

Impacts of Techno-Stress in Academic Settings

The sudden shift to online learning during the COVID-19 pandemic amplified challenges associated with digital adaptation. Techno-stress, a phenomenon characterized by feelings of overload, complexity, insecurity, and uncertainty due to technology use—has been extensively documented in educational contexts. Li and Wang (2020) identified these categories of techno-stress, which affect both students and instructors, often leading to reduced engagement and increased anxiety. Christian et al. (2020) noted that the rapid transition to online platforms created significant stress for instructors, negatively impacting teaching effectiveness.

Students also faced heightened psychological challenges during this period. Yang et al. (2021) observed that the increased workload and isolation associated with online learning contributed to higher stress levels. Similarly, Fawaz and Samaha (2020) reported elevated rates of anxiety and depression among students, particularly first-year learners, while Fruehwirth et al. (2021) highlighted the long-term psychological toll of remote learning and social isolation.

While much research addresses the general impact of techno-stress across industries, its unique implications for higher education remain underexplored. For example, Mingprasert and Sheng (2014) observed that the abrupt transition to online learning during the pandemic exacerbated stress due to unfamiliar platforms and inadequate digital skills. Although these findings emphasize the challenges of techno-stress, its specific influence on critical competencies such as communication remains underexamined. Understanding how techno-stress affects communication competence is crucial for addressing gaps in academic performance and collaboration.

Roles of Higher Education Personnel

Higher education personnel refer to individuals with varying statuses and roles within higher education institutions. This includes institutional administrators, teaching instructors, staff/officers, and learners, namely, students. Administrators oversee institutional management and ensure the quality of both the curriculum and the institution. Staff or officers handle the operational aspects of educational management and teaching. Instructors, focus on imparting knowledge and

facilitating effective communication to ensure productive learning. Their goal is to produce quality graduates who can contribute positively to society. Therefore, educational personnel have responsibilities spanning administrative tasks, teaching, and documentation.

The rapid shift to online education during the COVID-19 pandemic highlighted the multifaceted challenges posed by techno-stress. Recognizing and addressing these stressors is crucial for improving the online learning experience for higher education personnel. By understanding the specific impacts of techno-stress on instructors and students, institutions can develop targeted strategies to enhance digital adaptation and foster academic success.

Understanding Competence in the Digital Age

In an era increasingly dominated by digital technology, understanding the interplay between online media usage, techno-stress, and competence becomes paramount, especially given the challenges posed in our tech-driven educational and professional environments. Truangthonglang et al. (2020) define competence as the ability to apply knowledge, skills, and attributes to meet task standards. Echoing David McClelland's insights, competence is seen as an innate quality that spurs individuals to meet or even surpass performance benchmarks. This intrinsic behavior, as highlighted by Chorkaew (2018), further emphasizes that competence fuels efficient task execution, consisting of Skills, Knowledge, and Attributes such as Self-Concept, Traits, and Motive/Attitude. In the context of their research, communication competence is segmented into six distinct dimensions: (1) Work Performance, (2) Problem Solving, (3) Communication, (4) Information Management, (5) Collaboration, and (6) Content and Knowledge Creation.

Research Questions

This study aims to delve into these aspects, leading to the following research questions:

How do higher education personnel utilize online media in their academic tasks?

What is the nature of techno-stress experienced by higher education personnel in their academic roles?

What is the nature of communication competence within the higher education sector?

How do online media usage and techno-stress act as predictors for the communication competence of higher education personnel in their academic tasks? The hypotheses are as follows:

Hypothesis 1: The use of online media in higher education has an influence on the communication competence of the personnel.

Hypothesis 2: Techno-Stress in higher education has an influence on the communication competence of the personnel.

Methodology

Research Population and Sampling Methods

The research employed the Yamane (1967) formula, as cited by Taveerat (1988), to calculate a sample size of 2,500, ensuring statistical adequacy for a population exceeding 100,000. The sample was distributed across six geographical regions of Thailand, encompassing urban and rural settings to reflect diverse experiences with online media usage and techno-stress. Institutions were randomly selected to include both public and private universities, ensuring representation across key higher education roles: students, faculty members, administrators, and staff.

The study spanned 24 provinces across six regions. Bangkok and its surrounding areas contributed 300 respondents from 10 randomly selected institutions, evenly split between public and private universities. The remaining 2,200 respondents were drawn from 23 provinces, with each institution contributing 20 participants. For provinces with fewer than 10 institutions, nearby provinces were included to meet quotas, ensuring balanced representation by institutional affiliation, size, and location. The regions and selected provinces were as follows: Central (Bangkok, Phitsanulok, Nakhon Sawan); Eastern (Chonburi, Chachoengsao, Chanthaburi, Rayong, Sa Kaeo); Northern (Chiang Mai, Chiang Rai, Lampang); Northeastern (Ubon Ratchathani, Sisaket, Khon Kaen, Nakhon Ratchasima); Western (Kanchanaburi, Tak, Prachuap Khiri Khan, Ratchaburi, Phetchaburi); and Southern (Songkhla, Yala, Nakhon Si Thammarat, Surat Thani).

The final dataset consisted of 15 percent institutional administrators (375), 20 percent teaching instructors (500), 15 percent staff/personnel (375), and 50 percent students (1,250), ensuring comprehensive representation for analysis. The proportions of the final dataset were strategically chosen to reflect the composition of the higher education ecosystem. Students accounted for the largest group (50%) due to their critical role as primary users of online media and key stakeholders in higher education outcomes. Teaching instructors (20%) were included

to capture the perspectives of educators who directly interact with students and online platforms. Institutional administrators (15%) and staff/personnel (15%) were equally represented to ensure insights from leadership and operational roles, which significantly influence institutional policies and infrastructure. This balanced distribution allowed for a nuanced understanding of the interplay between online media usage, techno-stress, and communication competence across all roles within higher education.

Inclusion Criteria

Participants were required to meet the following inclusion criteria: (1) aged between 17 and 61; (2) affiliated with higher education institutions in roles such as administrators, instructors, staff, or students; and (3) using online social media for academic or work purposes at least three times a week. These criteria ensured a relevant and diverse sample for analyzing the effects of online media usage and techno-stress on communication competence.

Design and Structure of the Questionnaire

A structured questionnaire was the primary tool for quantitative data collection, focusing on four key variables: demographic characteristics, online media usage, techno-stress, and communication competence. These variables were measured using Nominal, Interval, and Ratio Scales. A pre-test was given with 30 educational personnel from higher education institutions to ensure clarity and consistency in the questions. The reliability was then verified by calculating the Cronbach's Alpha Coefficient, ensuring internal consistency across all questionnaire items. The reliability scores for each construct exceeded the acceptable threshold of 0.7, demonstrating the consistency and stability of the measurement instrument. Validity was verified through a two-step process. Content validity was established via expert review, where a panel of specialists evaluated the questionnaire for clarity, relevance, and alignment with the research objectives. Construct validity was tested using exploratory factor analysis (EFA) to confirm that the items effectively measured the theoretical constructs of online media usage, techno-stress, and communication competence. These measures ensured both the reliability and validity of the study's data collection tool.

Following the sampling process, data collection was conducted using a structured questionnaire designed to capture diverse perspectives from institutional administrators, instructors, staff, and students. The questionnaire was divided into five sections, totaling 57 questions:

Screening Questions (3 items): This section covered educational personnel in the institution, experience using online media for work and study, and willingness to participate.

General Information (8 items): Collected data on demographics as gender, age, education level, current position in the higher education institution, average income, affiliated faculty/course, affiliated higher education institution, and the region of the affiliated institution.

Online Media Usage (15 items): This section explored the regular online social media platforms used, communication applications, online meeting rooms frequented, total online media usage duration in a day, time slots for online media usage, devices used to access online media, and the use of online media to meet work requirements in higher education.

Techno-Stress (20 items): Questions here gauged stress levels related to techno-overload, techno-complexity, techno-uncertainty, and techno-insecurity.
Communication Competence (12 items): Evaluated skill in work/learning, problem-solving, communication, information management, collaboration, and content and creation.

Data Analysis

The researcher used SPSS (Statistical Package for Social Science) to analyze the questionnaire data. Descriptive statistics, including percentages, mean, and standard deviation, were employed to describe the demographic characteristics of the sample group. For hypothesis testing, inferential statistics like regression analysis and the Structural Equation Model (SEM) were utilized. The SEM's accuracy was validated using Confirmatory Factor Analysis, ensuring the model's fit to the observed data. These methods helped clarify relationships between variables and address the research objectives. For interpretative purposes, the Likert scores for techno-stress and communication competence—reflected in sub-item opinion agreements—are categorized as follows: Very High (5.00–4.21), High (4.20–3.41), Moderate (3.40–2.61), Low (2.60–1.81), and Very Low (1.80–1.00). These categories provide a clear and structured way to assess participants' responses and analyze the data in a meaningful and consistent manner.

The interpretation of these scores was guided by established methodologies and benchmarks. The ranges were derived using the principles outlined by Bluman (2014), which emphasize the use of grouped frequency distributions to determine data widths. The adoption of a 5-point Likert scale aligns with prior research, including studies by Christian et al. (2020), Gopal et al. (2021), and Yang et al. (2021). These studies utilized 5-point scales to measure variables such as techno-stress, anxiety, depression, workload impacts, and student satisfaction, affirming its effectiveness in assessing perceptions and attitudes within educational and behavioral research contexts.

Results

Demographic Characteristics of the Sample Group

The majority of participants were female (56.28%, 1,407 individuals), with the largest age group being 17–21 years (35.6%, 890 individuals). Most held an undergraduate degree or equivalent (62.72%, 1,568 individuals). The sample comprised 50 percent students (1,250), 17.88 percent instructors (447), 14.36 percent institutional administrators (359), and 17.76 percent staff/officers (444). The average income was 22,177.27 Baht/month. Regarding academic affiliation, 51.56 percent (1,289) were from Science and Technology, and 48.44 percent (1,211) were from Social Sciences and Humanities. Participants were mostly from government institutions (57.92%, 1,448), with the remainder from private institutions (42.08%, 1,052). Bangkok and its vicinity had the highest representation at 12 percent (300 individuals).

Obj 1: How do higher education personnel utilize online media in their academic tasks?

Social Media Usage: Facebook was the most used platform (60.32%, 1,508 individuals), with an average usage of 5.94 hours/day, primarily via smartphones (76.8%). Most users (62.56%, 1,564) accessed it for academic tasks.

Communication Applications: Line was the leading app (62.84%, 1,571), averaging 5.54 hours/day, mainly via smartphones (75.04%). Academic tasks accounted for 60.12 percent (1,503) of its usage.

Online Meeting Platforms: Zoom was the most used platform (56.44%, 1,411), with an average usage of 3.80 hours/day. Most activity occurred between 08:01-16:00 (80.52%, 2,013), accessed primarily via computers (48.32%), and used for academic tasks by 67.48 percent (1,687).

Obj 2: What is the nature of techno-stress experienced by higher education personnel in their academic roles?

Overall Techno-Stress: The sample reported a moderate level of techno-stress, with an average score of 3.48. "Techno-insecurity" ranked highest with a "high" stress score of 3.82, followed by "techno-overload" (3.52), "techno-complexity" (3.32), and "techno-uncertainty" (3.32), all indicating moderate stress levels.

Key Stressors: "Techno-insecurity" emerged as the most significant source of stress, with top-rated concerns including compatibility of devices (3.88), evolving technology (3.86), frequent platform changes (3.84), and constant technological advancement (3.82). "Techno-uncertainty" also contributed significantly, with many personnel feeling pressured to continually improve their online teaching skills (3.86). These findings highlight how rapid technological changes and frequent updates to online platforms create insecurity and overwhelm staff.

Obj 3: What is the nature of communication competence within the higher education sector?

Overall Competence: The sampled cohort demonstrated a "high" level of communication competence, with an average score of 4.08. The highest competence was in "content and knowledge creation" (4.20), followed by "collaboration" (4.12), and "work/learning," "information management," and "problem-solving" (each 4.05). "Communication" scored 4.02, reflecting consistently high competence across categories.

Key Competencies: Top-rated competencies included eagerness to learn about online media (4.28) and creative content production (4.11) within "content and knowledge creation." In "collaboration," familiarity with online communication tools (4.12) and fostering collaboration (4.11) were highlighted. For "problem-solving," effectively addressing work-related issues using online media scored 4.09. These findings suggest personnel possess a well-rounded digital skill set, excelling in content creation, collaboration, and problem-solving, with a strong drive to further enhance their digital proficiency.

Obj 4: How do online media usage and techno-stress act as predictors for the communication competence of higher education personnel in their academic tasks?

To address this objective, a structural equation model (SEM) analysis was conducted to evaluate the influence of these variables, with the results presented in Table 1.

Table 1 Influence of online media usage and techno-stress on communication competence

	Communication competence
Online media usage	0.112*
Techno-Stress	0.091*
R^2	.027

Note: X^2 = 0.00, df = 0, *p* - value = 1.00, CFI = 1.00, GFI = 0.933, AGFI =0.865, RMSEA =.185 *p <.05

The structural equation model (SEM) analysis provides a detailed evaluation of the model's alignment with the observed data. The Chi-Square (χ^2) value of 0.00, with a p-value of 1.00, indicates no significant discrepancy between the observed and expected covariance matrices, reflecting an excellent fit. The Comparative Fit Index (CFI) value of 1.00 further underscores the model's robustness, as values close to 1 signify an optimal fit.

The Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI) values of 0.933 and 0.865, respectively, confirm the model's strong and adjusted fit, providing additional support for its adequacy. However, the Root Mean Square Error of Approximation (RMSEA) value of 0.185 exceeds the conventional threshold for a good fit (typically ≤ 0.08). While this indicates some limitations in the model's approximation, the strength of the other indices supports its overall credibility.

These findings collectively suggest that the proposed SEM is a reliable representation of the observed data, despite the elevated RMSEA value. The results highlight the need for cautious interpretation and consideration of potential refinements to address the model's limitations. The following Figure 1 illustrates the derived model and its empirical underpinnings.

Online media usage and techno-stress collectively account for 2.7 percent of the variance in communication competence, reflecting their nuanced contributions to this multi-dimensional construct. While the variance may seem small, it is significant in behavioral research, where outcomes are influenced by numerous factors. Online media usage serves as a critical enabler of communication competence, highlighting the potential for targeted interventions such as digital literacy programs to improve academic performance and collaboration. Conversely, techno-stress demonstrates a complex relationship with communication competence, where the pressure to adapt to evolving technologies can motivate higher education personnel to enhance their communication skills. Addressing techno-stress through initiatives like stress management workshops or technological support systems could further strengthen this relationship.

This low variance underscores the need to consider additional factors, such as institutional policies, access to technology, and individual adaptability, which likely play a role in shaping communication competence. These findings emphasize the importance of future research to explore broader predictors and refine the understanding of how technology-related factors influence communication skills in academic environments. By delving deeper into these dynamics, higher education institutions can develop tailored strategies to support their personnel in navigating the challenges and opportunities of a technology-driven landscape.

To ensure the transparency, statistical methods were explicitly linked to the hypotheses. Hypotheses related to relationships between variables were tested using Structural Equation Modeling (SEM), which examined direct and indirect effects while evaluating model fit through indices such as CFI, GFI, and RMSEA. Hypotheses focusing on predictive relationships and subgroup comparisons employed multiple regression analysis to identify significant predictors and assess their strength.

• Hypothesis 1: The utilization of online media significantly impacts the communication competence of academic personnel, with a positive association quantified by a coefficient of 0.112, statistically significant at the

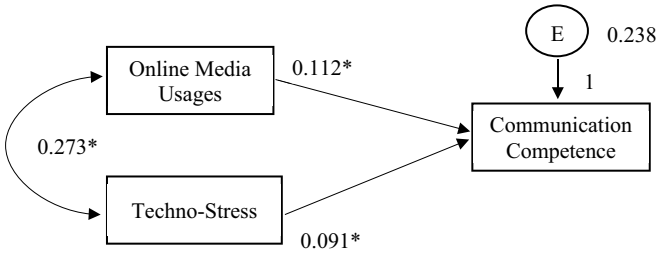


Figure 1 Influence of online media usage and techno-stress on communication competence: a structural model representation

Table 2 Technology-related factors and the communication skills of higher education officers

	Communication Competence			
	Students	Instructor	Institutional administrator	Staff
Online media usage	.069*	.112*	.236*	.246*
Techno-stress	.094*	.010	.157*	.045
R2	.018	.013	.102	.069

Note: X^2 = 0.00, df = 0, *p* - value = 1.00, CFI = 1.00, GFI =0.917, AGFI =0.834, RMSEA =.103 *$p < .05$

0.05 level.

• Hypothesis 2: The experience of techno-stress influences the communication competence of higher education personnel, with a positive correlation reflected in a coefficient of 0.091, also significant at the 0.05 level. These findings highlight the nuanced interplay between technology-related factors and communication skills. Further subgroup analyses, using chi-square tests, revealed differences in influence values across roles, providing deeper insights into how online media usage and techno-stress differentially affect academic personnel in various capacities. The results of these subgroup analyses are presented in Table 2.

The structural equation model presented a chi-square value of 0.00, with df = 0 and a p-value of 1.00, suggesting a good fit with the empirical data. The causal variables, specifically the use of online media and techno-stress, were found to predict communication competence in varying degrees across different groups: 1.8 percent for students, 1.3 percent for instructor, 10.2 percent for institutional administrator, and 6.9 percent for staff/personnel.

The data table reveals that online media usage positively impacts communication competence across all these groups. In contrast, techno-stress doesn't seem to affect the instructor/teacher and staff/personnel groups. However, it positively influences the communication competence of students and institutional administrators. This indicates that the structural equation model's applicability differs among the groups. Overall, the relationship between the independent variable and the dependent variable is predominantly positive if present.

Discussion

The Prevalence of Online Media and Techno-Stress

Online media and communication applications usage among higher education personnel

The study reveals significant engagement with online platforms like Facebook, Line, and Zoom, initially designed for social interactions, that have found a corresponding space within academic settings. An illustrative 60 percent of our study participants have repurposed Facebook and Line for academic activities, signifying a transformative shift in pedagogical modalities.

It is important to highlight the distinct engagement patterns observed. Whereas platforms such as Facebook register peak activity during evening hours, Zoom is primarily used during standard working hours (08:01–16:00). This not only accentuates Zoom's indispensable position in real-time academic dialogue but also correlates with Wongsathitsathien's (2006, as cited in Pansung, 2016) findings on the importance of timely interaction in Thai online media. Zoom's superiority in educational contexts is further supported by Dharma et al. (2017), where it outperforms Skype.

Moreover, the sustained and extensive involvement on these platforms signifies their pivotal role in contemporary academic practice. This observation finds resonance in studies by Eiamrit (2016) and Phookwantong et al. (2020), which spotlight students allocating an average of 4–5 hours daily to these platforms.

In summation, the study conclusively underscores the cardinal role of these platforms in synchronous academic communications within the sphere of online media.

Techno-stress and communication competence in the realm of higher education

While online media has transformed academic processes, it has also introduced the challenge of techno-stress. The data point to a significant level of stress experienced by the higher education personnel, with "techno-insecurity" emerging as the most potent source. This type of stress, driven by the continuous evolution of online learning platforms, often leaves educators in a state of perpetual adaptation. The rapidity of changes in these tools can foster feelings of being overwhelmed, thereby heightening stress. Additionally, "techno-uncertainty" emerges as another key stressor, emphasizing the need for educators to continuously update their skills to keep pace with advancing technology, contributing to ongoing

stress.

Christian et al. (2020) resonates with our findings on techno-stress, highlighting the complexities and insecurities faced by educators when thrust into the online teaching milieu. Particularly, their insights on techno-complexity and techno-insecurity corroborate our data points on the continual pressure educators face to stay updated. The emotional burden, as expounded upon by Alibak et al. (2019) and Yang et al. (2021), reiterates the profound repercussions techno-stress has on mental well-being, echoing the sentiments revealed in our study.

Contrastingly, when examining communication competence, a brighter picture emerges. Educators are not merely passive receivers but are proactive contributors in online domains. Their impressive scores in "content and knowledge creation" signal an active engagement with digital tools for knowledge dissemination; "collaboration" metrics further affirm that educators proficiently harness online platforms for collaborative endeavors in both team projects and teaching. Lastly, the high competence in "problem-solving" via online media indicates a pedagogical shift, wherein digital platforms are not just repositories of information but tools to address academic challenges innovatively.

Structural Equation Model on Communication Competence in Higher Education

The results of our study affirm the hypothesis, indicating that online media use and techno-stress predict communication competence in higher education tasks, accounting for 2.7 percent of the variance. While online media enhances communication competence, techno-stress, intriguingly, also has a positive impact on communication competence within this context.

The structural equation model's findings provide further granularity. The model's good fit with the empirical data, as evidenced by a chi-square value of 0.00 and a p-value of 1.00, underscores its reliability. The causal variables' ability to predict communication competence varied across groups, with students at 1.8 percent, instructor at 1.3 percent, institutional administrator at 10.2 percent, and staff/personnel at 6.9 percent. This variation suggests that different sectors within the higher education community might experience the impacts of online media and techno-stress differently. Notably, while online media consistently enhanced communication competence across all groups, techno-stress's influence was more selective, positively impacting students and institutional administrator but not instructor or staff. This nuanced understanding challenges a one-size-fits-all approach and calls for tailored strategies to harness the benefits of online media and address the challenges of techno-stress in higher education.

The results of our study, which highlight the differential impacts of online media usage and techno-stress on communication competence across various groups within higher education, resonate with broader academic discourses. The affirmation of online media as a positive influencer of communication skills aligns with the findings of Greenhow et al. (2009). They observed that students using social media platforms for educational purposes often exhibited improved communication and collaboration skills. This suggests that the integration of online platforms into educational settings can foster a more collaborative and communicative environment.

However, the nuanced impact of techno-stress, while it enhances communication competence for students and administrators, it does not do the same for instructors and staff. This aligns with Tarafdar et al. (2015), who proposed that techno-stress might lead to adaptive behaviors, leading to improved communication competence through collaboration and problem-solving. Conversely, Ragu-Nathan et al. (2008) emphasized the negative ramifications of techno-stress, such as decreased productivity and job satisfaction. Their findings hint at the possibility that such stress could affect communication, especially for specific groups.

In light of these references, our study underscores the importance of a nuanced understanding of the interplay between technology-related factors and communication competence. It suggests that while there are overarching trends, individual experiences and impacts can vary significantly based on one's role within the higher education ecosystem. This calls for more tailored interventions and strategies to maximize the benefits of online media and mitigate the challenges posed by techno-stress.

Roles and Competence in Higher Education

The digital transformation of higher education has brought both opportunities and challenges to the forefront. The integration of online media into the academic sector, as our study suggests, has had a profound impact on communication competence across different groups within higher education. The high communication competence observed among the sample group is indicative of the adaptability and resilience of higher education personnel in navigating the digital landscape.

Our study reveals that while online media has

bolstered communication skills across all groups, the impact of techno-stress varies. Specifically, students and institutional administrators have shown increased communication competence by 1.8 percent and 10.2 percent respectively, potentially leveraging technological challenges as learning opportunities. In contrast, the instructor, and staff groups, with prediction percentages of 1.3 percent and 6.9 percent, seem less influenced by these stressors, possibly due to their established routines in the academic environment.

Truangthonglang et al. (2020) emphasized that competence transcends mere skill acquisition; it is about application in diverse contexts. The varied percentages across groups in our study echo this sentiment, suggesting that while skills might be uniformly acquired, their application is influenced by the unique challenges and responsibilities each group faces. As the digital landscape continues to evolve, understanding these nuanced differences is crucial for tailoring strategies that cater to the specific needs of each group within the higher education sector.

Conclusion and Recommendation

Implications for future research

Future research directions

Future studies should comprehensively explore how communication competence varies across students, instructors, administrators, and staff in higher education, with an emphasis on role-specific challenges and opportunities. Investigating predictors such as institutional communication practices, technological demands, and digital collaboration capabilities can provide targeted strategies to enhance communication skills. Research should also address the dual impact of techno-stress, examining how it can hinder performance or act as a catalyst for skill development. Interventions like stress management programs, institutional support systems, and technology training should be assessed for their effectiveness in mitigating negative effects while fostering collaboration and problem-solving skills. Additionally, studies should identify which online media platforms most effectively enhance communication competence and address disparities in digital literacy and access to technology. Longitudinal and cross-cultural research would provide valuable insights into how prolonged media use and cultural contexts influence communication skills, offering actionable recommendations for supporting diverse academic roles in technology-driven environments.

Methodological suggestions

Future research should adopt mixed methods, expand sample diversity, and use advanced statistical techniques like multi-group SEM to uncover subgroup differences. Investigating technologies such as AI tools and immersive platforms could provide actionable insights to enhance communication competence effectively in higher education settings.

Implications of future strategy

Recognizing and addressing techno-stress is essential for enhancing the online learning experience. Institutions should provide targeted training, support, and adaptation strategies to help all stakeholders navigate the digital age effectively.

1. Professional Development: The varying impact of techno-stress on different groups suggests a need for targeted professional development. Instructor and staff, who seem less influenced by techno-stress, might benefit from training that focuses on leveraging digital tools for enhanced communication and productivity.

2. Prioritizing Counseling and Support Services: Given the reported stress levels, counseling services tailored to address the specific challenges faced by higher education personnel become pivotal, echoing the sentiments of several studies on the emotional implications of techno-stress. Though, the positive impact of techno-stress on students' communication competence suggests that some level of challenge can be beneficial, institutions should also offer robust support services to help students manage stress effectively, ensuring it doesn't tip over into burnout.

3. Instituting Feedback Mechanisms: To tailor online offerings effectively, institutions should establish feedback mechanisms, allowing them to address the diverse range of experiences with online platforms reported in our findings.

4. Administrative Strategy: The high impact of techno-stress on institutional administrator (10.2%) suggests that this group might be the most adaptable but also the most susceptible to the negative impacts of stress. Strategies to manage this stress at the organizational level could include regular digital detox sessions or stress management workshops.

5. Building a Collaborative Community: To counteract the decline in knowledge sharing due to fears of underperformance, institutions should foster a supportive community, possibly by creating online forums or groups for instructors to share experiences.

Conflict of Interest

The author declares that there is no conflict of interest.

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Strategic development model of communication channels to strengthen the secondary destination image: A comprehensive research study of Ratchaburi, Thailand

Revita Saisud

Graduate School, Stamford International University, Phetchaburi 76120, Thailand

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Abstract

This study investigates the role of communication channels in shaping the secondary destination image of Ratchaburi Province, Thailand. The research examines the expectations, perceptions, and demographic characteristics of Thai tourists, comparing pre- and post-experience insights to determine the most influential communication channels. Utilizing a mixed-methods approach, the study integrates quantitative analysis through a questionnaire-based survey (n = 400) and qualitative insights from stakeholder interviews (n = 10). Key findings indicate that while demographic characteristics have minimal influence on initial expectations, they significantly impact post-experience perceptions. Additionally, a strong correlation exists between perceptions and repeat visitation likelihood. A comprehensive SWOT analysis provides an in-depth strategic perspective, assessing strengths, weaknesses, opportunities, and threats from both tourists' and stakeholders' perspectives. These insights inform the CREATIVE model, a strategic framework comprising 8 key components designed to enhance destination branding and optimize communication strategies for secondary destinations. This research offers a practical guide for policymakers, tourism boards, and local businesses in developing effective communication strategies, ensuring Ratchaburi strengthens its competitive positioning. The study acknowledges limitations, including the need for broader stakeholder perspectives, challenges related to seasonality and external disruptions such as pandemics, and the necessity for sustained studies to assess long-term branding effectiveness. The originality of this study lies in its holistic strategic development model, integrating community engagement, cultural preservation, sustainable tourism practices, economic development, and cultural exchange, contributing to the long-term competitiveness and resilience of secondary tourism destinations.

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E-mail address: revita.saisud@stamford.edu (Saisud, R.).

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Introduction

Tourism serves as a fundamental pillar of global economic growth, with destination branding playing a pivotal role in shaping competitiveness and attractiveness in an increasingly crowded market (UN Tourism, 2023). A well-established destination brand enhances visitor engagement, fosters loyalty, and sustains long-term tourism growth (Pike, 2002).

Ratchaburi Province, located in western Thailand (Figure 1), possesses a rich cultural heritage, historical significance, and natural attractions, making it a promising tourism destination (Tourism Authority of Thailand, n.d.). However, despite these assets, Ratchaburi remains a secondary destination, often overshadowed by more prominent Thai tourist locations such as Chiang Mai and Phuket. In an era of digital transformation, where communication platforms influence tourists' decision-making processes, the role of effective communication strategies in enhancing destination image cannot be overstated (Govers & Go, 2009).

The propagation of digital media, social networks, and online travel platforms has fundamentally altered how tourists engage with and perceive destinations (Buhalis & Law, 2008). Modern travelers rely heavily on user-generated content (UGC), influencer marketing, and interactive engagement to inform their travel choices. Destination management organizations (DMOs) must capitalize on these dynamic communication channels to construct a compelling and coherent brand identity (Afshardoost & Eshaghi, 2020).

Addressing this, the present study seeks to explore how communication channels influence tourists' expectations and perceptions, ultimately leading to an enhanced secondary destination image. By systematically analyzing these elements, the study develops a comprehensive strategic model that aligns communication strategies with branding efforts, ensuring sustainable tourism growth and increased competitiveness for Ratchaburi.

Furthermore, the research aims to provide practical implications for tourism stakeholders, including government agencies, private enterprises, and local communities, equipping them with data-driven insights to enhance destination marketing strategies. This study fills a crucial research gap by integrating both theoretical and practical perspectives, offering a holistic model that addresses branding challenges in secondary tourism destinations.

By leveraging communication channels strategically, this research contributes to the broader discourse on destination marketing, sustainable tourism, and stakeholder engagement, with implications extending beyond Ratchaburi to similar emerging tourism markets.

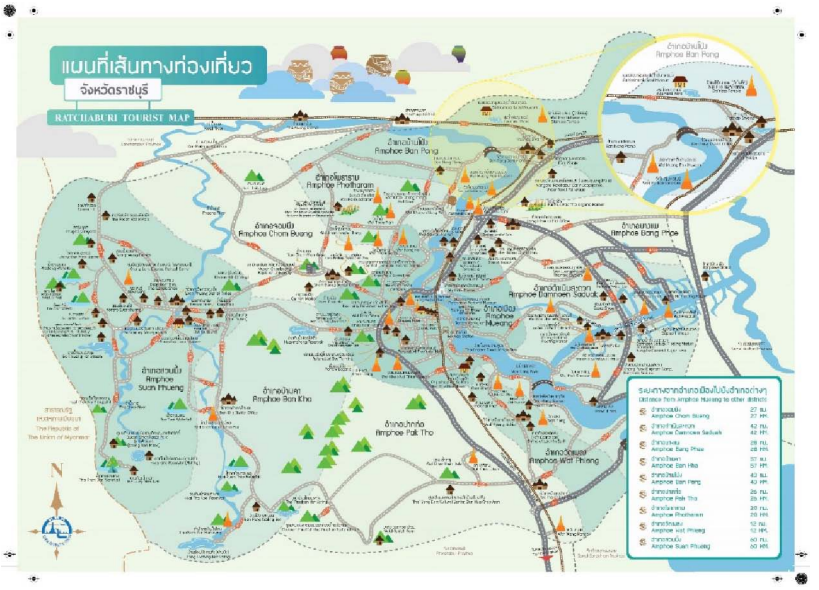


Figure 1 Ratchaburi tourist map
Adapted from Saisud, R., Bunjongmanee, P., & Louang-on, A. (2023).

Literature Reviews

Destination branding refers to the strategic process of creating a unique and appealing image to attract tourists and establish long-term competitive advantages (Pike, 2008). Kotler et al. (1993) assert that branding extends beyond marketing campaigns to encompass community engagement, cultural identity, and governance frameworks. The rise of digitalization and social media platforms has revolutionized branding strategies, allowing for real-time audience engagement, interactive storytelling, and personalized marketing experiences (Govers & Go, 2009). Secondary tourism destinations often face challenges in visibility and recognition, as they compete with established primary tourism hubs (Pike, 2009). Ritchie and Crouch (2003) and Garbelli and Gabriele (2021) highlight that effective destination branding requires leveraging local cultural and environmental assets, while strategically addressing infrastructure and accessibility gaps. A well-positioned secondary destination can differentiate itself through authenticity, niche tourism offerings, and sustainable development strategies.

Communication channels play a key role in shaping tourists' decision-making processes (Uysal & Fesenmaier, 1994). This study categorizes communication into four key dimensions: Public Relations (PR), including official tourism campaigns and promotional events; Personal Communication, such as word-of-mouth recommendations and local interactions; Mass Communication through print and broadcast media; and Contemporary Culture, involving digital platforms, influencer marketing, and user-generated content (Boley et al., 2017). Tourism research integrates diverse theoretical perspectives to examine consumer behavior and destination image formation. Foundational studies by Crompton (1979) and Pearce (1982) explore tourist motivation and decision-making processes, forming the basis for understanding how individuals perceive and interact with destinations. These concepts interconnect with tourism infrastructure elements such as transportation, accommodation, attractions, and activities (Goeldner & Ritchie, 2009; Mill, 1990).

Tourism, as conceptualized by Goeldner and Ritchie (2009), emerges from complex interactions between tourists, businesses, government bodies, and local communities. Similarly, Gee et al. (1989) emphasize the role of travel in crafting memorable experiences, reinforcing the importance of strategic destination positioning (Mill, 1990). Pike (2008) further refines this concept, identifying six key components of a successful tourism destination: Attractions, accessibility, accommodation, activities, amenities, and available packages. Kozak and Decrop (2008) underscore the importance of trust-building and brand identity development to ensure long-term visitor engagement. Kotler et al. (1993) and Pike (2009) further discuss how destination branding strategies influence tourist perceptions and destination selection.

This study also incorporates behavioral and psychological frameworks essential for understanding consumer engagement in tourism. Horner and Swarbrooke (2020) and Palmer (2012) examine tourist decision-making processes, highlighting how factors such as motivation, personal values, and perceptions shape destination preferences. Mooij (2010) explores the concept of cultural values, while Bernstein (2000) emphasizes the role of perception as a critical component in shaping the tourist experience. Weaver and Lawton (2014) provide insights into repeat tourism behavior, while Engel et al. (1990) and Fishbein and Ajzen (2009) introduce theoretical models explaining how beliefs and attitudes impact travel decisions. Further, studies by Chon et al. (1999) and Matos et al. (2015) examine how destination image formation affects consumer behavior.

Sustainability is a key concern in tourism branding, with Chen and Tsai (2007) and Oliver (1999) emphasizing the role of sustainability practices in fostering destination loyalty. Sustainable tourism requires an integrated approach, balancing economic growth, environmental protection, and cultural preservation to enhance destination resilience. This literature review synthesizes key theoretical perspectives on destination branding, consumer perception, and communication strategies, establishing a strong foundation for this study. By leveraging digital communication channels, strategic branding, and stakeholder collaboration, secondary destinations like Ratchaburi can enhance their competitive positioning in the tourism industry. The integration of insights from destination branding theory, tourism behavior models, and strategic communication frameworks provides a robust analytical lens for examining the impact of communication channels on destination image formation.

This study contributes to bridging the research gap by offering a comprehensive analysis of communication strategies in secondary tourism destinations, reinforcing the importance of data-driven, stakeholder-oriented branding approaches for long-term success.

Methodology

This study employs a mixed-methods approach, integrating both quantitative and qualitative methodologies to examine Thai tourists' demographic characteristics, expectations, and perceptions of communication channels that influence Ratchaburi's secondary destination image. The comparison between pre-experience expectations and post-experience perceptions provides critical insights into the effectiveness of various communication channels in shaping tourist engagement.

The quantitative component involved a survey questionnaire administered to 400 tourists who had visited Ratchaburi. Responses were measured using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Statistical models, including regression analysis and importance-performance analysis (IPA), were employed to assess the relationship between tourists' expectations, perceptions, and communication channels.

The qualitative component consisted of semi-structured interviews with 10 key stakeholders, including representatives from tourism boards, local businesses, and policymakers. This aspect followed a thematic analysis framework, coding responses into SWOT dimensions (Strengths, Weaknesses, Opportunities, and Threats) to gain a deeper understanding of industry perspectives on communication channel effectiveness.

Sampling and Data Collection

A purposive sampling technique was utilized to ensure that the selected respondents represented a diverse range of Thai tourists visiting Ratchaburi Province. The sample size of 400 respondents was determined based on Cochran's (1977) formula for survey-based research. Additionally, 10 key stakeholders were selected through expert sampling, ensuring a well-rounded qualitative analysis of communication strategies from industry professionals.

The survey instrument underwent rigorous validation, including an Index of Item-Objective Congruence (IOC = 1.00) conducted by field experts to ensure content validity. Reliability testing was also performed, with Cronbach's alpha coefficient of .984, indicating a high level of internal consistency among survey items.

Research Instruments

The research utilized a structured questionnaire designed to capture tourists' pre-visit expectations and post-visit perceptions regarding communication channels. The questionnaire was divided into 4 sections: (1) demographic characteristics—gender, age, income level, and travel frequency, (2) expectations of communication channels—pre-visit exposure to marketing materials, tourism advertisements, and word-of-mouth recommendations, (3) perceptions of communication channels—post-visit evaluation of the effectiveness of communication strategies. (4) tourism behavior and repeat visitation likelihood—assessment of overall satisfaction and intent to revisit.

For qualitative analysis, semi-structured interviews were conducted with 10 stakeholders, including representatives from tourism offices, hospitality sectors, and digital marketing agencies. The interviews explored how communication channels contribute to brand positioning and destination competitiveness.

Data Analysis

The quantitative data were analyzed using descriptive statistics, regression analysis, and IPA. Descriptive statistics provided an overview of tourists' demographics and responses, while regression analysis identified significant predictors of perception shifts. The IPA framework enabled a comparative analysis of communication channel performance, highlighting key areas requiring strategic improvement.

The qualitative data were processed using thematic analysis, with responses categorized into SWOT dimensions to evaluate industry perspectives on communication effectiveness. The integration of quantitative and qualitative findings allowed for a comprehensive understanding of communication channels' role in shaping the secondary destination image.

This study contributes to strategic development in tourism marketing by identifying key communication channels that influence tourists' engagement with Ratchaburi's secondary destination image. Through a data-driven, stakeholder-informed approach, the findings provide valuable insights for enhancing tourism promotion strategies in emerging travel destinations, as illustrated in Figure 2.

The demographic characteristics of the respondents participating in this study are presented in Table 1.

Results

Quantitative Results and Hypothesis Testing

Hypothesis 1: Different characteristics have different levels of expectation (Table 2)

The t-test and One-Way ANOVA (F-test) were applied to examine variance among population means, with effect size measures (Cohen's d and eta squared, η^2) included to assess the magnitude of observed differences. The results indicate that overall, tourists with different demographic characteristics had no statistically significant differences in their expectations regarding communication channels for promoting secondary cities in Ratchaburi Province ($p > .05$). However, residence location significantly impacted expectations ($F = 3.92$, $p = .009$, $\eta^2 = .04$), suggesting a small but meaningful effect. Post-hoc comparisons using Scheffe's method confirmed that tourists from urban areas exhibited significantly different expectations than those from rural regions. Therefore, Hypothesis 1 is not supported overall, but geographic segmentation plays a role in expectation differences.

Hypothesis 2: Different characteristics have different levels of perception (Table 3)

A t-test and One-Way ANOVA (F-test) revealed that demographic characteristics such as age, education level, occupation, income, and residence significantly influenced perceptions of communication channels for promoting secondary cities in Ratchaburi Province ($p < .05$). The effect sizes ranged from $\eta^2 = .03$ to $\eta^2 = .07$, indicating small to moderate effects. Therefore, Hypothesis 2 is supported.

Hypothesis 3: Expectations differ from perceptions (Table 4)

An Importance-Performance Analysis (IPA) technique was employed to compare average expectation and perception scores. The results indicate that expectations regarding communication channels for promoting secondary cities in Ratchaburi Province significantly differed from perceptions ($p = .000$). All 4 communication dimensions (public relations, personal communication, mass communication, and contemporary culture) showed statistically significant differences ($p = .000$) between expectations and perceptions. Therefore, Hypothesis 3 is supported.

Hypothesis 4: Expectations are correlated with repeat visitation (Table 5)

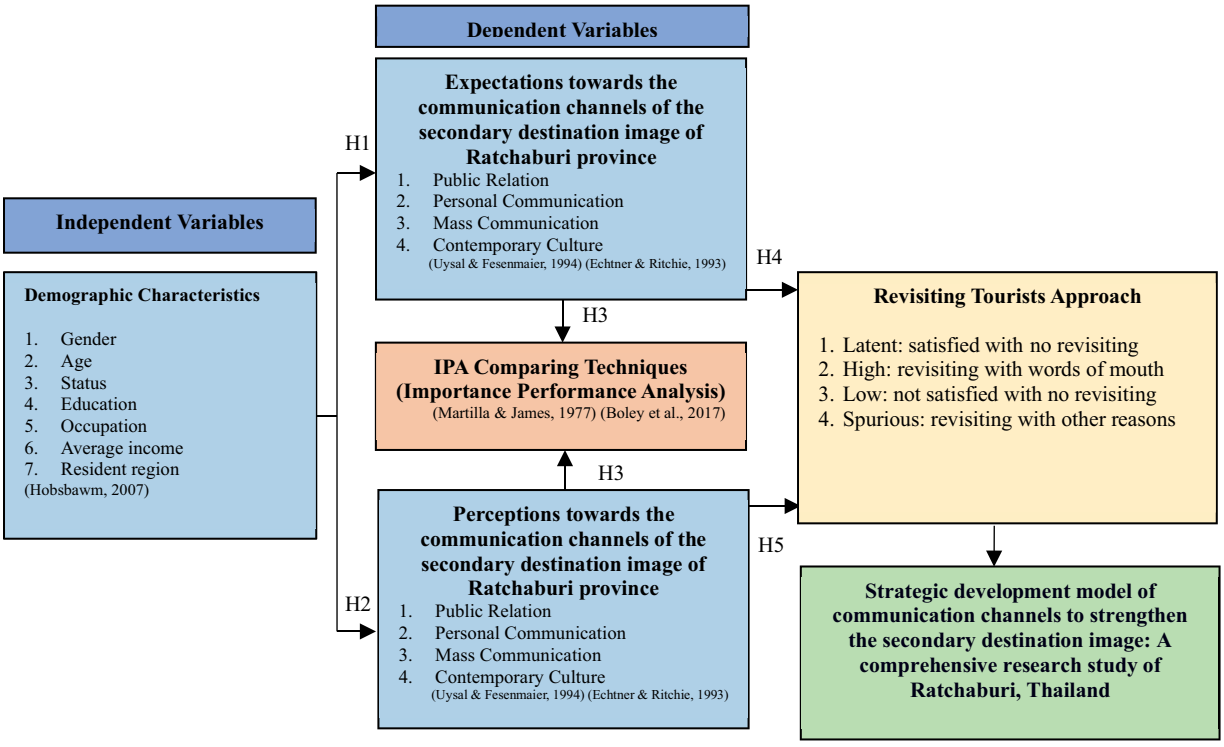


Figure 2 Research framework
Adapted from Saisud, R., Bunjongmanee, P., & Louang-on, A. (2023).

Table 1 Tourists' demographic characteristics (n = 400)

	Characteristics	Number	Percentage
Gender	Male	150	37.50
	Female	250	62.50
Age	Less than 21 years	32	8.00
	21–30 years	181	45.30
	31–40 years	111	27.80
	41–50 years	61	15.30
	51–60 years	7	1.80
	More than 61 years	8	2.00
Marital Status	Single	243	60.80
	Married	124	31.00
	Separated/Divorced	33	8.30
Education Level	Below bachelor's degree	181	45.30
	Bachelor's degree	193	48.30
	Master's degree	23	5.80
	Doctoral Degree	3	.80
Occupation	Student	59	14.80
	Employee	203	50.70
	Government/ State enterprises officer	41	10.30
	Private business owner	54	13.50
	Freelance	35	8.80
	Housewife/husband	8	2.00
Average Income per month	Less than 15,001 baht	215	53.80
	15,001–30,000 baht	130	32.50
	30,001–45,000 baht	39	9.80
	45,001–60,000 baht	11	2.80
	60,001 baht and over	5	1.30
Residence	Bangkok Metropolitan Region	55	13.80
	Central Region	126	31.50
	Northern Region	26	6.50
	Northeastern Region	29	7.20
	Eastern Region	14	3.50
	Western Region	58	14.50
	Southern Region	92	23.00

Table 2 Comparing expectations levels to demographic characteristics

Communication Channels	Demographic characteristics						
	Gender	Age	Status	Education	Occupation	Income	Residence
1. Public relation	.019*	.781	.809	.868	.282	.066	.009*
2. Personal communication	.449	.130	.067	.298	.060	.118	.005*
3. Mass communication	.962	.384	.010*	.474	.164	.083	.019*
4. Contemporary culture	.885	.281	.019*	.695	.093	.510	.003*
Summary of expectation	.565	.406	.055	.713	.076	.113	.003*
Summary of hypothesis	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Supported

Table 3 Comparing perception levels to demographic characteristics

Communication channels	Demographic characteristics						
	Gender	Age	Status	Education	Occupation	Income	Residence
1. Public relation	.017*	.014*	.100	.002*	.000*	.002*	.024*
2. Personal communication	.125	.004*	.730	.023*	.000*	.053	.014*
3. Mass communication	.614	.039*	.038*	.261	.000*	.156	.058
4. Contemporary culture	.514	.002*	.053	.072	.000*	.031*	.051
Summary of perception	.108	.002*	.158	.013*	.000*	.027*	.028*
Summary of hypothesis	Not supported	Supported	Not supported	Supported	Supported	Supported	Supported

Table 4 Comparative analysis of average expectation levels and perception

Comparative analysis of average expectation levels and perception towards communication channels	Statistical measures		
	$\bar{x}\,1 - \bar{x}\,2$	T	p
Pair 1 Public relation	.17313	5.082	.000*
Pair 2 Personal communication	.26500	7.871	.000*
Pair 3 Mass communication	.18812	5.154	.000*
Pair 4 Contemporary culture	.24500	6.913	.000*
Overall	.21781	7.492	.000*

Table 5 Relationship between expectations and repeat visitation

Communication channels	Repeat visitation	Summary of hypothesis
1. Public relation	.000*	Supported
2. Personal communication	.000*	Supported
3. Mass communication	.63	Not supported
4. Contemporary culture	.333	Not supported
Summary of expectation	.000*	Supported

A Chi-Square Test found a statistically significant relationship between expectations of communication channels and tourists' intention to revisit ($p < .05$). Specifically, public relations and personal communication showed the strongest relationships with repeat visitation. Therefore, Hypothesis 4 is supported.

Hypothesis 5: Perceptions are correlated with repeat visitation (Table 6)

A Chi-Square Test revealed that all four communication dimensions (public relations, personal communication, mass communication, and contemporary culture) were significantly related to tourists' intention to revisit ($p < .05$). The strongest correlations were observed in public relations and personal communication, reinforcing the importance of interactive and reputation-based communication strategies in influencing return visits. Therefore, Hypothesis 5 is supported.

The verification results of the research hypotheses are presented in Table 7. The findings indicate that most hypotheses are supported, except for H1, which is

Table 6 Relationship between perceptions and repeat visitation

Communication channels	Repeat visitation	Summary of hypothesis
1. Public relation	.000*	Supported
2. Personal communication	.000*	Supported
3. Mass communication	.000*	Supported
4. Contemporary culture	.000*	Supported
Summary of perceptions	.000*	Supported

Table 7 Verifying of research hypotheses

	Hypotheses	Supported	Rejected
H1	Different characteristics have different levels of expectation.		√
H2	Different characteristics have different levels of perception.	√	
H3	Expectations differ from perceptions.	√	
H4	Expectations are correlated with repeat visitation.	√	
H5	Perceptions are correlated with repeat visitation.	√	

rejected. Specifically, H2 and H3 confirm that differences in characteristics influence perception levels and that expectations significantly differ from perceptions. Furthermore, H4 and H5 demonstrate that both expectations and perceptions are positively correlated with repeat visitation. Overall, these results highlight the important role of perceived experiences and expectations in shaping tourists' behavioral intentions.

Qualitative results: Assessing the SWOT analysis from stakeholder perspectives regarding the secondary destination image of Ratchaburi, Thailand (Table 8)

SWOT Analysis from Stakeholder Perspectives

Strengths: Ratchaburi boasts a rich cultural heritage and strong local identity, which serve as foundational assets for enhancing its secondary destination image. The province's diverse landscape, including natural attractions and agricultural tourism, provides multiple avenues for sustainable tourism development. Ratchaburi's geographical proximity to Bangkok strengthens its domestic tourism appeal, making it a convenient getaway destination. Additionally, community engagement and local participation in tourism initiatives contribute to a strong sense of place, fostering an authentic tourism experience that aligns with modern travelers' preferences. Tourism-supportive policies and government incentives further bolster Ratchaburi's positioning as an emerging secondary destination.

Weaknesses: Despite its strengths, Ratchaburi faces significant infrastructural and connectivity challenges. Limited air and rail transport options restrict accessibility for international and long-distance domestic tourists, reducing its competitiveness against better-connected destinations. Reliance on seasonal tourism also poses economic instability, as fluctuations in tourist arrivals impact local businesses. Additionally, digital marketing strategies remain underutilized, limiting the province's ability to reach broader target markets and enhance destination visibility. Stakeholder feedback highlights inconsistent promotional efforts across communication channels, leading to fragmented branding messages that fail to establish a strong and unified destination identity.

Opportunities: Emerging domestic tourism trends present a promising avenue for growth. Increased interest in eco-tourism, cultural experiences, and community-based tourism aligns well with Ratchaburi's existing assets. The expansion of digital marketing strategies, including influencer collaborations, user-generated content, and targeted advertising campaigns, can significantly increase brand awareness and attract a broader audience. The potential introduction of integrated public transport solutions could enhance accessibility, making Ratchaburi more attractive to weekend travelers from major urban centers. Government initiatives promoting sustainable tourism and heritage conservation offer additional support for long-term tourism growth, ensuring that the province retains its unique cultural appeal while modernizing its tourism infrastructure.

Threats: The competitive nature of Thailand's tourism landscape presents significant challenges for Ratchaburi's secondary destination positioning. Established tourism hotspots such as Chiang Mai, Phuket, and Pattaya benefit from superior infrastructure and stronger international brand recognition, making it difficult for Ratchaburi to capture a substantial share of the tourism market. Economic fluctuations, including rising travel costs and inflation, may deter budget-conscious travelers. Additionally, environmental concerns and climate change impacts pose risks to natural attractions, necessitating sustainable tourism practices. Negative social media influence and misinformation could also affect tourists' perceptions, emphasizing the need for proactive digital reputation management and crisis communication strategies.

Undoubtedly, the SWOT analysis underscores critical areas for strategic intervention in Ratchaburi's tourism development. Addressing transportation and digital marketing limitations should be prioritized to enhance accessibility and global brand visibility. Investing in sustainable tourism initiatives and community-driven experiences will further strengthen Ratchaburi's appeal

Table 8 Interview summary of the representatives involved in planning strategies.

Topic/Questions	Interview results
1. The current destination image and Brand DNA of Ratchaburi province.	The current destination image among Thai tourists is popular to prefer domestic tourism. It features Brand DNA or unique characteristics such as being a dragon jar city that has developed to offer diversity in contemporary arts, a city of beauty (as per the slogan of Ratchaburi province), an agricultural city with green practices, a repository of royal knowledge, and diverse tourist attractions including nature, cultural arts, and the 8 ethnic tribes. Additionally, the new generation of entrepreneurs represented by YEC presents various activities that combine contemporary arts, such as running events that showcase cultures and arts.
2. Strengths of Ratchaburi province to enhance its destination image.	The city has never experienced major flooding incidents, making it a safe destination for agriculture. It is a must-visit location for arts and culture, as it is the birthplace of Ratchaburi's local arts. Additionally, tourists can enjoy accommodation, restaurants, drawing and sculpting activities, as well as pottery workshops. These workshops offer do-it-yourself (DIY) activities, souvenirs, and relatively affordable living costs.
3. Tourism potential of Ratchaburi province over the next 5–10 years (6As)	*Accessibility:* During the pre-arrival period, technology and business innovation facilitate decision-making and enhance travel experience. However, due to the remote nature of tourist destinations, private cars are essential for transportation. *Attraction:* The destinations offer both natural and man-made attractions with the potential to appeal to tourists of all genders and ages. *Amenities:* The development of tourist attractions leads to the establishment of public facilities and other conveniences to accommodate the increasing number of tourists. *Ancillary Services:* Technology and innovation systems ensure that various services at tourist attractions are modern and capable of meeting the tourists' needs. *Accommodation:* The increased and distributed number of accommodations enables the fulfillment of tourists' needs. *Activities:* There is a wide variety of activities suitable for families and Generation Y tourists, catering to all types of tourists and encouraging them to prolong their stay, resulting in repeat visits and word-of-mouth recommendations.
4. Policies and projects to promote destinations in Ratchaburi province	Most of the stakeholders recommend policies promoting sustainable community tourism and secondary destination through various event activities, as well as policies granting privileges to tourism operators in secondary destinations, such as sales promotion policies and TAT's secondary destination marketing stimulation policies. Additionally, projects to organize sports tourism activities. Challenges and obstacles include a lack of integration between sectors, access to needs, local behavior issues, tourist behavior, and budget constraints in the area.
5. Integrated communication channels for destination image.	*Public Relations:* The main goal is to raise awareness by creating engaging and easily understandable content. This content is then distributed through various communication channels, with a focus on media projects at both the local and national levels. *Personal Communication:* The emphasis is on integration to improve destination capabilities through responsive interactions that are based on genuine intentions. This can be quite challenging and involves the use of centralized media and collaborative communication formats. *Mass Communication:* It is aimed at presenting accurate, unaltered information and promoting the destination image through all mass communication channels. *Contemporary Cultures*: The focus is on creatively presenting history and customs that are adapted to the present context to encourage youth participation. Additionally, it involves showcasing the arts of Ratchaburi province in the decoration of tourist sites, streets, and local homes.
6. Recommendations	The focus of communication should be on inter-target group communication with accurate and rapid dissemination of information. Secondary destinations should have distinctive branding. To promote Ratchaburi province as the secondary destination, social media should be used as it is a fast and influential channel for spreading information, including through influencers. Regular meetings and joint field surveys of tourist attractions should be conducted. Continuous monitoring and evaluation should be carried out to drive further development. The budget should be allocated comprehensively to promote the destination. Collaborative content creation across all sectors is essential. Considering the benefits of high-speed rail projects is important. Tourist trains that follow tourism routes with tour guides should be made available.

to modern travelers. By leveraging its cultural heritage, expanding its marketing reach, and improving its infrastructure, Ratchaburi can transition from a lesser-known destination to a recognized secondary tourism hub in Thailand. Future research should explore sustained branding impact and evolving digital strategies to ensure sustained tourism growth.

The CREATIVE Model Components

The CREATIVE model offers a structured approach to enhancing Ratchaburi's secondary destination image through strategic communication. Each component plays a vital role in reinforcing tourism branding, stakeholder collaboration, and sustainable growth.

1. Co-creation (C): Interactive Destination Experience: Encourages stakeholder and tourist collaboration to create immersive and meaningful travel experiences. By integrating user-generated content (UGC), digital storytelling, and local engagement, destinations can foster deeper emotional connections and brand loyalty.

2. Responsibility (R): Sustainable and Ethical Tourism: Promotes eco-conscious tourism practices, ensuring minimal environmental impact and community well-being. Communication strategies should emphasize responsible travel behavior, cultural preservation, and sustainability-driven initiatives.

3. Engagement (E): Multi-platform Communication: Optimizes content dissemination through social media, influencer marketing, and AI-driven storytelling. Data-driven strategies enhance tourist interaction, destination visibility, and long-term engagement.

4. Authenticity (A): Cultural Identity and Experience: Showcases local heritage, traditions, and unique tourism assets to reinforce destination distinctiveness. Culturally rooted branding strengthens trust and emotional appeal, leading to higher visitor retention.

5. Trust (T): Credible and Transparent Communication: Enhances traveler confidence and brand reliability through accurate information, transparent messaging, and positive word-of-mouth marketing. Addressing safety, accessibility, and service quality fosters greater visitor trust.

6. Innovation (I): Smart Tourism and Digital Transformation: Leverages AI, big data, and virtual tourism solutions to create personalized, real-time engagement. Digital integration enhances destination competitiveness in a rapidly evolving travel landscape.

7. Validation (V): Data-Driven Decision-Making

Utilizes real-time market intelligence, consumer sentiment analysis, and competitor benchmarking to refine branding strategies. A robust tourism database enables adaptive and evidence-based communication planning.

8. Execution (E): Policy Integration and Stakeholder Collaboration: Ensures alignment between tourism policies, communication strategies, and industry best practices. A tourist-centric governance model, involving both public and private sectors, enhances destination management efficiency.

The CREATIVE model, as illustrated in Figure 3, serves as a strategic blueprint for strengthening Ratchaburi's destination branding, integrating digital innovation, stakeholder collaboration, and consumer engagement to create a dynamic and sustainable tourism ecosystem. By aligning cutting-edge marketing strategies with responsible tourism practices, the model provides a scalable and adaptive framework that enhances destination competitiveness, visitor satisfaction, and long-term economic resilience. Its multidimensional approach ensures that Ratchaburi can effectively position itself as a distinctive secondary destination, fostering sustained tourism growth while preserving cultural authenticity and environmental integrity.

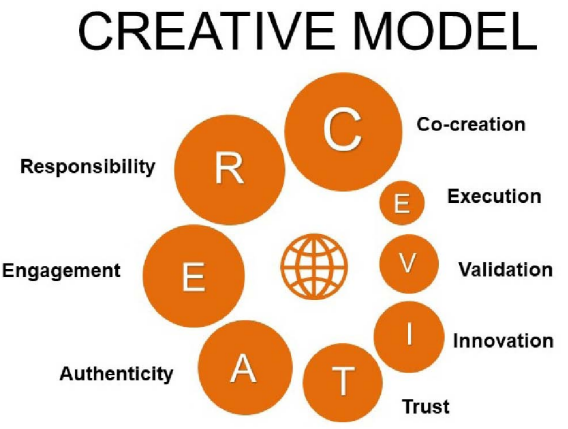


Figure 3 CREATIVE model of strategic development model of communication channels

Discussion

Indisputably, the findings underscore the critical role of communication channel optimization in strengthening the destination branding of secondary tourism markets. Aligning with prior research (Ritchie & Crouch, 2003), this study confirms that enhanced PR efforts, digital marketing innovations, and influencer collaborations

significantly shape tourists' brand perceptions and engagement. To address these dynamics, the CREATIVE model presents a strategic, action-oriented framework for policymakers and tourism stakeholders, integrating eight key components: Co-Creation, which fosters multi-stakeholder collaboration to enhance branding impact; Responsibility, ensuring sustainable tourism policies for long-term viability; Engagement, which strengthens interactive marketing strategies for deeper audience connection; Authenticity, preserving cultural heritage as a core branding element; Trust, building reliable and transparent communication networks; Innovation, leveraging AI-driven marketing tools for enhanced digital engagement; Validation, establishing continuous feedback loops to refine branding effectiveness; and Execution, implementing measurable branding success indicators to ensure long-term strategic growth. By applying this structured model, Ratchaburi can position itself as a competitive secondary destination, enhancing its tourism appeal, market differentiation, and brand sustainability in an increasingly digital-driven global tourism landscape.

Based on these findings, several strategic recommendations emerge. First, Ratchaburi Province should proactively strengthen its communication channels to enhance its secondary destination image. A cohesive tourism development plan, informed by research insights, will help attract high-value tourists who appreciate the province's cultural and natural heritage. Employing multi-dimensional models and integrating them into sustainable development strategies is essential for ensuring responsible tourism growth (Clayton, 2002).

Second, the Tourism Authority of Thailand and Ratchaburi Provincial Office must take a leading role in revitalizing Ratchaburi's tourism sector. Collaboration across tourism industry stakeholders can increase competitiveness in global markets by merging resources, sharing knowledge, and enhancing collective market power (Garbelli & Gabriele, 2021). These efforts must align with a strategic communication framework that effectively strengthens Ratchaburi's destination appeal. The provincial office should serve as a central hub for communication, fostering information exchange, experience sharing, and coordinated marketing efforts. The integration of both conceptual and practical strategies provides tourism marketers with valuable tools for developing data-driven marketing campaigns (Uysal & Fesenmaier, 1994).

Third, entities involved in tourism-marketing and strategic planning should incorporate big data analytics into their decision-making processes. Social media platforms offer a rich source of consumer insights, allowing tourism boards to fine-tune their communication strategies (Liu et al., 2022). The integration of social media data, digital engagement analytics, and AI-driven marketing tools will support the formulation of comprehensive tourism management plans, helping Ratchaburi establish itself as a highly desirable cultural and ecological tourism destination.

Fourth, while opportunities for tourism growth exist, key challenges must be transformed into strategic opportunities. These challenges include governance over tourism facilities, natural and cultural asset protection, infrastructure improvements, environmental sustainability, and regulatory structures (Jugmohan et al., 2016). Addressing these concerns is crucial to developing a resilient and sustainable tourism industry.

Finally, community engagement is essential. Residents should be actively involved in promoting and educating others about Ratchaburi's tourism potential. This aligns with the growing recognition that community participation is vital for sustainable tourism success. Strengthening collaboration between academia, policymakers, industry stakeholders, and local communities ensures that tourism growth benefits all sectors equitably (Wondirad & Ewnetu, 2019). By fostering a shared vision and facilitating knowledge-sharing platforms, local communities can take an active role in tourism governance and branding initiatives. Essentially, strengthening the tourism image of Ratchaburi's secondary cities will enable residents and businesses to capitalize on the tourism sector's economic benefits while preserving the province's cultural and natural assets. Effective communication strategies can drive sustainable income, enhance destination competitiveness, and foster a thriving tourism industry.

Substantially, this research contributes both theoretical and practical insights into destination branding by offering an integrated strategic framework (CREATIVE model) for secondary destinations. Future research should explore sustained branding impact and evolving digital marketing strategies to ensure sustained tourism growth in Ratchaburi and similar emerging destinations.

Conclusion and Recommendation

This study highlights the critical role of data-driven communication strategies in enhancing Ratchaburi's destination image, demonstrating that strategic communication efforts significantly influence tourists' perceptions and revisit intentions. The findings underscore

the importance of targeted branding approaches for secondary destinations, offering theoretical and practical implications for destination branding, tourism management, and stakeholder engagement. To maximize Ratchaburi's tourism potential, policymakers, tourism boards, local businesses, and community stakeholders must collaboratively implement strategic communication initiatives that leverage digital transformation and AI-driven marketing tools for real-time audience engagement.

To strengthen Ratchaburi's branding and tourism appeal, multi-stakeholder collaboration must be prioritized, integrating local businesses, policymakers, digital marketing experts, and community representatives into a cohesive tourism development strategy. Digital and social media strategies should be enhanced through social media analytics, influencer partnerships, and AI-powered marketing tools to improve brand visibility and engagement. Furthermore, sustainable tourism models must be developed, ensuring that cultural preservation and environmental sustainability are embedded into branding efforts to prevent the depletion of local resources. Tourism boards should optimize communication channels, deploying targeted marketing campaigns across digital, traditional, and experiential platforms to expand outreach and engagement. Community participation remains essential, as empowering residents in tourism planning and digital storytelling enhances authenticity and trust in branding strategies. Future research should conduct sustained studies to assess the long-term impact of communication strategies on tourist engagement and destination image retention, ensuring sustained branding effectiveness. Additionally, destinations must adapt to market fluctuations and external shocks, developing resilient tourism policies that mitigate the effects of seasonality, pandemics, and economic disruptions.

For future research, international tourist perspectives should be explored, comparing market segment perceptions of destination branding strategies. Further studies should also examine the impact of AI and big data analytics in shaping digital marketing effectiveness. Comparative analyses of secondary destinations in Thailand and other global regions will provide deeper insights into effective communication and branding frameworks. By leveraging innovative communication strategies and stakeholder-driven branding models, Ratchaburi can position itself as a competitive secondary destination, ensuring sustainable tourism growth and long-term economic resilience.

Conflict of Interest

The author declares that there is no conflict of interest.

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Empowering Community Training centers in Besuki: The role of strategic partnerships for independence and sustainability

Lutfi Ariefianto[a,*], Ali Imron[a,†], Sri Wahyuni[b,†], Teguh Triwiyanto[a,†], Bambang Budi Wiyono[a,†]

[a] *Department of Educational Administration, Faculty of Education, Universitas Negeri Malang, Jawa Timur 65145, Indonesia*
[b] *Department of Non-Formal Education, Faculty of Education, Universitas Negeri Malang, Jawa Timur 65145, Indonesia*

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Abstract

This research is concerned about the strategic partnership and performance evaluation, covering self-sufficiency and sustainability of the community training centres (BLKK) in Basuki Regency, Indonesia, with special reference to decreasing effectiveness of state funding. There is an immediate concern to be solved which is the self-sufficiency of these institutions and sustainability of their activities in the current context. As many as 80 managers of BLKK were interviewed, and a combination of documentary analysis, ordinary observation, and checking questionnaires were used. The focus group members articulated that, synergy with educational, formal sector, industrial, and local community is anticipated to improve autonomy from government control. It was revealed that the relationships with the community had the greatest impact on operational management independence and relationships with the government agencies were most important for financial independence. The results provide practitioners and policymakers an argument for forging the necessary strategic alliances, which should be considered of utmost importance for the existence of the NAOs in the long term. These centres train and prepare people with skills in areas of practical interest in cooperation with industry for the benefit of the Indonesian Economy. This work will set the stage for future work that aims to make community and vocational training interventions more effective.

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Introduction

In recent years, the significance of vocational education and training has garnered substantial attention, particularly in developing countries such as Indonesia. Community Of Vocational Training Centers, known as Balai Latihan Kerja Komunitas (BLKK), play a crucial role in delivering vocational training aimed

* Corresponding author.
E-mail address: lutfi.ariefianto.2201329@students.um.ac.id (Ariefianto, L.)
† Co-first authors.

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at enhancing the skills and employment prospects of workers (Wispandono et al., 2020). Nevertheless, these centres face numerous challenges, including insufficient government support and funding cuts, which jeopardize their sustainability and operational autonomy. The objective of this study is to investigate the role of strategic partnerships in bolstering the independence and sustainability of Balai Latihan Kerja Komunitas in Basuki Regency, Indonesia.

Background

The landscape of vocational education in Indonesia has undergone significant transformations, with an increasing recognition of the necessity for a skilled workforce to facilitate economic development. In this context, Balai Latihan Kerja Comunitas are pivotal, as they provide essential training programs tailored to the requirements of the local industry (Suharno et al., 2020). However, the sustainability of these centers is compromised by declining government funding and assistance. Consequently, many Balai Latihan Kerja Comunitas struggle to sustain their operations and fulfill their mission of equipping individuals with the requisite skills for the labor market. The challenges faced by these centers are multifaceted, encompassing inadequate financial resources, limited access to modern training facilities, and a lack of collaboration with industry stakeholders. These issues underscore a notable gap in the existing literature regarding methods that can enhance the operational independence of these training centers (Esangbedo et al., 2023). Although prior studies have acknowledged the importance of partnerships in vocational education, there is a lack of comprehensive research that specifically examines the types of partnerships that can effectively contribute to the sustainability of Balai Latihan Kerja Comunitas in the Besuki region.

Research Problem

The primary research problem addressed by this study is the sustainability and independence of Balai Latihan Kerja Comunitas in Besuki Regency in the context of diminishing government support. Existing literature indicates that strategic partnerships with various stakeholders, including government agencies, industry actors, and community organizations, can significantly enhance the operational capabilities of these training centers (Permatasari et al., 2024). However, there is a paucity of empirical evidence regarding how these partnerships can be effectively utilized to improve the independence and sustainability of Balai Latihan Kerja. This knowledge gap necessitates a comprehensive investigation into the nature of these partnerships and their impact on the effectiveness of the activities conducted by Balai Latihan Kerja Komunitas.

Research Gap

Despite the recognized importance of strategic partnerships in vocational education, there is a significant lack of research examining the dynamics of such partnerships within the framework of Balai Latihan Kerja Komunitas (BLKK) in Indonesia. The majority of existing studies have primarily focused on the general benefits of collaboration in educational contexts, overlooking specific types of partnerships that could enhance the sustainability of vocational training centers (Mahapatra & Ravichandran, 2023). Furthermore, there is limited understanding of methodologies for evaluating independence and sustainability within the context of BLKKs, which constrains the ability to assess the effectiveness of various partnership strategies. This study aims to address these deficiencies by providing a comprehensive analysis of the role of strategic partnerships in enhancing the independence and sustainability of BLKKs in Besuki.

Purpose of the Study

The primary objective of this study is to investigate the role of strategic partnerships in promoting the independence and sustainability of BLKKs in Besuki Regency (Olutimehin et al., 2024). To achieve this overarching goal, the study will focus on the following specific aims:

1. Identify the Types of Partnerships: Classify the various types of partnerships that BLKKs may establish, including collaborations with governmental agencies, industry stakeholders, and community organizations.
2. Assess the Impact on Independence: Evaluate the extent to which these partnerships contribute to the operational independence of BLKKs, particularly in terms of financial stability and resource allocation.
3. Measure Sustainability: Develop metrics to assess the sustainability of BLKKs, with an emphasis on factors such as program effectiveness, graduate employment, and community engagement.
4. Explore Partnership Dynamics: Analyze the dynamics of partnerships between BLKKs and their stakeholders, identifying best practices and potential

challenges associated with collaboration.

5. Provide Recommendations: Offer actionable recommendations for BLKKs and policymakers aimed at fostering effective partnerships to enhance the independence and sustainability of vocational training centres.

Research Questions

To further clarify the study's objectives, the following research questions will guide the investigation Almarri (2024):

1. What types of strategic partnerships have BLKKs currently established in Besuki, and how do these partnerships evolve concerning stakeholder involvement?
2. How do these partnerships affect the operational independence of BLKKs, particularly regarding financial resources and program development?
3. What metrics can be employed to evaluate the sustainability of BLKKs, and how do these metrics correlate with the effectiveness of partnerships?
4. What are the key factors that facilitate or impede successful partnerships between BLKKs and their stakeholders?
5. What recommendations can be proposed to enhance the effectiveness of strategic partnerships in promoting the independence and sustainability of BLKKs?

Literature Review

In this context, Community Of Vocational Training Centers in Indonesia (BLKK) represent a significant issue of sustainability and self-sufficiency that has garnered substantial attention in recent years, particularly as these institutions face challenges arising from decreasing government support for their funding (Berchin et al., 2021). The existing literature underscores the critical importance of strategic partnerships in enhancing the operational efficiency and financial independence of Community Of Vocational Training Centers in Indonesia (BLKK). Strategic partnerships involve collaborative efforts between two or more organizations aimed at achieving mutually beneficial objectives (T2). These partnerships may be established with a diverse array of entities, including educational institutions, governmental agencies, and private sector organizations.

For instance, local businesses can play a vital role by providing internships and job placements for trainees, aligning training programs more closely with the demands of the labor market. Such collaborations not only enhance the employability of graduates but also ensure that the training provided is responsive to local economic needs. Industry partnerships are essential to the effectiveness of vocational training programs in Indonesia (Pianda et al., 2024). When vocational training programs are developed in close collaboration with active industry participants, the likelihood of successful outcomes is significantly increased (T3). Community engagement is crucial to the success of BLKKs in Indonesia. Involving local leaders and groups is instrumental in securing the necessary support for training initiatives to achieve self-sustainability (T4). By effectively leveraging local skills, resources, and networks, BLKKs can design training programs that are relevant to the needs of their communities.

Local communities are integral to the success of vocational training centers (BLKKs). Engaging local leaders and organizations is essential for securing the support necessary to ensure the sustainability of training projects. In Indonesia, educational initiatives are shaped by a diverse array of socio-cultural and economic factors. BLKKs leverage their expertise and local resources to develop training programs tailored to the needs of the community. Public institutions play a critical role in sustaining BLKKs by providing funding, resources, and support for collaborative initiatives that enhance operational capacity (Sari et al., 2024). Effective government involvement is paramount for facilitating access to funding and expertise, thereby improving the functionality of BLKKs. However, existing literature highlights a need for improved coordination among policymakers to ensure consistent support for BLKKs. The current landscape reveals disparities in funding and support, underscoring the necessity for a more integrated governmental approach. Addressing these challenges and fostering collaboration among policymakers can enhance the sustainability and success of BLKKs.

Daisem Butch Wird analyses organizations in relation to systemic connections, suggesting that the supranational level offers immediate networking opportunities. Many practitioners within BLKKs regard communities as vital resources. When communities endorse these initiatives, networks engage in fact-finding regarding necessary tasks, enabling organizations to expand their operations and effectively monitor their local environments (Helfat et al., 2023). It asserts that students can learn obstacle analysis and resource-based view (RBV) techniques to address the challenges faced by BLKKs. Developing timelines with BLKK sponsors can assist in identifying barriers in isolated contexts, such as resource availability and local conditions. In alignment with Social Capital

Theory, provide guidance on resource flow and strategic adaptation in the face of competition.

The literature supports using blended methods in research that integrate qualitative and quantitative approaches to provide a deeper understanding of complex topics. This approach allows for a thorough examination of the issue, enhancing the reliability and validity of the findings (Adhikari & Timsina, 2024). This study aims to explore the various dimensions of internationalization and its effects on the autonomy and self-sustainability of BLKKs through interviews, document reviews, fieldwork, and questionnaires.

Methodology

Research Design

This study uses a mixed-methods approach that combines qualitative and quantitative methods to investigate the role of strategic alliances in the independence and sustainability of Community Of Vocational Training Centers (BLKK) in Besuke Regency. This research design allows for data triangulation, which enhances objectivity, comprehensiveness, validity, and reliability.

Participates and Sampling

The study focuses on selecting all BLKs within Besuki Residency, which comprises 80 centers located in Jember (32 centers), Bondoso (16 centers), Situbondo (7 centers), and Banyuwangi (25 centers). A layered random sampling method was utilized to select 80 managers from these BLKK. The sampling frame was established using lists of all BLKs in Besuki Residency provided by the local education authority. Directors were chosen based on their roles and experience in managing BLKs. The sample size was calculated using a formula to estimate the population proportion, allowing for a margin of error of 5 percent and a confidence level of 95 percent. The selected directors were then contacted via email and phone to invite them to participate in the study.

Data Collection

The data collection process consists of several stages. Initially, a baseline survey was conducted to identify key stakeholders and contextualize the activities of BLKK. Documentary analyses were performed to examine relevant documents, including institutional reports and policies. Monitoring activities were carried out within training institutes and centres. Semi-structured interviews were conducted with 20 directors of BLKK, selected through objective sampling methods. These interviews took place in person at the managers' offices and lasted approximately 60 to 90 min. An interview guide was developed, incorporating open-ended questions that explored the managers' perceptions regarding strategic partnerships, independence, and the sustainability of BLKKs. With the participants' consent, the interviews were audio recorded and subsequently transcribed.

Questionnaires were disseminated electronically to 80 BLKK managers via Google Forms. The survey comprised 30 questions utilizing a combination of Likert scale, multiple-choice, and open-ended formats. Its aim was to gather information concerning the managers' perceptions of strategic partnerships, independence, and sustainability within BLKKs. The data collection spanned a period of six months. Baseline studies and documentary analyses were conducted during the first two months, while interviews took place in the third and fourth months. The distribution and collection of surveys occurred during the fifth and sixth months.

In terms of equipment and software, the audio recordings of the interviews were transcribed using NVivo software, and the survey data were analyzed utilizing SPSS version 23. The study employed two primary data collection instruments: An interview protocol and a survey questionnaire. The interview protocol served as a semi-structured guide aimed at exploring the perceptions of BLKK managers concerning strategic partnerships, independence, and sustainability. The survey questionnaire, consisting of 30 questions, integrating the Likert scale with a mix of multiple-choice and open-ended questions, specifically designed to gather insights on the same themes.

Semi-structured interviews were conducted with 20 directors of Balai Latihan Kerja (BLKK), selected through objective sampling methods. These interviews took place in person at the managers' offices and lasted approximately 60 to 90 min. An interview guide was developed, incorporating open-ended questions to examine the managers' perceptions regarding strategic partnerships, independence, and the sustainability of BLKKs. With participants' consent, the interviews were audio-recorded and subsequently transcribed. Questionnaires were distributed electronically to 80 BLKK managers via Google Forms. The survey comprised 30 questions employing a combination of Likert scale, multiple-choice, and open-ended formats. This instrument aimed to gather information on the

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Data Analysis

Qualitative data analysis

Thematic analysis was employed to examine qualitative data obtained from interviews. This process involved transcribing audio recordings of the interviews, coding and categorizing the data using NVIVO software, and identifying relevant themes and patterns related to strategic partnerships, independence, and the sustainability of Balai Latihan Kerja Komunitas (BLKKs). Quantitative Data Analysis: Descriptive and inferential statistics were utilized to analyze quantitative data collected from surveys. The analysis was conducted using SPSS version 23.00, which included descriptive statistics to summarize demographic data and inferential statistics (e.g., regression analysis) to investigate relationships between variables.

Context and limitations

The research was conducted within the context of BLKKs in Besuki Regency, which face specific challenges related to sustainability and independence. The findings of the study are limited by the managers' reliance on self-reported data, which may be prone to bias and other inherent limitations. Future research may benefit from incorporating additional data sources, such as observational data or financial records, to enhance the validation of the results.

Results

An evaluation of data collected from 80 Balai Latihan Kerja Komunitas (BLKK) centers in Besuke Regency has revealed significant insights into strategic partnerships and their impact on the independence and sustainability of these community training centres (Winnie & Mary, 2024). The findings underscore the importance of various partnerships in enhancing the operational capacity of BLKKs, particularly in the context of diminishing government support.

Overview of Data Collection and Analysis

This study employs a mixed-methods approach, utilizing both quantitative and qualitative data collection techniques. Quantitative data were gathered through questionnaires administered to 80 managers of BLKK, while qualitative insights were derived from interviews and thematic analysis. The quantitative analysis involved a series of linear regressions to investigate the relationship between specific independent variables (types of partnerships) and dependent variables (operational independence) (Abuhamda et al., 2021). The R-squared value was estimated at .394, indicating that the patterns of established partnerships account for approximately one-third of the operational independence of these institutions. In discussing the finding that "government partnerships contribute 60 percent to financial stability," it is essential to elaborate on the significance of this figure. An explanation of how this reliance on government funding impacts the operational strategy of BLKKs, their capacity for innovation, and their long-term performance is warranted. Furthermore, comparing these findings with those related to industry or community partnerships can provide context and underscore the unique role of government support.

Quantitative Data

For each quantitative result, including regression coefficients and p-values, it is vital to clarify what these represent in relation to the operational independence of BLKKs. For example, a coefficient of .45 for government partnerships indicates a strong positive correlation, suggesting that an increase in this type of partnership could lead to a significant enhancement in financial autonomy. Discussing the implications of these relationships will aid readers in understanding their importance.

Regression Analysis of Strategic Partnerships

The regression analysis provided a comprehensive view of the influence of various types of partnerships on the operational independence of BLKKs. The results are summarized in Table 1, which displays the regression coefficients for different partnerships.

Table 1 Regression Coefficients for Strategic Partnerships

Type of Partnership	Coefficient	*p*-value
Government	.45	.002
Industry	.35	.005
Community	.20	.075
Academia	.15	.120

The findings indicate that government partnerships exhibit the highest coefficient (.45) and a statistically significant *p*-value (.002), suggesting that these partnerships are crucial for enhancing the operational independence of BLKKs. Industry partnerships also show a strong positive relationship (.35, *p*-value .005), highlighting their importance in providing resources and aligning training programs with market demand. In contrast, community partnerships, while beneficial, have a *p*-value of .075, indicating a less substantial impact compared to government and industry partnerships. Academic partnerships, with a coefficient of .15 and a *p*-value of .120, reflect a weak influence on operational independence.

The Importance of Government Partnerships

The analysis reveals that government partnerships play a significant role in the financial sustainability of BLKKs, accounting for approximately 60 percent of their operational funding. This finding underscores the essential role of government support in the functioning of these institutions. The implications of this are extensive: Resource Allocation: Government partnerships often provide essential funding and resources critical for the daily operations of BLKKs. This financial support enables these centres to invest in infrastructure, training materials, and qualified instructors, which are vital for delivering high-quality education. The reliance on public funding emphasizes the necessity of maintaining strong relationships with government agencies to ensure ongoing support.

Legitimacy and credibility

Government affiliation lends legitimacy to BLKKs, making them more attractive to prospective students and industry partners. When a training center is recognized and supported by the government, it enhances its credibility within the community and among employers. This can lead to increased enrollment and improved job placement rates for graduates, as employers are more likely to trust the training provided by government-supported institutions.

Policy impact

Strong government partnerships may provide BLKKs with a voice in policy discussions related to vocational education and training. By collaborating with government agencies, these centers can advocate for policies that benefit their operations and the communities they serve. Such influence could result in more favorable funding conditions and greater support for vocational training initiatives.

Introduction to Industry Partnerships

Industry partnerships are recognized as the second most significant contributor to the operational independence of BLKKs (Balai Latihan Kerja Komunitas). This analysis shows that these partnerships play a crucial role in aligning training programs with market demand, thereby enhancing the employability of graduates. The benefits of industrial partnerships include:

- Relevance of training programs: Collaborating with industry ensures that the training programs offered by BLKKs align with current labor market needs. This alignment increases the chances of graduates securing employment, as they acquire the skills that employers seek.
- Resource sharing: Industry partners often provide valuable resources, such as training materials, tools, and expertise, which can enhance the quality of education at BLKKs. Sharing these resources can lead to more effective training programs and improved outcomes for students.
- Internship and job placement opportunities: Industry partnerships can facilitate internship and job placement opportunities for students, offering them practical experience and boosting their employability. This connection between education and employment is critical to the success of vocational training programs.

Community and Academic Partnerships

Although community and academic partnerships have a limited impact on operational independence, they still play an essential role in the overall effectiveness of

BLKKs. Qualitative insights from interviews with BLKK directors revealed the following:

- Community engagement: Community partnerships can enhance the relevance of training programs by ensuring they address local needs and priorities. Involving the community allows BLKKs to tailor their offerings to better serve the public, thereby increasing enrolment and support.
- Academic collaboration: Collaborating with academic institutions can improve the quality of training programs by integrating research and best practices into the curriculum. However, the findings suggest that the current structure of academic partnerships may not fully meet the operational needs of BLKKs, indicating potential growth areas.
- Growth potential: The limited impact of community and academic partnerships highlights an opportunity to strengthen collaboration with these stakeholders. Enhancing community relationships and building partnerships with academic institutions can provide additional support and resources, ultimately improving the overall sustainability of BLKKs.

Qualitative Insights from BLKK Managers

Interviews conducted with managers of BLKK provided qualitative corroboration for the quantitative findings. The directors underscored the significance of government support in facilitating effective resource allocation and enhancing operational efficiency. They noted that while partnerships within the industry are instrumental in aligning training programs with market demand, strong collaboration with community and academic organizations is essential for augmenting the overall effectiveness of the training program. Moreover, the managers emphasized the critical importance of establishing and nurturing strategic relationships, particularly with government and industry partners. They articulated the need for more structured support from these entities to ensure the long-term viability of their institutions.

Implications of Results

These study results have several policy implications worth noting:

- Development of Policies: The implications of this policy pertain to the necessity of fortifying partnerships between governmental entities and industry lobbies. By enhancing collaboration between training institutions and other key stakeholders, BLKKs can attain greater sustainability and operate with increased autonomy.
- Management of Strategic Partnerships: The findings underscore the paramount importance of effectively managing strategic partnerships. It is essential for training institutions to establish systems for planning, organizing, implementing, and evaluating partnerships to mitigate excessive dependence on governmental support.
- Future Research Directions: The article emphasizes the need to examine community involvement in the BLKK's mission from a dynamic perspective and its ramifications for the sustainability of BLKKs. The effective utilization of community partnerships could enhance the efficacy of training programs.

In conclusion, this research provides specific insights into the contributions of strategic alliances for all stakeholders regarding the increased autonomy and, most notably, the sustainability of Community Of Vocational Training Centers located in the Besuki Regency. This understanding serves as a foundation for stimulating further efforts aimed at empowering these institutions in the future. The findings advocate for a shared responsibility in the management of training centres, positing that effective collaborative relationships are prerequisites for achieving sustained and meaningful impact within the targeted communities.

Implications for Policy and Practice

The findings of this study carry significant implications for practitioners and policymakers. For practitioners, the results underscore the necessity of prioritizing the development and maintenance of strategic relationships, particularly with governmental and industrial partners. This focus is critical not only for securing funding and resources but also for ensuring that training programs remain relevant and effective. For policymakers, the study highlights the importance of supporting vocational training initiatives through governmental partnerships. By recognizing the crucial role these partnerships play in the sustainability of BLKK, policymakers can devise strategies to enhance support for vocational education and training.

Discussion

The findings of this study provide significant insights into the role of strategic partnerships in enhancing the independence and sustainability of Community Of Vocational Training Centers (BLKK) in Basuki Regency. The results indicate that while partnerships with

government and industry are crucial for the operational viability of these centres, community partnerships appear to be less impactful (Bowser et al., 2024). This discussion aims to interpret these findings, relate them to existing literature, and provide actionable recommendations for practitioners and policymakers.

Interpretation of Findings

The research reveals that partnerships with government agencies and industry stakeholders significantly contribute to the financial sustainability and operational independence of BLKKs. This aligns with previous studies that emphasize the importance of such collaborations in vocational education. Government partnerships provide essential resources and legitimacy, while industry linkages ensure that training programs remain relevant to labor market needs, thereby enhancing graduate employability.

Conversely, the study finds that community partnerships have been less impactful. This raises questions regarding the nature and effectiveness of these collaborations. One possible explanation is that community organizations may lack the resources or influence necessary to provide substantial support to BLKKs. Previous research has highlighted similar trends, indicating that while community involvement is beneficial, it often fails to meet the operational requirements of vocational training centres. This suggests a need for a more structured approach to community engagement, in which roles and expectations are clearly defined.

Comparison with Existing Literature

The findings of this study contribute to the existing body of literature on vocational education and training by highlighting the varying impacts of different types of partnerships. While prior studies have generally acknowledged the benefits of collaboration in education, this research delves deeper into the specific dynamics of partnerships within the context of BLKKs in Indonesia. The emphasis on government and industry partnerships corroborates findings from other regions, where similar trends have been observed (Wang et al., 2024). However, the limited effectiveness of community partnerships contrasts with some literature that advocates for strong community involvement in vocational training. This discrepancy may stem from contextual differences, such as the socio-economic conditions of the communities involved or the specific challenges faced by BLKKs in Basuki. Understanding these contextual factors is crucial for interpreting the findings and their implications for practice.

Implications for Practice

The findings of this study carry substantial implications for practitioners and policymakers engaged in vocational education. Primarily, it is imperative for Balai Latihan Kerja Komunitas (BLKKs) to prioritize the development and maintenance of strategic relationships, particularly with government and industry partners. This focus is essential not only for securing funding and resources but also for ensuring that training programs remain relevant and effective (Gandrita, 2023). To strengthen government partnerships, BLKKs should engage in proactive communication with policymakers, advocating for policies that support vocational training initiatives. This may involve presenting data on the impact of training programs on local employment rates and economic development, thereby demonstrating the value of sustained investment in these centres.

Regarding industry partnerships, BLKKs should collaborate with local businesses to co-develop training programs that align with market needs. This approach not only enhances the employability of graduates but also fosters a sense of ownership among industry stakeholders, who may be more inclined to offer financial and logistical support to the centres.

Recommendations for Strengthening Community Partnerships

In light of the findings concerning the limited impact of community partnerships, it is essential to explore strategies to enhance these collaborations. One recommendation is to establish community advisory boards that include representatives from local organizations, businesses, and residents. Such boards can provide valuable insights into community needs and assist in tailoring training programs accordingly. Additionally, BLKKs should consider joint initiatives with community organizations aimed at addressing local challenges, such as unemployment or skills gaps. By aligning training programs with community development goals, BLKKs can improve their relevance and effectiveness, thereby fostering stronger community support.

Addressing Challenges and Barriers

Implementing these recommendations may present

certain challenges. For instance, establishing effective partnerships requires time, effort, and resources that may be limited for many BLKKs. Furthermore, there may be resistance from community organizations that are accustomed to operating independently. To mitigate these barriers, BLKKs should adopt a phased approach to partnership development. This could involve initiating small, manageable projects that demonstrate the benefits of collaboration, thereby gradually building trust and commitment among stakeholders. Moreover, providing training and support for BLKK staff on partnership management can enhance their capacity to engage effectively with community organizations.

Broader Theoretical Implications

The findings of this study have significant implications for broader theories and concepts within the domain of vocational education and community development. The emphasis on strategic partnerships aligns with the theory of collaborative governance, which posits that effective collaboration among diverse stakeholders can yield improved outcomes in public service delivery. By applying this theory to the context of BLKKs, the study underscores the necessity of fostering collaborative relationships to enhance the sustainability of vocational training initiatives. Moreover, the findings contribute to the discourse on community development by highlighting the need for integrated approaches that engage multiple stakeholders. This approach is consistent with the principles of asset-based community development, which focuses on leveraging local resources and capacities to address community challenges. By involving local stakeholders in the development and delivery of training programs, BLKKs can cultivate a sense of ownership and commitment to the success of these initiatives.

This study offers valuable insights into the role of strategic partnerships in enhancing the independence and sustainability of BLKKs in Basuki Regency. While partnerships with governmental and industrial entities are critical for operational viability, community partnerships require further development to maximize their impact. By prioritizing strategic relationship-building and adopting a structured approach to community engagement, BLKKs can augment their effectiveness and contribute to the socio-economic development of their communities. The findings also emphasize the importance of considering contextual factors and existing literature in the interpretation of results, thereby enriching the discourse on vocational education and community development.

Future Research Directions

While this study provides important insights into the role of strategic alliances in enhancing the autonomy and sustainability of BLKKs, it also identifies several avenues for future research. First, further investigation is warranted to explore the specific mechanisms through which partnerships with industry and government contribute to the operational independence of training centres. Understanding these mechanisms can inform the development of best practices for partnership management. Second, future research should examine the impact of community engagement on training outcomes. Although this study emphasizes the significance of community involvement, additional empirical evidence is necessary to quantify its effects on the effectiveness of training programs. Longitudinal studies that track the performance of graduates from community-engaged training programs in comparison to those from traditional programs could provide valuable insights.

Third, there exists a substantial need for research that investigates the role of academic institutions in supporting vocational training centres. Understanding how academic partnerships can enhance the quality of training programs and contribute to the professional development of trainers is essential for constructing a more integrated vocational education ecosystem. Finally, comparative studies examining the experiences of vocational training centres across various regions or countries could yield valuable insights into the factors that contribute to successful partnerships. Such research could aid in identifying best practices and lessons learned that can be applied in diverse contexts.

This study highlights the critical role of strategic alliances in enhancing the autonomy and sustainability of Community Training Centres (BLKK) in Basuki. The findings underscore the importance of partnerships with government and industry, as well as the necessity for community engagement and academic collaboration. By adopting a partnership-driven approach, vocational training institutions can improve their operational independence and better address the needs of their communities (Masrurul, 2012). The implications of this research extend beyond the local context, offering valuable insights for vocational education and training institutions globally. As the field continues to evolve, further research is essential to explore the complexities of partnership management and its impact on training outcomes, ensuring that vocational education remains responsive to the changing demands of the labor market.

Conclusion

The findings of this study underscore the critical role of strategic partnerships in ensuring the sustainability and self-sufficiency of Community Of Vocational Training Centers (BLKK) in Basuki Regency. The research highlights that collaboration with government and industrial partners is not merely beneficial but essential for the survival of these institutions. By fostering such partnerships, BLKKs can decrease their reliance on government funding, thereby enhancing their operational viability. The evidence presented indicates that these collaborations serve as vital sources of funding and resources, enabling training programs to align more closely with market needs. This alignment is crucial, as it directly impacts the employability of graduates, ensuring that they possess the skills and competencies that employers seek.

However, the study also reveals significant gaps in the collaboration between communities and academic institutions. The existing partnerships in this domain are not as effective as they could be, indicating a pressing need for improvement. Strengthening these relationships is essential for addressing the operational requirements of BLKKs. A more integrated approach that incorporates community input and academic expertise can enhance the relevance and efficacy of training programs, ultimately benefiting both the participants and the local economy. To address these challenges, it is evident that a more complex and structured strategy for managing partnerships is required. BLKKs should consider adopting a formalized policy for partnership enhancement that clearly delineates objectives, functions, and measures of success. This structured approach will not only facilitate better management of existing partnerships but also promote the development of new ones. Involving local stakeholders through initiatives such as community advisory boards can further contextualize training programs, fostering a sense of ownership among participants and ensuring that the training provided aligns with local needs.

Moreover, it is imperative that curricula are developed collaboratively between industry and training partners. This joint effort will ensure that the training offered is relevant to current job market demands, thereby increasing the employability of graduates. By creating a curriculum that is responsive to the needs of the labor market, BLKKs can enhance their value proposition to both students and employers. The study also calls on authorities to recognize the significance of these collaborations and to formulate policies that foster an environment conducive to cooperation between training institutions and industry. Such policies could include providing grants and resources specifically aimed at supporting partnership growth. These policy measures would not only benefit BLKKs but also contribute to the overarching goal of enhancing vocational education in Indonesia.

Furthermore, the findings of this research extend beyond the context of Besuki. They offer valuable insights for similar training centres across Indonesia and in other countries facing comparable challenges. The strategies identified in this study can serve as a framework for enhancing the effectiveness of vocational education on a global scale. In conclusion, the establishment and management of strategic partnerships are essential for the sustainability of Community Of Vocational Training Centers (BLKK). By concentrating on collaborations with government entities, industry partners, and community stakeholders, these training centres can effectively address the challenges resulting from diminishing government support. The recommendations articulated in this study are designed to empower BLKKs to evolve into resilient institutions that not only facilitate economic growth but also foster social change within their communities. The insights gleaned from this research advocate for a partnership-driven approach to vocational education, underscoring the imperative for continuous research and development in this critical field.

Conflict of Interest

The authors declares that there is no conflict of interest.

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The mediation effect of employee's wellbeing of occupants in LEED certified and non-certified office buildings in Bangkok on IEQ and its impacts on employee's performances

Thanit Teawanit*, Aweewan Panyagometh†

Management, International College, National Institute of Development Administration, Bangkok 10240, Thailand

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Abstract

This study provides a comparison of the occupant and organizational benefits between LEED certified and NON-LEED certified office buildings located in Bangkok. This study examined the relationship among occupants' satisfaction toward indoor environment quality (IEQ), the employees' wellbeing, performance, engagement and their organizational commitment. Structural Equation Model (SEM) is used to analyze the relationship among the variables. The results showed that the satisfaction with the IEQ has a significant impact on employee's wellbeing and their performance for both certified and NON-LEED certified buildings. The effects are stronger in LEED certified buildings than NON-LEED certified buildings. Importantly, this study showed evidence that the employee well-being is a mediator between IEQ satisfaction and employee's performances, engagement and commitment. The evidence from this study can prove that a better IEQ in sustainable office buildings can increase the employee's performance. Moreover, working in sustainable buildings can enhance the better work environment for occupants, which leads to better employee well-being. Implications were discussed for a healthy workplace for an organization and escalating the number of sustainable developments in Thailand.

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Introduction

Sustainability is not a new concern for the real estate sector in Thailand; however, there have been only few adoptions of green building practices since 1990 (Chong, 2013). In 1997, Environmental Impact Assessment (EIA) was issued to assess the new developments. EIA has an objective to reduce the environmental problems

* Corresponding author.
E-mail address: tt.teawanit@gmail.com (Teawanit, T.).
† Co-first authors.

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along the construction period and after the project completion. The Minister of Energy issued the Green Building Energy Code (GBEC) in 2009 to promote the energy consumption standards for large buildings. The Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, started to enforce the most recent efficiency standards on newly construct projects in 2017, which aimed to monitor the energy consumption of large buildings in Thailand. There are various types of sustainable certification and standard that are attractive to the investors/developers and corporate occupiers/tenants in terms of value-added to the property and businesses. Those certifications/standards are assessed for both new construction and existing projects. By having the sustainable certifications, the investors/developers can ensure the rent premium and guarantee of energy efficiency (Cajias & Piasolo, 2013; Häkkinen & Belloni, 2011). There are many popular sustainable building certifications globally. Among the many certifications, Leadership in Energy and Environmental Design Certification or LEED Certification is the most popular international certification in Thailand. The certification will be given to the projects that satisfy the sustainable practices and criteria. Thailand's commercial property consumes over 30 percent of all the energy consumption and releases an enormous quantity of CO2 emission and GHG (Greenhouse Gas) emission (Sugsaisakon & Kittipongvises, 2021) especially in Bangkok, where the biggest business district is located clustered with many high-rise buildings that consume large amounts of energy and releases huge emissions. To reduce the number of emissions released into the atmosphere, the introduction of sustainable development is needed since such consumes less energy and pollutes less than conventional construction. However, there are few studies that investigate this issue and no comparative study. Therefore, this study aims to understand the effects of sustainable office buildings that have carried LEED certification in Bangkok compared those benefits with non-LEED certified buildings. The objective of this study is to investigate and compare the benefits (i.e., employee's performance, employee's workplace well-being, work engagement and organizational commitment) among LEED certified, and non-LEED certified office buildings located in Bangkok and compare those benefits with non-certified buildings. The previous studies are discussed in the next section. Then, the hypotheses are proposed, and research results presented in the following sections.

Literature Review

Sustainability is a broad concept that is used by many industries from consumer products to the real estate product. In ecology, the meaning of sustainable describes the production of any plant or animal products using farming techniques that protect the environment, public health, human communities, and animal welfare without compromising future generations' ability to do the same. Criteria of sustainable building cover a wide range of characteristics.

A sustainable building should be one which meets peoples' needs – as a home, or a workplace for example – in ways which enhance its positive impacts and minimize its negative impacts, environmentally and socially, both locally and globally over time.

Sustainable Measurement/Certification

There are several sustainable certifications available globally. The introduction to the sustainable certification started with BREEAM in 1990. BREEAM is a first sustainable rating system developed by Building Research Establishment in United Kingdom. The most widely used sustainability rating system for the property is LEED. LEED certification is a globally recognized symbol of sustainability achievement and leadership. LEED Certification is given to the property which satisfies the sustainable practices and criteria from U.S. Green Building Council. A LEED-certified building uses less energy and water, avoiding waste, saving on maintenance costs, improving indoor air quality, offering comfort to the occupants, and creating less environmental burden on the community. They also know that they are in a building that enhances health and wellness. In total, LEED has certified more than 100,000 projects worldwide. In Thailand, there is TREES standard. This standard was developed by two organizations, namely, Thai Green Building Institute (TGBI) from the cooperation of the association of Siamese Architects under Royal Patronage (ASA), and The Engineering Institute of Thailand under H.M. the King's Patronage. The TREES rating system is quite similar to LEED rating system. Those auditing and rating systems also share the common criteria and certification levels. In total, TREES has certified more than 193 projects in Thailand.

Lohmeng et al. (2017) studied the important key categories from different rating systems and they found that all of them have the same objectives which aim to create energy efficiency and healthy environment with

the least energy and resources. While LEED proposed 9 indicators of sustainable building including integrative process, location and transportation, sustainable site, water efficiency, energy and atmosphere, material and resources IEQ, innovation and regional priority, TREES shared 8 common indicators with LEED except for the Regional Priority.

Sustainable Buildings in Thailand

There are few case studies from Thailand on sustainable buildings. Shen et al. (2018) studied the capabilities and barriers of green technical on green buildings from the architects, engineers and consultants' perspectives. The top capabilities are rating system and skilled in energy system for the project's stakeholders while the barriers are from financial concerns, limited technology, and unsupportive promotion from the government. The lack of motivation and high cost of construction are the top barriers for the investors/developers.

In another study from Shen et al. (2017), they studied the success factors of green buildings with LEED and TREES certification in Thailand from the perspectives of green buildings projects' stakeholders. The critical success factors of green buildings in Thailand are based on the competence of individual participants and integration of a project team during the development process, and economic conditions from both global and local levels, which can create the demand and supply of new green buildings. The main key drivers for the building owners or developers to obtain LEED certifications are environmental concerns, corporate social responsibility purposes and marketing strategy.

Santitham and Horayangkura (2017) studied the social benefits of LEED-certified buildings in Bangkok. They studied four benefits which were the promotion of corporate social responsibility (CSR), corporate image and marketing, higher employee productivity, higher quality of life and less sick building syndrome. The results from 19 respondents of 3 LEED certified buildings showed that the social benefit that derived from LEED office building was to promote CSR, corporate image and marketing while the other variables have no significant effect.

Benefits of Sustainable Building to the Stakeholders

Dixon et al. (2014) studied the sustainable commercial property performances (property value and rent) in the Australian property market. They found the impact of green certification on the property value which got the 5-star rating from National Australian Built Environment Rating Scheme (NABERS). The value of the sustainable office building is 11.8 percent higher than conventional office buildings. This result is similar to many previous papers from across countries where the price premium of sustainable office buildings with sustainable certificates are higher when compared with the conventional one (Eichholtz et al., 2009; Eichholtz et al., 2011; Fuerst & McAllister, 2011; Ghosh & Petrova, 2024; Onishi et al., 2021).

Sustainability labels increase the ability to gain rental premium for an office building. Chegut et al. (2014) investigated the financial performances of BREEM certified commercial buildings the UK property market and found the significant positive relationship between sustainable certification and the rent premium. The buildings that were BREEM-certified have 28 percent higher rental premium when compared with non-certified buildings. There was a negative relationship between energy consumption and the property yields and a positive relationship between energy conservation and market rent. For an increase in energy conservation of one percent, the rent value increased by 0.08 percent (Cajias & Piazolo, 2013).

The physical environment in an office can directly influence the employee's work performance and productivity; the increase in occupant productivity, workplace and job satisfaction through the better indoor environment. Hence, the physical office environment can enhance the level of interaction and communication among employees, which results in higher level of work performance. One of the sustainable attributes that has been evaluated by the sustainable rating system is IEQ or Indoor Environment Quality. Employee's concentration can be affected by an unpleasant IEQ. Jensen and van der Voordt (2019) identified the important factors for the healthy workplace. They found that to increase the employees' satisfaction and perceived productivity, the sustainable office workplace and its interiors are one of the important factors to increase the organizational performance.

IEQ and Employee's Performance

Occupant satisfaction refers to the level of contentment and comfort experienced by individuals (occupants) in a building or indoor environment. There are main criteria that influence the building's occupant satisfaction (Wilkinson et al., 2011). First is thermal comfort and air quality; too hot or too cold a

temperature can impact the occupant's satisfaction over the workplace (Ali et al., 2015; Feige et al., 2013; Lan et al., 2011; Park et al., 2019). Second, there is a positive relationship between the aesthetic and well-equipped facilities and the occupant's satisfaction. Thirdly, the degree of personal control over the indoor environmental conditions has positive impact on occupant satisfaction in the office building. Next is lighting and acoustics; bad acoustics create indoor noise and interrupt the employees' concentration while insufficient lighting creates dry eyes, eye irritation, and fatigue (Altomonte et al., 2017). These factors cause lower work performance for the employees. Lastly, the degree of flexibility of the space has a positive relationship with the occupant satisfaction.

The IEQ is the key criteria for productivity level of occupants in sustainable offices (Al Horr et al., 2016). In Taiwan, the IEQ criteria included the evaluation of acoustics, lighting, ventilation and decoration in the building. The comparison study of occupant's satisfaction of IEQ between sustainable buildings and conventional buildings reveals the statistically significant difference in level of occupant satisfaction. The occupants in sustainable-certified buildings were more satisfied with the IEQ than the occupants from non-certified buildings (Liang et al., 2014). In Thailand, there were few studies on the relationship between sustainable attributes and employees job satisfaction.

Employees are the most critical asset of an organization; therefore, investing in sustainable office spaces or buildings is a strategic and beneficial decision. The productivity levels of employees are greatly influenced by their physical environmental comfort and overall workplace satisfaction. The relationship between the workplace environment and employee's productivity has been heavily studied (Jensen & van der Voordt, 2019; Kato et al., 2009; Livingstone & Ferm, 2017). Many scholars studied the impact of sustainable attributes of office buildings and indoor environments on the employee productivity and occupant workplace well-being. Kamarulzaman et al. (2011) suggested that design of working space, indoor temperature, color, noise and interior plants influenced the employee's productivity. To retain the number of engaged employees, the organizations should invest in a good workplace environment that would lead to favorable outcomes. Workplace environment is one of antecedents for employee engagement in the corporate organization. Kumar and Sia (2012) found the significant positive relationship between workplace environment and the level of cognitive engagement, emotional engagement and physical engagement.

Workplace well-being refers to the subjective psychological factors that could affect an individual's health and quality of life. Employee workplace well-being is described as the worker's quality of his/her working life that affects the health (Schulte et al., 2015). The workplace is one of the factors that create better employee workplace well-being. The different physical environments create different impacts on the occupants of each building. The employee well-being and comfort in the office have significant direct effects on employee's performance (Liu et al., 2023). From the longitudinal study from Thatcher and Milner (2014), the psychological and physical workplace well-being of employees were significantly higher for the employees who worked in sustainable buildings. Similarly, Ornetzeder et al. (2016) also found that the employees in sustainable buildings in Austria were healthier than employees who worked in conventional buildings. Interestingly, Choi et al. (2023) identified unknown mediating variables between IEQ and task performance. Their study showed that IEQ has no direct effect on the employee's performance but has an indirect effect mediated by physiological response change in the body. Hence, the better well-being of employees mediated their performances.

Organizational commitment can be defined as an employee's attitude on getting attached to the company or organization where she/he is working (Meyer et al., 1989). The stronger commitment, the lower turnover intention. The physical environment in the workplace enhances the organizational commitment through job satisfaction. Such is supported in the study by Hanaysha (2016), which showed the significant positive effect of workplace environment on organizational commitment.

From the review of existing studies, the satisfaction with indoor environmental quality is used to investigate the determinants employee performance and organizational commitment. However, there is limited research on the mediating role of well-being in the relationship between IEQ and both employee performances and organizational commitment. Therefore, this study proposes the following hypotheses shown in Figure 1 and Table 1.

Methodology

The sampling frame for the sample from the LEED certified buildings was from the data provided by the U.S. Green Building Council, which is LEED assessor. The buildings are selected by the location in Bangkok and graded as grade-A office buildings the same as the non-certified buildings, which are located in the same

Table 1 Hypotheses

Hypotheses	
H1	The satisfaction with IEQ of occupants is positively related to organizational commitment.
H2	The satisfaction with IEQ of occupants is positively related to job engagement.
H3	The satisfaction with IEQ of occupants is positively related to workplace well-being.
H4	The satisfaction with IEQ of occupants is positively related to perceived employee productivity.
H5	Sustainability behavior is positively related to the IEQ satisfaction.
H6	Sustainable behavior is positively related to employee workplace well-being.
H7	Occupants who have higher employee workplace well-being level are more likely to commit to their organizations.
H8	Occupants who have higher employee workplace well-being level are more likely to engage in their job.
H9	Occupants who have higher employee workplace well-being level are more likely to be perceive for higher employee productivity level.

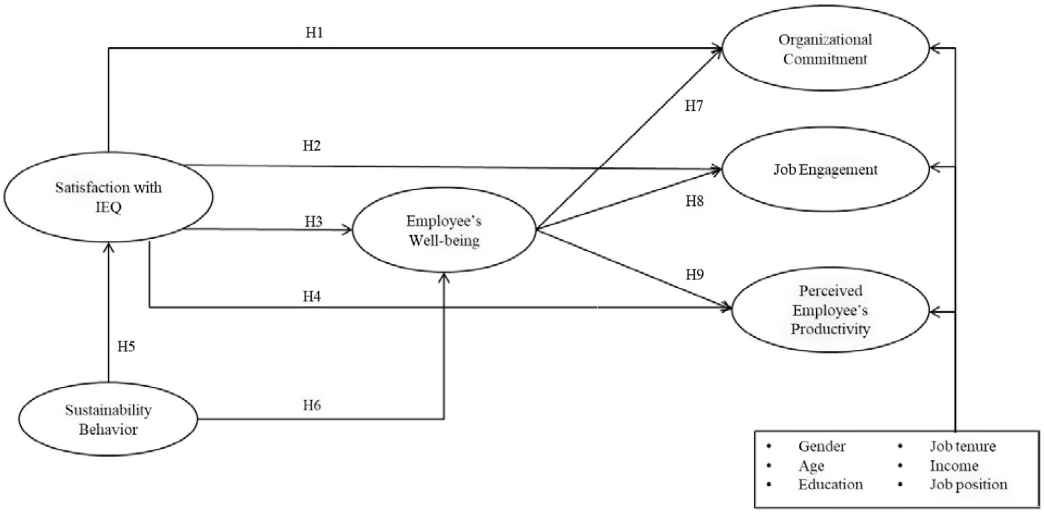


Figure 1 Proposed model

location and have the same grade but without the LEED certification. The respondents are the employees from junior and senior levels who work in both non-certified office buildings and the LEED certified office buildings. The sample size is estimated to be 200 respondents for LEED certified buildings and another 200 respondents for non-certified office buildings located in Bangkok.

Data Collection

A self-administered questionnaire survey was used to collect the data for this study. A structured questionnaire is given to a sample of a population and designed to elicit specific information from respondents (Malhotra, 2007). The questionnaires were distributed to the respondents through the online channel. The data collection process, the questionnaire and the cover letter asking for cooperation were mailed to the property manager of selected office buildings. Convenient sampling and snowball sampling which were used in this study are commonly used in the study of customers' satisfaction. Once the occupants in each building get the questionnaire, they can share with colleagues and acquaintances, which may infringe on privacy or confidentiality. However, the participants can stop answering the questionnaire if they feel uncomfortable as it is clearly stated in the questionnaire's instructions.

Questionnaire Development

The measurements were tested for reliability and validity from other scholars. All the measurement items used in this study were written in English and translated to Thai for the convenience of respondents. All the items were rated on a five-point Likert scale that ranges from 1 (dissatisfied) to 5 (satisfied). And the reliability and validity were tested by the previous scholars. In this study, the first 50 surveys were launched for the pre-

test. After the reliability and validity of pre-test were tested, the second batch of surveys were launched to the respondents.

Control variables

The control variables related to the Bangkok office building's occupants were included in the analysis, including age, gender, income, job positions, and job tenure. These variables were also taken into account in various studies (Choi, 2016; Eleswed and Mohammed, 2013; Khim, 2016; Krettenauer, 2017) in sustainable workplace and employee's performance areas.

Analysis Method

Structural Equation Model (SEM) is adopted in this study; it can be measured with the study's model to test the significance of the structural pathway and hypotheses. A structural model is used to test the ability of different constructs among the indicators of the study data. SEM is the dominant analytical tool for testing cause-effect-relationship models with latent variables (Hair et al., 2014). There are many existing studies in the field of IEQ satisfaction that adopt SEM in their research (Abdul et al., 2017; Liu et al., 2023; Nimlyat, 2018; Tekce et al., 2020). Therefore, SPSS version 23 was used to perform the statistical analysis and AMOS (Analysis of Moment Structure) version 24 was used to perform SEM regression in this study. After the confirmatory factor analysis (CFA) was conducted, the structural model meets the acceptable threshold levels (Hu & Bentler, 1999).

Results

LEED Certified Buildings

This study examined the relationship between the satisfactions upon the IEQ and occupants' work performances and workplace well-being in office buildings with LEED certification located in Bangkok. The main model calculated the variables' significant relationship through the standardized regression weight and *t*-value. The relationship among variables considered to be significant at significant level is when $p < .001$. The results of all hypotheses are shown in Figure 2. The satisfaction with IEQ of occupants does not influence organizational commitment (β = - 0.029, *t*-value = - 0.603). The satisfaction with IEQ of occupants is positively related to their job engagement (β = 0.261, *t*-value = 6.814). The occupants' satisfaction upon IEQ is positively related to workplace well-being (β = 0.325, *t*-value = 6.323). The occupants' satisfaction upon IEQ is positively related to perceived employee productivity (β = 0.276, *t*-value = 6.507). Sustainability behavior is positively related to the IEQ satisfaction (β = 0.412, *t*-value = 7.985). Sustainable behavior is positively related to employee workplace well-being (β = 0.365, *t*-value = 6.123). Occupants who have higher employee workplace well-being level are more likely to commit to their organizations (β = 1.118, *t*-value = 22.033). Occupants who have higher employee workplace well-being level are more likely to engage in their job (β = 0.455, *t*-value = 12.522). Occupants who have higher employee workplace well-being level are more likely to

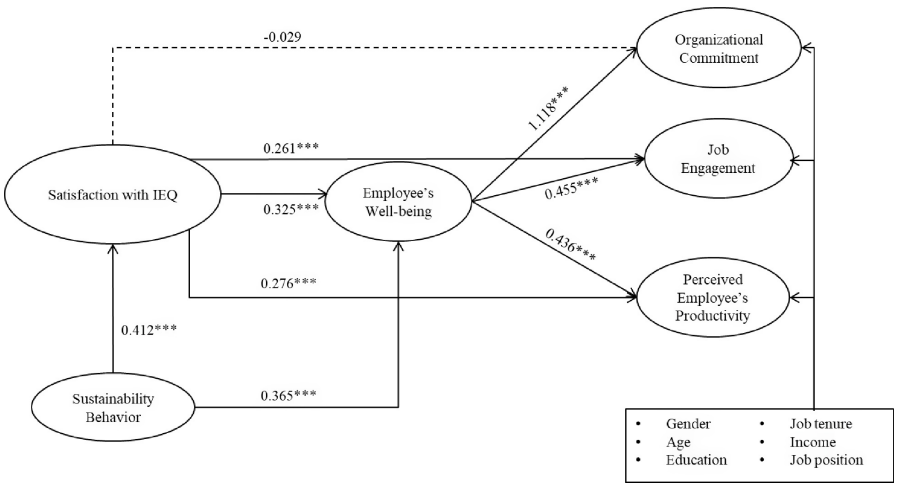


Figure 2 Results – LEED certified buildings

be perceived for higher employee productivity level (β = 0.436, *t*-value = 10.962).

NON-LEED Certified Buildings

This model examined the relationship between the satisfactions upon the IEQ and occupants' work performances and workplace well-being in office buildings with no LEED certification located in Bangkok. The main model calculated the variables' significant relationship through the standardized regression weight and t-value. The relationship among variables considered to be significant at significant level is when $p < .001$. The results of all hypotheses are shown in Figure 3. The satisfaction with IEQ of occupants influences organizational commitment (β = 0.152, *t*-value = 4.940). The satisfaction with IEQ of occupants is positively related to their job engagement (β = 0.094, *t*-value = 3.586). The occupants' satisfaction upon IEQ is positively related to workplace well-being (β = 0.171, *t*-value = 5.339). The occupants' satisfaction upon IEQ is positively related to perceived employee productivity (β = 0.173, *t*-value = 6.603). Sustainability behavior is positively related to the IEQ satisfaction (β = 0.693, *t*-value = 12.777). Sustainable behavior is positively related to employee workplace well-being (β = 0.443, *t*-value = 9.910). Occupants who have higher employee workplace well-being level are more likely to commit to their organizations (β = 891, *t*-value = 19.149). Occupants who have higher employee workplace well-being level are more likely to engage to their job (β = 0.641, *t*-value = 16.557). Occupants who have higher employee workplace well-being level are more likely to be perceived for higher employee productivity level (β = 0.631, *t*-value = 16.353).

Comparison of the Results

Hypothesis 1 shows that the satisfaction of occupants upon the IEQ is related to organizational commitment. In LEED certified office buildings, this hypothesis rejected by the insignificant *p*-value (*p*-value = .546 > .50). The results are in line with Gou et al. (2012), who found that occupants in green buildings in Hongkong have less lighting satisfaction than in conventional buildings. The results found that there were weaknesses in IEQ of green buildings; the employees have significantly less satisfaction in comfort, acoustics and lighting in green buildings than the conventional buildings. While one of the antecedents of organizational commitment is workplace, hence the dissatisfaction in some IEQ attributes in green buildings can cause the differences in organizational commitment level from the employees in sustainable buildings. The study results also support the study by Thatcher and Milner (2016), which showed that there was no significant difference in the propensity to leave the organization for the occupants who work in green buildings and non-green buildings. In contrast, the result from non-LEED certified office buildings showed the relationship between occupants' satisfaction upon IEQ and organizational commitment of occupants. The result is consistent with previous studies that the satisfaction upon the indoor environmental quality in an office can enhance the employee's commitment

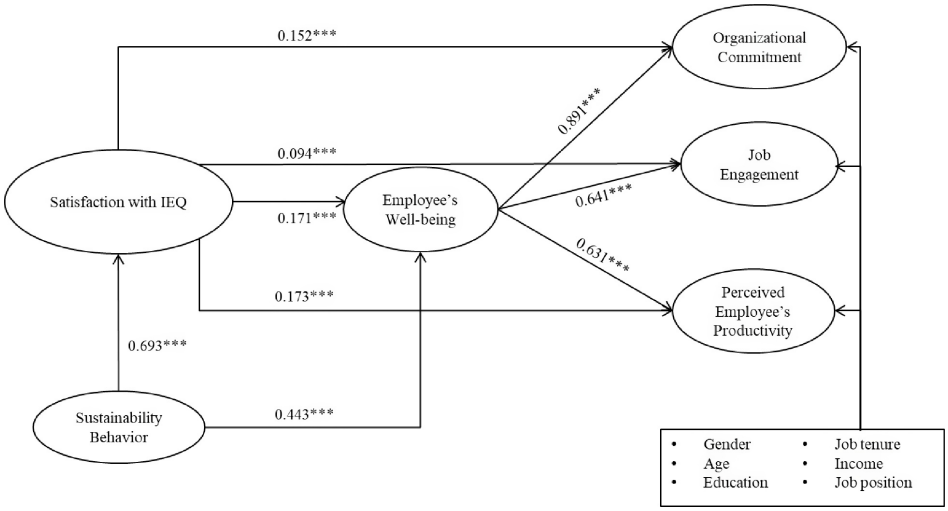


Figure 3 Results – NON-LEED certified buildings

level to the organization (Bangwal et al., 2017; Bangwal & Tiwari, 2019; Hanaysha, 2016). It also proved that occupants' satisfaction upon the environment in workplace significantly influences the level of organizational commitment of staff (Haggins, 2011; McGuire & McLaren, 2009).

Hypothesis 2 is supported by the significance of *p*-value for both groups. The satisfaction of occupants upon the Indoor Environmental Quality (IEQ) is related to the level of their job engagement. The result showed that once the occupants are satisfied with the IEQ in the offices, they tend engaged in their job. The indoor environments such as lighting, acoustics, air quality and thermal conditions affect the engagement level of the occupant. The effect of the overall indoor environment on work efficiency was reported and was consistent with many previous studies (Brown, 2009; Ukai et al., 2022).

Hypothesis 3 is supported for both models. The satisfaction upon IEQ has a significant positive impact on the occupants' workplace well-being. The occupants in both types of building tend to have a better workplace well-being when satisfied with their workplace environments. This result could be explained in that the better the indoor environment quality the better the occupant workplace well-being (Al horr et al., 2016; Bergefurt et al., 2022; Cobaleda Cordero et al., 2019; Sadick & Issa, 2017). Also, the workplace with less distraction is more suitable for occupants' mental health (Boegheim et al., 2022). Moreover, the results also supported the recent view of Parhizkar et al. (2023), where they examined the relationship between IEQ and occupants' workplace well-being from the office building in Bangkok. This study has a consistent result that the attributes of office spaces have significant impacts on human health and workplace well-being.

Hypothesis 4, the findings confirmed that the occupants' perceived productivity level is related to their satisfaction of IEQ. The results from both certified and non-certified buildings showed the significant relationship between satisfaction of IEQ and perceived productivity level. The environment in the offices enhanced the level of employee productivity in their tasks and creativities (Franke & Nadler, 2021). In addition, the office design and interior environment quality are correlated with employee's productivity (Heerwagen, 2000).

Hypothesis 5 is supported. The sustainability behavior is positively related to IEQ satisfaction. The occupants who have sustainability behaviors tend to be satisfied with their building's IEQ. The hypothesis was supported for both certified and non-certified buildings. Hill (2017) found that pro-environmental behaviors and environmental awareness were significant factors in influencing the satisfaction of green features in the buildings.

Hypothesis 6, sustainable behavior, is positively related to employee workplace well-being. This hypothesis is supported. The occupants with sustainable behavior are more likely to perceive the better workplace well-being while they are in the building. Occupants who behave in an environmentally friendly manner would also show concern for the green features in their workplace, which have a great impact on their workplace well-being (Zhang & Tu, 2021). Hence, the occupants who have sustainable behavior tend to have better workplace well-being.

Hypothesis 7, the results showed that occupants who have higher employee workplace well-being level are more likely to commit to their organizations. The hypothesis is supported for both groups. This result also supported the previous study of Kolakowski et al. (2020) and Panaccio and Vandenberghe (2009), who found the positive relationship between employee workplace well-being and organizational commitment. Moreover, occupants who perceived better workplace well-being will commit to work with the company longer (Gardiner et al., 2013; Sears et al., 2013). The higher levels of positive mental and physical health positively impact the affective commitment level.

Hypothesis 8 is supported for both models. The occupants with higher level of employee workplace well-being are more likely to engage in their job. According to the study of Boegheim et al. (2022), occupants who have better mental health are likely to engage with their job and organization.

Hypothesis 9 is supported by the significance of *p*-value for both certified and non-certified buildings. Occupants who have higher employee workplace well-being level tend to be perceived for higher productivity level in their task. Occupants who have good workplace well-being will strongly intend to perform their tasks (Altomonte & Schiavon, 2013; Thatcher & Milner, 2014).

The comparison of the results is shown in Table 2. All hypotheses are accepted, except for hypothesis 1 from LEED certified buildings, which is rejected.

After testing the direct, indirect and total effects of Employee workplace well-being, the outcomes revealed that the employee workplace well-being is mediator in this model. Additional analysis of employee workplace well-being was conducted. This analysis tested whether employee workplace well-being mediated between IEQ and organizational commitment, between IEQ and job

Table 2 Hypotheses results

Hypotheses	Results	
	LEED	NON-LEED
H1: The satisfaction with IEQ of occupants is positively related to organizational commitment.	Rejected	Supported
H2: The satisfaction with IEQ of occupants is positively related to job engagement.	Supported	Supported
H3: The satisfaction with IEQ of occupants is positively related to workplace well-being.	Supported	Supported
H4: The satisfaction with IEQ of occupants is positively related to perceived employee productivity.	Supported	Supported
H5: Sustainability behavior is positively related to the IEQ satisfaction.	Supported	Supported
H6: Sustainable behavior is positively related to employee workplace well-being.	Supported	Supported
H7: Occupants who have higher employee workplace well-being level are more likely to commit to their organizations.	Supported	Supported
H8: Occupants who have higher employee workplace well-being level are more likely to engage in their job.	Supported	Supported
H9: Occupants who have higher employee workplace well-being level are more likely to be perceived for higher employee productivity level.	Supported	Supported

engagement, and between IEQ and perceived employee productivity. Results show that there are indirect effects of mediator through the relationships between IEQ and organizational commitment, between IEQ and job engagement, and between IEQ and perceived employee productivity. The form of mediation is partial mediation, where the direct effects between IEQ and employee workplace well-being, between IEQ and organizational commitment, between IEQ and job engagement, and between IEQ and perceived employee productivity are significant, as shown in Figure 4, and also have the significant indirect effects through the mediator which is employee workplace well-being. Moreover, the direction of direct and indirect effects is similar where it showed the positive influence. Hence, this study has a complementary mediation.

Discussion

Discussion on Impact of IEQ on Employee's Workplace Well-Being and Performance

The findings indicate that satisfaction with IEQ has a significant influence on employee well-being, organizational commitment, job engagement and productivity. These results confirm that IEQ can substantially enhance workplace well-being and employee performances among occupants.

The satisfaction toward IEQ was found to influence the job engagement, and workplace well-being level of occupants in LEED and NON-LEED office buildings. The effects are stronger in LEED certified buildings than NON-LEED certified buildings. Interestingly, the

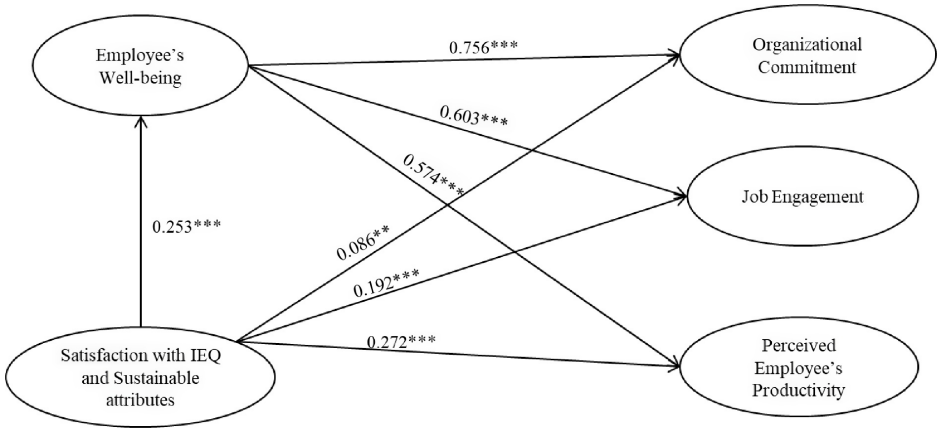


Figure 4 Results of direct effects, *** $p < .001$, ** $p < .01$, * $p < .05$a

occupants in NON-LEED certified buildings who were satisfied with IEQ tend to have higher organizational commitment but there is no significant difference in the organizational commitment level from occupants in LEED office buildings.

This study proved that the employee workplace well-being has a strong and significantly direct impact on employee performances. The employee's workplace well-being significantly affects employee's organizational commitment in both types of buildings. The standardized path coefficient (β) of LEED certified buildings is higher than NON-LEED certified buildings. The employee workplace well-being was also found to influence the level of job engagement and perceived productivity. However, when comparing the impact of employee's workplace well-being on job engagement and perceived productivity, the impacts are stronger in NON-LEED certified buildings.

Discussion on The Influences of Sustainability Behavior upon IEQ Satisfaction and Employee's Workplace Well-Being

The sustainability behavior positively affects the satisfaction upon IEQ and employee's workplace well-being in both LEED and NON-LEED buildings. The occupants who have sustainability behavior tend to be satisfied with IEQ of their buildings. These results supported previous studies from Kaida and Kaida (2019); Zhang and Tu (2021). Furthermore, the sustainability behavior also enhances the level of employee's workplace well-being.

Conclusion and Recommendation

This study compared the benefits of IEQ between certified and non-certified buildings on the occupants who work in office buildings located in Bangkok. This research provides the following academic and practical contributions. Firstly, this research confirms the impact of IEQ on employee's workplace well-being and work performance. Next, this study found that the occupants in LEED certified buildings who are satisfied with IEQ in the buildings tend to have stronger degrees of job engagement and workplace well-being than occupants in NON-LEED certified buildings. Importantly, this research found that the workplace well-being of occupant is a mediator through the relationships between IEQ and organizational commitment, between IEQ and job engagement, and between IEQ and perceived employee productivity. In LEED certified buildings, the occupants who are satisfied with IEQ and perceived higher level of employee workplace well-being, tend to have higher levels of job engagement and perceived higher levels of productivity. The total effect of employee's workplace well-being is higher when compared to NON-LEED certified building.

The results from this study showed that the well-being is the significant mediator that enhances the employee productivity, engagement and commitment, which are the factors in organizational improvements. Therefore, to increase the level of organizational improvements, the organizations need to focus on their employee's well-being.

The study results can be used as reference for the government decision upon the incentives to green or sustainable developments in Thailand. The proof from this study also brings valuable information to the property market, especially office space market. It is not only new construction projects that will benefit from a sustainable project, but the existing buildings will also have an incentive to retrofit their building with sustainable attributes and consequently expect higher rental price and attracting more tenants. The evidence from this study can prove that a better IEQ in sustainable office building can increase the employee's performance. Moreover, working in sustainable buildings can enhance the better work environment for occupants, which leads to better employee workplace well-being.

The limitations of this study are the type of building, list of buildings and location of the buildings. Future research can investigate the impact of IEQ on occupants' performance in other types of properties such as educational facilities where the performance of the student can be measured, and revisit the impact of IEQ and sustainability behavior on occupant's performance in the new certified office buildings. Interestingly, the future study can compare the impact of IEQ and sustainable attributes on occupants among the different certifications since there are many sustainable certifications that recently certified the green building. Furthermore, future research can examine how IEQ in hybrid work settings both in offices and remote locations affects employee well-being, productivity, and job satisfaction.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Management practices, faculty self-efficacy, and board exam performance in Philippine higher education

Eugelyn R. Felix

College of Education, Isabela State University, Angadanan, Isabela 3307, Philippines

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Abstract

This study explores faculty perceptions of management practices, self-efficacy, and board performance at Isabela State University, emphasizing their interconnections and impact on academic success. Through qualitative interviews with 28 purposefully selected faculty members, five key themes emerged: faculty perceptions of management practices, self-efficacy, board performance, the relationship between these factors, and faculty recommendations for improvement. Faculty generally perceived ISU's management practices positively, particularly its collaborative leadership style and commitment to academic excellence, though challenges in policy implementation, resource management, and communication were identified. Faculty self-efficacy, influenced by experience, training, and administrative support, was found to positively impact teaching effectiveness. However, those with additional administrative responsibilities reported lower self-efficacy due to insufficient training. Faculty also expressed satisfaction with ISU's board exam performance but noted challenges, including disruptions caused by the COVID-19 pandemic. Recommendations to improve faculty self-efficacy and board performance included continuous professional development, enhanced resource allocation, and better alignment of curricula with board exam requirements. The study reveals that effective management practices, faculty self-efficacy, and board performance are mutually reinforcing, with positive management practices enhancing faculty confidence and, in turn, improving student outcomes. These findings offer valuable insights for higher education institutions seeking to enhance leadership practices, faculty development, and academic performance.

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E-mail address: eugelyn.r.felix@isu.edu.ph (Felix, E. R.)

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Introduction

Higher education institutions are central to the development of students' intellectual, professional, and personal capacities, serving as vital centers for knowledge creation and societal progress. Central to these institutions is the faculty, whose effectiveness in teaching not only shapes student outcomes but also underpins the institution's overall academic success. Among the various factors influencing faculty performance, two interrelated elements have received considerable attention: faculty perceptions of management practices and their sense of self-efficacy. Faculty members' views on management practices—which encompass leadership style, institutional support, and the availability of resources—have been shown to influence their motivation, job satisfaction, and classroom performance (Dagdag et al., 2020; Goddard et al., 2004; Jamali et al., 2022). Concurrently, self-efficacy, defined as the belief in one's capability to execute actions necessary to achieve desired outcomes, has been consistently linked to enhanced teaching effectiveness, innovative instructional approaches, and improved student engagement (Bong, 2004; Dagdag et al., 2021; Karim et al., 2021; Tschannen-Moran & Hoy, 2001). These factors are not only critical for individual faculty success but also for driving broader institutional achievements, such as student performance on high-stakes assessments like board examinations.

Existing research has provided valuable insights into the individual impacts of management practices and self-efficacy on teaching and learning. Studies indicate that when faculty perceive their institution's management practices as supportive and effective, they are more likely to experience higher levels of satisfaction and to implement innovative teaching practices that address diverse student needs (Hu, 2024; Zheng et al., 2018). Similarly, educators with robust self-efficacy are better equipped to adapt to challenges in the classroom and to employ creative strategies that lead to improved student outcomes, including performance in board exams (Klassen & Tze, 2014; Miller et al., 2017). Despite these advances, the literature has largely examined these dimensions in isolation, leaving a gap in understanding how the interaction between faculty perceptions of management practices and self-efficacy affects academic outcomes within a single institutional setting.

This gap is particularly evident when considering board exam performance—a critical indicator of educational quality and institutional success. Notably, board exam results can vary considerably across different academic programs within the same institution. While some programs demonstrate exceptional performance, others struggle to meet expected standards. This variability suggests that underlying differences in how faculty experience and interpret management practices, as well as how they develop their self-efficacy, may be factors driving disparate academic outcomes. Integrating these factors into a comprehensive framework is essential for understanding the full spectrum of influences on teaching quality and student success.

The significance of the current study is heightened by the timely context in which it is conducted. The institution under investigation, which is the Isabela State University, has a storied history of academic achievement but currently faces challenges in maintaining its board exam performance across all programs. Recent shifts in leadership approaches, evolving institutional policies, and ongoing resource allocation strategies among the institution's academic programs have sparked a renewed interest in understanding how these internal dynamics affect faculty performance. Although external factors such as the COVID-19 pandemic have been cited in previous research as catalysts for change, relying solely on such transient external events is insufficient for capturing the enduring factors that shape academic excellence. Instead, this study focuses on the long-term internal attributes of the institution—attributes that remain critical regardless of temporary crises. This approach allows for a deeper exploration of how faculty perceptions of management and their self-efficacy interact to influence student outcomes, particularly in the context of variable board exam performance.

Moreover, the investigation is significant because it addresses a practical need. The variability in board exam performance across programs suggests that there is considerable room for improvement in how the institution supports its faculty. By exploring the experiences of educators regarding management practices and self-efficacy, this study aims to uncover specific mechanisms that can inform interventions. Such interventions could lead to more effective faculty development programs and institutional policies that are finely tuned to enhance teaching quality and student success. In this way, the research has the potential to contribute both to academic theory and to practical strategies for educational improvement.

Research Questions

How do faculty members experience and interpret management practices in their institution, and in what

ways do these practices shape their teaching self-efficacy? How do faculty members perceive the influence of their self-efficacy on students' board exam performance, and what improvements do they recommend to enhance these outcomes?

Methodology

Research Design

A qualitative research design was selected for this study because it allows for a deep understanding of the participants' perceptions, beliefs, and experiences regarding their roles as faculty members, the management practices in their respective institutions, and their self-efficacy in impacting student outcomes. This design is particularly useful for exploring complex social phenomena where quantitative methods may not fully capture the nuances of individual experiences. The qualitative approach enables the exploration of the interrelationships among faculty perceptions, self-efficacy, and board exam performance in a naturalistic setting, without reducing the experiences to numerical data (Lim, 2024; Maxwell, 2013).

Research Participants

The participants in this study consisted of 28 purposefully selected faculty members holding administrative designations in board programs across the nine campuses of Isabela State University. Considering purposeful sampling to effectively identify key informants with the specific knowledge required for this research (Campbell et al., 2020), the participants were chosen based on their roles in departmental decision-making, a minimum of five years of teaching experience, and demonstrated involvement in the development or implementation of institutional policies. Moreover, the sample was purposefully diverse in terms of academic disciplines (e. g., teacher education, criminology, engineering, forestry, agriculture), ranks (e. g., instructor, assistant professor, associate professor, full professor), and administrative responsibilities (e. g., college secretary, program chairperson, college dean, academic affairs director, university director, vice president).

Data Collection

Data collection was conducted using semi-structured interviews—a widely used qualitative method for gathering rich, in-depth data—which involved a set of pre-determined questions on faculty members' perceptions of management practices at ISU, their self-efficacy beliefs, and how these factors might influence student performance in board exams, while still allowing for exploration of unanticipated topics (Naz et al., 2022). Interviews were conducted one-on-one in person, and lasted between 30 minutes to 1 hour (averaging approximately 45 minutes), providing a comfortable and confidential setting for participants to share their experiences. A total of 28 interviews were conducted, with this sample size determined by reaching data saturation, where no new themes emerged. All interviews were audio-recorded and transcribed verbatim to ensure accuracy. Credibility was further enhanced through data triangulation and member checking with a subset of participants, both of which helped ensure that the findings accurately reflected the participants' perspectives.

Data Analysis

Thematic analysis was employed to analyze the data collected from the semi-structured interviews—a widely used qualitative method for identifying, analyzing, and reporting patterns (themes) within data (Braun & Clarke, 2006)—with MAXQDA software assisting in coding and organizing the data; the analysis involved several key stages including familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and writing the report, all aimed at interpreting the meaning behind the data and understanding the underlying themes emerging from participants' responses.

Ethical Considerations

Ethical considerations were paramount in this study, and all participants provided informed consent before taking part in the interviews. Participants were informed of the study's purpose, the voluntary nature of their participation, and their right to withdraw at any time without consequence. Confidentiality was assured by assigning pseudonyms to all participants, and all data were stored securely. Ethical approval for the study was obtained from the relevant institutional review board prior to data collection.

Results

Faculty Perceptions of Management Practices

Faculty perceptions of management practices at their university can be understood into three subthemes: Effective Management Practices, Challenges and Areas for Improvement, and Recommendations for Enhancing Management Practices.

Effective Management Practices

Several participants expressed positive perceptions of the management practices at ISU, highlighting a focus on academic excellence, student support, collaborative efforts, and a proactive approach to improving educational outcomes.

Many respondents emphasized the institution's commitment to sustaining academic standards and supporting students' board exam preparations. Faculty members highlighted the importance of aligning syllabi with board exam content and maintaining strict grading policies to uphold quality.

"The institution sustains academic excellence and quality in instruction." (R4)

"We monitor the employment status of graduates after graduation, as well as their performance in board exams. Faculty are dedicated to delivering lessons effectively, and the syllabi are aligned with board exam requirements." (R8)

Respondents also noted the positive impact of participative leadership and a collaborative management style, which fosters an inclusive and supportive environment for faculty and staff.

“The leadership and management styles entail productive and collaborative efforts of everybody." (R3)

"Management with a heart. Leaders inspire their team members to excel by providing full support, understanding their needs, and acknowledging their contributions." (R11)

There is recognition of ISU's support for faculty development, including opportunities for research, professional growth, and incentives for academic achievements.

“There are incentives for research and platforms for extension activities, encouraging even new faculty members to engage in these endeavors." (R13)

"Professional development opportunities are encouraged, allowing faculty to focus on achieving higher education." (R19)

Challenges and Areas for Improvement

While there were positive perceptions of management practices, several participants identified areas where improvement is needed, particularly in the implementation of policies, resource management, and communication.

A recurring issue mentioned by multiple respondents was the lack of consistent policy implementation, which has created confusion among faculty, staff, and students.

“There is a need for better cascading of approved university policies. Until now, many students and faculty members are not yet aware of the newly approved organizational structure." (R7)

"Not consistent in the implementation of policies." (R20, R21, R22)

Several participants pointed out the need to enhance infrastructure, physical resources, and human resources management, suggesting that these areas are currently lacking and require attention.

“Yes, there is a need for improvements in infrastructure management, as well as better handling of physical and financial resources." (R1, R6)

"Development of infrastructures, facilities, equipment, library, and laboratory is necessary." (R12)

Some respondents expressed concerns about faculty development plans, especially regarding the alignment of faculty assignments with their fields of expertise and the need for more training opportunities.

"The program assigned to faculty members should align with their field of specialization. Training should be provided for faculty through continuing programs to support their ongoing learning." (R11)

"There could be improvements in the Faculty Development Plan and better dissemination of information." (R5)

Faculty Self-Efficacy

In analyzing the responses to the questions on self-efficacy, several key themes emerged related to the confidence of faculty members in performing their roles, the variations in self-efficacy depending on different aspects of their work, and the factors influencing their confidence.

Confidence in Performing Job Effectively

Most participants expressed a strong sense of confidence in their ability to perform their roles effectively. This confidence was attributed to various factors, including personal commitment, training,

experience, and the outcomes observed in students' performance.

"I'm designed and trained to perform my tasks to the best of my abilities because I am guided by the principles of commitment, integrity, and passion." (R1)

Several respondents highlighted their extensive experience as a significant source of their confidence:

"I am confident. Maybe I can consider myself an expert in the subject due to long-time experience." (R11)

However, some faculty members noted a gradual increase in confidence, acknowledging initial challenges, especially for those new to the role:

"For a first-timer, it's hard, but as time goes by, I have learned how to become confident in performing my job effectively." (R5)

Others emphasized that their confidence stemmed from the performance and outcomes of their students:

"I am confident that I perform my job effectively based on the performance of my students." (R10)

Variations in Self-Efficacy Across Different Roles

Many participants acknowledged that their self-efficacy varied depending on the specific aspects of their roles, particularly when taking on additional designations or responsibilities outside their core teaching duties.

"Yes, it varies depending on your roles, especially when you hold a designation; your teaching loads may be reduced to accommodate the demands of the designation." (R8)

Faculty members with management roles observed that their confidence fluctuated due to a lack of specific training for these responsibilities:

"In terms of management, I am willing to learn more. We lack training for management. As a result, when someone is given a new designation, they often have to be self-taught and self-trained." (R13)

Some participants also noted that external perceptions, such as age and educational qualifications, impacted their confidence:

"My confidence is affected by how people see me. I am young and handle a very large responsibility already." (R15)

Factors Influencing Confidence

The respondents identified several factors that influence their confidence, ranging from personal achievements and educational background to the support from colleagues and the university environment.

"Administrative and co-employees' support" (R1) and "the condition/environment and people who I work with" (R17) were commonly cited as significant contributors to self-efficacy.

Experience was a recurring factor, with many faculty members linking their confidence to years of teaching and professional exposure:

"Experience, skills, and knowledge" (R19) were seen as vital elements in building self-efficacy.

Educational background and continuous learning were also noted as essential components:

"Educational qualifications and continuous learning are essential. With two master's degrees and a Ph.D. earned abroad, I am confident in my abilities and in those of my colleagues as well." (R12)

Additionally, some respondents highlighted the importance of alignment between their expertise and the subjects they teach, noting that this congruence boosts their self-efficacy:

"Your professional preparation, including your background and educational qualifications, influences your confidence in your abilities. Engaging in research and extension activities further hones your abilities and enhances your self-efficacy." (R8)

Faculty Perceptions of Board Performance

The theme Board Exam Performance emerged from the participants' responses, revealing perceptions and evaluations of the institution's board exam results over the past five years. The analysis covers the general assessment of the institution's performance, notable achievements and challenges, as well as suggestions for further improvement.

Overall Performance Rating

Participants generally expressed satisfaction with the board exam performance, highlighting that it consistently surpasses the national passing rate. However, there were varying degrees of ratings, ranging from "satisfactory" to "excellent," indicating a recognition of the institution's achievements while acknowledging areas for improvement. Many participants pointed out the sustained efforts of faculty and administrators in achieving favorable results.

"Although it is consistently above the national passing rate for the CLE performance, we work closely with the administration, faculty members, and stakeholders to improve our CLE performance." (R1)

Despite this positive outlook, some respondents suggested a need for continuous enhancement, particularly to sustain academic excellence and instructional quality. For instance, R4 indicated that their licensure performance is "very satisfactory but needs to sustain academic excellence and quality in

instruction."

A few respondents, particularly those newer to the institution, hesitated to provide a comprehensive assessment but acknowledged the positive trend in board performance.

"Since I am new, I can't rate the institution's board performance for the last five years, but being here for two years, I can see that the institution's board performance is high above the national passing rate." (R5)

Notable Achievements and Challenges

Several participants identified significant achievements during the review period, including producing national topnotchers, achieving high passing rates, and surpassing national averages. The institution was recognized for its strong performance in various licensure examinations and its ability to maintain competitive results.

"Our institution has performed well, as evidenced by our ability to produce national topnotchers and our strong partnerships with review centers." (R12)

"The school ranked 8th in the region last March in 2024 LET exam. We have produced many civil engineers and are included in the top 20 best-performing schools nationwide." (R9, R27)

However, notable challenges were also highlighted, particularly the impact of the COVID-19 pandemic, which disrupted traditional instruction methods and required a sudden shift to online learning. The transition posed difficulties for both students and faculty, affecting the preparation and performance of board examinees.

"The notable challenges included the COVID-19 pandemic and the shift from face-to-face to online learning modalities, which disrupted the instructional delivery and preparation for board exams." (R14)

Another recurring issue involved the performance of certain programs, such as BSEd, which were affected by non-education graduates taking the licensure exams, thus lowering the overall passing rate.

"Regarding our board performance, we are having an issue with the low performance of the BSEd program because of non-education graduates taking the examination and affecting the overall performance." (R13)

Relationship between Management Practices, Faculty Self-Efficacy, and Board Performance

The responses from the participants reveal a shared perspective on the interconnectedness between management practices, faculty self-efficacy, and board exam performance, suggesting a symbiotic relationship where effective management fosters self-efficacy among faculty, which, in turn, contributes positively to student outcomes, including board exam success.

Influence of Management Practices on Faculty Self-Efficacy

Participants largely agree that management practices significantly influence faculty self-efficacy. Effective management practices, such as providing support, resources, and professional development, help in building confidence among faculty members. The responses emphasize that management's role in fostering a positive environment is critical:

"Management practices can definitely influence faculty self-efficacy when management provides support, resources, and clear communication. Faculty members are more likely to feel confident in their abilities to perform their role." (R10)

The availability of training and retraining programs, along with opportunities for professional growth, was frequently mentioned as a core component in enhancing faculty self-efficacy:

"Definitely, management practices have an impact on building our self-efficacy because through the programs implemented by our management, we have opportunities for professional growth." (R13)

Several participants highlighted that a supportive and appreciative management helps in creating a sense of belonging, which boosts self-efficacy:

"Faculty self-efficacy is greatly influenced by the type of management practices... It is very important that every member is counted and appreciated for whatever accomplishment they shared in the organization. Sense of belongingness is one effective management practice." (R6)

However, respondents also noted the potential negative impact of poor management, such as demoralization and decreased self-efficacy:

"They would be demoralized if they experienced mismanagement and malpractice." (R7)

Impact of Management Practices on Board Exam Performance

The relationship between management practices and board exam performance was also recognized by the participants, with many emphasizing that strong and consistent support from management plays a crucial role in student preparation and performance. Respondents indicated that when management prioritizes resources,

such as enhanced review sessions and alignment of the curriculum with board exam requirements, the board exam outcomes are positively influenced:

"The way management extend and provide all the necessary resources during the preparation for the board exam is considered vital in the result of board examination. The show of support will greatly motivate and encourages the examinees to give their best shot during the examination." (R6)

Several participants provided specific examples of effective management practices that could enhance board performance, such as collaborating with external review centers and implementing consistent review policies:

"Our review process lacks consistency and relies heavily on the initiative of the exam takers... Maybe we can foster partnerships with external review centers that have trustworthy and reliable track records." (R13)

Others highlighted practices from other state universities, where management provides moral and logistical support, as effective strategies to improve board performance:

"In other state universities, they have a practice of accompanying their exam takers during the examination for moral support and even helping them find accommodation. Additionally, they monitor those who will take the exam to ensure they are well-prepared." (R20)

Connection Between Faculty Self-Efficacy and Board Exam Performance

The participants also acknowledged a strong link between faculty self-efficacy and board exam performance. They noted that faculty members with high self-efficacy are more likely to deliver quality instruction and utilize effective teaching strategies, which directly contribute to student success in board examinations:

"Self-efficacy, namely, teachers' beliefs in their ability to effectively handle the tasks, obligations, and challenges related to their professional activity, plays a key role in influencing important academic outcomes like the board performance." (R6)

Additionally, participants described how self-efficacy empowers faculty to master their content and teaching methods, leading to better student preparation:

"When instructors have high self-efficacy, they can master the lessons to be taught, and their delivery of instruction becomes more effective. One of the university's commendable practices is requiring faculty to earn education units, which benefits us greatly." (R8)

In some responses, the impact of faculty self-efficacy was framed in terms of the motivation and inspiration it provides to students:

"If the teacher's self-efficacy is high and observable, it will surely be an inspiration for the students to excel in the board examination." (R6)

In contrast, a lack of self-efficacy was seen as a barrier to effective instruction, potentially affecting board exam outcomes:

"At some point, if the management focuses on the advancement of the faculty through seminars, training, and conferences, it could help enhance their self-efficacy, which is needed to improve board exam results." (R27)

Faculty Recommendations to Enhance Board Performance and Faculty Self-Efficacy

In analyzing the responses, several themes emerged regarding strategies to enhance board exam performance and faculty self-efficacy, as well as suggestions for management practices that can support these objectives. The themes are presented with supporting quotes from the participants.

Faculty Professional Development

Many participants highlighted the need for continuous training and development opportunities for faculty. This includes attending seminars, workshops, and pursuing advanced studies to enhance teaching quality and expertise.

"Allow faculty to explore more like attending seminar-workshops in their field of specialization to enhance quality instruction." (R5)

"To enhance board exam performance and faculty self-efficacy, there must be collaborative learning communities and training, and professional development." (R10)

"Send faculty for advanced studies with scholarships. Bring out the best in every employee and support their professional growth and development." (R11)

Collaborative Efforts and Shared Responsibility

Participants suggested that both faculty and students must work together to achieve desired board exam outcomes. This involves creating collaborative learning environments and shared accountability.

"Collaborative efforts from both faculty and students are essential, rather than solely relying on management. Faculty and students must work together to achieve their desired results, with management serving as their strongest support." (R14)

"It is a two-way traffic, which means both have to be mindful of their respective roles in the teaching-learning process." (R6)

Management Support and Resource Allocation

Several responses pointed to the need for management to actively support faculty initiatives and provide adequate resources for professional development and review programs.

"Support of the management on interventions especially reviews and special lecture/seminars." (R2)

"Benchmarking with other universities and provide support in the form of scholarships for faculty pursuing master's and doctoral degrees." (R12)

"Lack of budget was the main problem in improving faculty performance which may affect board performance." (R5)

Implementation of Effective Policies and Feedback Mechanisms

Participants noted that implementing admission and retention policies, course audits, and regular evaluations could help in identifying gaps and improving both teaching performance and board exam readiness.

"Prepare plan of action and intervention and implement it." (R1)

"The policy should be amended to institutionalize in-house reviews and establish Memorandums of Agreement (MOAs) with external review providers." (R13)

"Bring back the course audit." (R20)

Favorable Working Conditions and Faculty Load

Participants emphasized the need to adjust faculty workloads to allow them more time for preparation, student engagement, and personal development, which can directly impact board performance.

"The faculty members should be unloaded with too much responsibilities to provide the necessary focus in preparing the board exam takers during their formative years." (R15)

"Lessen faculty workload, review new lesson of preparation, integrate course audit in the curriculum." (R16)

"Professional development opportunities. Encourage and allow faculty to focus on achieving higher education by letting them apply for a leave." (R19)

Focus on Quality Instruction and Student Preparation

Many participants highlighted the importance of matching the right faculty to the right subjects and ensuring that both teaching quality and student preparation are prioritized.

"The faculty assigned to teach the subject should really be exceptional in their field in order to share greater things to the students." (R24)

"Right faculty to teach the right courses/subjects." (R26)

"Selection of potential students with dedication of the faculty." (R28)

Innovative Teaching and Continuous Learning

Participants suggested the importance of continuous learning and innovation in teaching strategies to keep up with the latest developments in their fields.

"Continuous enhancement training for faculty, monitoring of the performance of teaching effectiveness of the faculty and intensify the conduct of academic enhancement program and review classes." (R7)

"They should be innovative; wide reader in order to share the recent trends and developments in their field." (R24)

Addressing Gaps in Management Practices

Responses also indicated areas for improvement in management practices, particularly in terms of supporting faculty professional growth, effective decision-making, and reducing administrative burdens.

"Allowing faculty to go outside the box will help them to become more knowledgeable and more productive." (R5)

"Consider focusing more on the academic preparation of the students rather than documenting papers to be submitted in certifying bodies." (R15)

"Partnership with other institutions to conduct seminars and workshops focusing on strategies and managements." (R21)

Discussion

This study examined faculty perceptions of management practices, self-efficacy, and board performance at ISU, revealing five key themes: perceptions of management practices, faculty self-efficacy, board performance, the interrelationships among

these factors, and recommendations for improvement. Faculty highlighted strengths in management practices, notably the academic alignment with board exam content and a collaborative leadership style, which together foster a positive academic environment and reinforce faculty growth through professional development opportunities and incentives (Meng, 2023; Meyer & Allen, 1991). These findings underscore how supportive administrative practices can serve as a foundation for academic excellence, aligning with broader trends in higher education that emphasize the importance of well-coordinated institutional strategies.

However, the study also identified significant challenges that extend beyond the immediate context of ISU. Despite generally strong self-efficacy among faculty—driven by personal commitment and extensive teaching experience (Bandura, 1997; Tschannen-Moran & Hoy, 2001)—those holding additional administrative responsibilities reported fluctuating confidence levels due to inadequate training (Leithwood et al., 2004). This discrepancy suggests a critical need for assigning faculty to roles that match their expertise (Bañagale et al., 2020; Dagdag, 2018; Dagdag et al., 2017; Tschannen-Moran et al., 1998) and for addressing issues such as inconsistent policy enforcement, insufficient resource management, and ineffective communication, which have been shown to undermine faculty morale (Cohen & March, 1986; Yue et al., 2019). The additional strain caused by the rapid shift to online learning during the COVID-19 pandemic further exacerbated these challenges, even as ISU's consistent board exam success points to underlying academic strengths (Antiojo, 2017; Salta et al., 2022).

Building on these insights, the findings suggest that effective management practices not only directly enhance faculty self-efficacy but also indirectly improve board performance through better resource allocation and ongoing professional development (Bandura, 1997; Tschannen-Moran & Hoy, 2001). Conversely, mismanagement can have a detrimental effect on both faculty morale and student outcomes (Goddard et al., 2004). Faculty recommendations for addressing these challenges include enhancing review programs, aligning faculty assignments with their areas of expertise, improving resource allocation, and fostering collaboration between faculty and students (Binayao & Dales, 2020; Dagdag, 2018; Dagdag et al., 2017; Hoy & Miskel, 2008; Leithwood et al., 2004). These recommendations, interpreted in the context of broader trends in higher education, provide actionable strategies for institutions seeking to create a more supportive and effective academic environment.

Conclusion and Recommendation

This study reveals significant insights into the relationship between management practices and faculty self-efficacy, highlighting the critical role that leadership and institutional policies play in shaping faculty performance and student outcomes. It was evident that effective management practices, such as participative leadership, clear communication, and providing professional development opportunities, have a positive impact on faculty self-efficacy, which in turn enhances their teaching performance and students' success in board exams. Moreover, the study underscored the importance of fostering a supportive environment where faculty members feel confident in their ability to teach and contribute to students' academic achievement. As such, institutional policies should prioritize faculty development programs that focus not only on pedagogical skills but also on boosting faculty self-efficacy. Additionally, encouraging mentorship and peer support systems can enhance faculty confidence, particularly among less experienced educators. Policies that promote participative management and transparent communication within academic units are essential to create a sense of ownership and responsibility among faculty, leading to improvements in both teaching quality and student performance.

For future research, this study opens several avenues to explore the role of faculty self-efficacy in different academic disciplines and institutional contexts. Future studies could investigate how varying levels of institutional resources, such as access to technology and faculty-student ratios, influence the relationship between management practices and faculty confidence. Longitudinal studies could track the long-term impact of management interventions on faculty performance and student success in board exams. Furthermore, examining external factors, such as collaboration with review centers or industry partnerships, may provide insights into how these elements contribute to enhancing faculty efficacy and improving board exam outcomes. These avenues of research will help further refine the understanding of how management practices can be leveraged to optimize both faculty development and student achievement in higher education.

Conflict of Interest

The author declares that there is no conflict of interest.

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Effects of Korean drama to core values formation of Nationalian students

Jhoanna Andrea E. De Leon, Jemma M. Gonzales*, Danielle M. De Guzman†

National University, Manila, Metro Manila 1008, Philippines

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Abstract

A trend in media consumption among today's generation is binge-watching. Through it, people are able to keep up with what is new in many aspects, including cultural trends. One of the most popular media today is Korean Drama. The consumption of Korean cultural products started to swing in the midst of the pandemic. This means that K-drama is a media that is very popular among the generation today. With its established popularity, this research focused on determining how K-dramas affected the values formation among the students of National University - Manila. The specific values studied were: integrity, compassion, innovation, resilience, and patriotism. The study made use of a mixed-method approach to earn both quantitative and qualitative insights from the respondents through the use of questionnaires and interviews. The results of the study revealed the following: 89.32 percent of the respondents are watching K-dramas, and they have watched an average of 27 K-dramas with a total time of 16 and a half hours per week spent watching such. With the p - value for each formation being lower than .05, the results suggest that K-drama significantly affected Nationalian's values formation but there is no significant difference between the formation of values between K-drama viewers and non-K-drama viewers. The findings of the study align with the Media Dependency Theory which suggests that the intensity of consumption can shape its viewer's perspectives that include their value systems.

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* Corresponding author.
E-mail address: jmgonzales@national-u.edu.ph (Gonzales, J.M.).
† Co-first authors.

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Introduction

From the colonization of the Spanish, the occupation of the Americans to the arrival of the Japanese, all have introduced different values to Filipino society. These foreign nations have all contributed and influenced the unique culture of the Philippines (Adame, 2023). But today, even as the country is considered an independent nation, the presence of new and foreign cultural influences cannot be denied as there is an unending exposure to foreign cultures, especially through media. With the convenience of technology, availability and hype of these foreign cultural products, the Filipino culture, society and values are being influenced and thus adapt and change continuously. In the midst of the pandemic, there was an observable hyper consumption of Korean cultural products worldwide (Song, 2021). The consumption of K-drama is on the rise in the Philippines specifically because of the high number of fans in the country. K-drama has long been part of the Filipino lifestyle, but online sites and streaming platforms such as Netflix and YouTube have continuously improved their K-drama content and selection (Estoque, 2022). Because of the availability of these cultural products, consumption is definitely on the rise. Abdullah et al. (2024), discuss how young consumers are specifically being targeted by these trendy K-dramas. This can also be seen by the strategic availability of these dramas in popular streaming platforms and the convenience of accessing these dramas through several online streaming apps and sites as well, which also acquire the IP (Intellectual Property) Rights of these dramas and shows to keep them exclusive within their platforms (Jin, 2023). With this much access and exposure to foreign cultural products, one cannot help but wonder if the Filipino youth are now experiencing changing values in response to the consumption and exposure to K-drama as it was established that a lot of the viewers of K-drama are those of the younger generation. According to Gamage et al. (2021), one of the institutions that are tasked with values formations of the youth are the universities that definitely prioritize instilling values to the students. One university in particular focuses on five core values: integrity, compassion, innovation, resilience, patriotism (Core Values, n.d.). One cannot help but wonder if these values are then being reinforced by other activities the students partake in such as watching K-drama. This study then aims to answer the main research question which is to find out the effects of K-drama to the values formation of National University students or Nationalians. The study will also focus on the seven core values of the university.

Research Questions

What are the effects of watching K-drama on the core values formation of Nationalian students?

Sub-questions

1. How often do Nationalians watch K-dramas?
2. Is the effect of K-drama significant in terms of developing the following NU core values: Integrity, Compassion, Innovation, Resilience, Patriotism
3. How does K-drama personally affect Nationalians in terms of the NU core values?

Literature Review

South Korea is well known for its unique pop culture as it became known worldwide because of the trajectory and exponential growth that it has gone through over the past few years. This phenomenon is commonly known as the Korean Wave or Hallyu and has attracted attention from not only media but also scholars as it showcases distinctive cultural flows (Jin et al., 2021). Furthermore, Jin (2023), explains that the term was first used by a Taiwanese newspaper when Korean cultural products such as movies and dramas successfully entered their markets and generated great interest from their society. Since the day the term Hallyu was coined, it spread through word of mouth to countless peoples from different cultures, ages, genders, religions. And because of this, it created hybrid perspectives, beliefs and new cultures as the phenomenon affected more people with its reach and was able to accurately show how cultural imperialism really is. Gatchalian et al. (2023) also discuss that Hallyu has the capacity to unite the cultures that it has touched as people from all over the world now have something in common, their love for the Korean culture.

Jin (2023), states that Korea became one of the producers of a variety of cultural products such as K-drama and K-pop and was able to decrease the dominance of Western cultural products. Kunkunrat (2024), expounds on how Hallyu was able to form a positive image for South Korea as it plays a pivotal role in uniting the international community through various cultural products and thus creating better connectivity for the consumers of the cultural products.

Among all the factors that make up the Korean Wave, K-drama is one of the foremost drivers in this ever-growing industry. "K-drama" refers to the Korean Dramas and was one of the big factors that enabled the success of Hallyu from its oldest era or Hallyu 1.0 until the current era or Hallyu 4.0. Earlier dramas focused on themes that are heavy with Confucian and family values that made it easier to gain popularity in nearby countries such as China and subsequently to other neighboring Asian countries. Today, K-drama themes have branched out to socioeconomic issues and attracted global viewers (Jin, 2023).

The presence of internet, especially social media, enabled unlimited access to K-pop and K-drama, which resulted in people indulging themselves in more Korean cultural products. In fact, Capistrano et al. (2022), states that these contents are mostly free or available through inexpensive channels that induce further interactions with technologically inclined fans and encourage more consumption. With the intensity of the Korean wave in the Philippines, it is unsurprising that Filipino audiences have adapted the Korean culture. Filipinos have followed Korean trends in fashion, cuisine, cosmetics, etc. and been supportive of countless Korean celebrities, which is reflected with the endless fan meetings, events and concerts that take place in the country yearly. The society has also embraced the culture as the Department of Education began offering Korean language as an elective. Numerous Korean businesses such as restaurants, convenience stores, KTVs and so forth were also established. (Cayaban et al., 2023). Another factor that can affirm that Hallyu is here to remain is that the majority of the Filipino population is into trends and is very technologically savvy, and Korea is undoubtedly setting out to build its empire through these fields. Filipinos have access through multiple gadgets and platforms to ensure that they stay updated with online trends and content. An example of a content that is popular for the Filipinos are these K-dramas that are readily available through different platforms sites such as streaming services, online streaming sites and different apps (Capistrano et al., 2022). Beyond the behavior of the Filipinos and other concepts mentioned above, Hallyu is embedded into the culture of the Philippines as the people have become great patrons for the mentioned Korean cultural products. South Korea will undoubtedly continue to export their cultural products into the Philippine market and other Asian markets as lots of fans continue to patronize them (Bourne et al., 2025).

To be able to better understand the effect of Hallyu to foreign markets and to its consumers, several social theories can be explored. The first is the theory of Cultural Proximity, which will clarify why audiences prefer products that are either from their culture or for a culture that is like theirs. Audiences would then favor their local media content or content from cultures which have similarities with their own. According to Lood et al. (2023), K-drama is rich with Korean culture that has a proximity to the culture of the Philippines based on values such as: respect, family ties, women's resilience etc. Similarities such as values are then identified as what audiences experience from the media and what they can then identify with their own culture (Straubhaar, 1991). It will then be used to understand why K-dramas are often relatable to Filipinos. And also, the theory can be used to explore how related or similar Filipino and Korean cultures are. The next theory is Cultural Hybridity. Banks (2012) states that: "Cultural hybridity constitutes the effort to maintain a sense of balance among practices, values, and customs of two or more different cultures." Audiences can then combine elements from their culture and from the culture of the media they are consuming. Cultural products from Korea offer a combination of Asian culture and western ideas. This not only gives the audience, who is immersed in their local identity and culture, the sensation of being a part of a much bigger, global culture but also, the sensation of a completely new attractive cultural product (Park et al., 2021). This theory can also be applied to aid in understanding how culture acquired from K-drama and Filipino culture can mix and create a new hybrid culture. And lastly, the media cultivation theory by George Gerbner which states that media offers exaggerated and unreal messages, that eventually leads the audience to begin perceiving the world through the perspective of what was shown in media. And since media promulgates numerous ideas, the continual consumption of the audience over a prolonged period of time will eventually lead to the viewer's beliefs, attitudes and values being shaped by the media they consume (Wicks, 2000) This will support in exploring what beliefs, attitudes and values are cultivated from the K-dramas that are being consumed by its audience and will then be used to explain how K-drama can further captivate its audience.

As the authors of this research are all educators who are connected to an educational institution, exploring the effects of media, most specifically K-drama for this research, on students has stirred the interest of the researchers. Previous researches such as: "The Filipino Millennial and the Korean Drama Fad" (Estoque, 2022) and "Perceived Influence of Korean Drama in the Culture of Student Viewers in Central Luzon

State University" (Posadas et al., 2021) talked about how values in K-drama incites Filipino audiences but have not examined how these shows have shaped or influenced the viewers' values. And thus, how K-drama affects or reinforces a viewer's current values such as an educational institution's core values is a topic that is currently underexplored.

Methodology

Research Design

This study used a mixed method sequential explanatory design. The study made use of survey questionnaires for the quantitative data and in-depth interviews for the qualitative data collection. The study used a descriptive method of research which has the purpose of answering questions about current issues or problems through a process of data collection allowing the researchers to describe the situation more completely (Fox & Bayat, 2007).

Framework

The media dependency theory states that audiences become dependent specifically during the time of great social change and conflict. And because viewers are consuming more media, their dependency on media increases, while the influence of the media content towards the audience also increases (Ball-Rokeach & De Fleur, 1976). This will aid in explaining how the intensity and length of consumption of K-drama affects the students and if it eventually reinforces the values that they learn from school as the media portrays the usage of these values in different day to day scenarios.

This conceptual model was developed to exhibit the relationship between society and core values and how it is manifested in media. Society teaches the people values that can assist them in navigating their everyday lives; in the context of this study, the educational institution is guiding the students through the five core values that are instilled in them. In turn, as the students are exposed to different types of media, it exhibits the core values through the content which the students consume as the audience. The research would then attempt to determine the effect of what is taught by the institution being further substantiated by the media the students consume, which is K-drama in this study, as shown in Figure 1

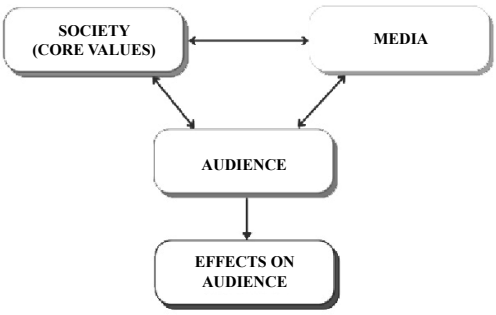


Figure 1 Conceptual model of the relationship between society and core values manifested in media

Participants

For the data gathering process, the survey used a sample size of 280 students – 140 K-drama watchers and 140 non-watchers, and the in-depth interviews included 28 students from National University - Manila. The quantitative data made use of convenience sampling technique as the study only needed the university's students while the qualitative data used purposive sampling technique with the inclusion criteria of (1) the interviewees should have been watching K-dramas for at least two years, or (2) they should have at least watched 15 K-dramas. Non-K-drama viewers were excluded in the interviews conducted within the study.

Data Collection

The research focused on two samples, K-drama viewers and non-viewers to really be able to compare the effects of the drama on the students. Other qualitative research tools such as in-depth interviews, follow up interviews and analysis of the findings were also used to check the accuracy of the research findings. The study used a Mixed Method Sequential Explanatory Design. The quantitative data were gathered through the use of Google Forms, and the form had restricted settings to the members of National University – Manila. The qualitative data were gathered through an online interview through MS Teams, and the respondents were restricted to those who had answered the survey. The interview was done through the use of an interview guide which was validated by three experts; (1) an expert in research and philosophy (2) an expert in history and the Nationalian course in the university, and lastly, (3) an Educational Management expert.

Data Analysis

The G*Power Data Analysis Application was used to determine the number of respondents for the questionnaire. The researchers gathered 140 watchers and 140 non-watchers of K-drama. 28 students were also selected for the in-depth interviews. The respondents were currently enrolled in National University for S.Y. 2021–2022. As the study used a Mixed Method Sequential Explanatory Design, Descriptive Statistics and Independent T-test were used through G*Power Data Analysis for the quantitative data while Braun and Clarke's Reflexive Thematic Analysis (2016) was used for the qualitative data. The researchers would then adopt the inductive approach to produce the codes that were needed for the data. After analyzing and interpreting, the respondents were later contacted to have them validate the qualitative findings.

Results

The following are the results from the survey questionnaire for the research that was distributed to National University students through the google forms link. The qualitative data were derived from the in-depth, follow-up interview from selected students who also answered the questionnaire.

The original target number of respondents for the survey was supposedly 140 K-drama watchers and 140 non-watchers. The researchers had difficulty finding students who were non-watchers and ultimately, there were a total of 281 respondents to the survey. Two hundred fifty one (251) respondents or 89.32 percent of the respondents answered yes to the question: Do you watch K-drama. On the other hand, only thirty respondents (30) or 10.68 percent of the respondents said no. The average number of K-dramas watched by the respondents is 27. The average number of hours being spent to watch K-dramas per week is 16.30.

Table 1 specifies the effects of watching K-drama in developing each of the individual NU core values: Integrity, Compassion, Innovation, Resilience and Patriotism. Looking at the *p*-values and since all *p*-values are less than .05, there is sufficient evidence to suggest that watching K-drama has a significant effect in developing all of the NU core values.

Table 2 specifies the effects of watching any tv-series for non-watchers of K-drama. As for comparing the results for non-watchers of K-drama, the *p*-values are all less than .05, which indicates that there is sufficient evidence to suggest that watching television/tv series has a significant effect in developing all of the NU core values for non K-drama watchers.

Table 3 corresponds the significant difference between effects of K-drama watchers and non-watchers for the NU core value of Integrity. For these data, the variables were treated as independent samples and since the *p*-value is equal to .156579, which is not less than .05, there is no sufficient evidence to say that the effects in developing the NU core values is different between the non K-drama watchers and the K-drama watchers.

Table 4 corresponds to the significant difference between effects of K-drama watchers and non-watchers for the NU core value of Compassion. For these data, the variables were treated as independent samples and since *p*-value is equal to .785562, which is not less than .05, there is no sufficient evidence to say that the effects in developing the NU core values is different between the non K-drama watchers and the K-drama watchers.

Table 1 Results from the effects of K-drama in terms of developing the following NU core values

Group 1 vs. Group 2		T-test for Independent Samples							
Integrity		Compassion		Innovation		Resilience		Patriotism	
Mean	3	Mean	3.333333	Mean	3.166667	2.958333	Mean	3.166667	Mean	3.125
Standard Error	0.134595	Standard Error	0.143288	Standard Error	0.177203	0.203939	Standard Error	0.130032	Standard Error	0.138738
Median	3	Median	3	Median	3	3	Median	3	Median	3
Mode	3	Mode	3	Mode	3	3	Mode	3	Mode	3
Standard Deviation	0.65938	Standard Deviation	0.701964	Standard Deviation	0.868115	0.999094	Standard Deviation	0.637022	Standard Deviation	0.679674
Sample Variance	0.434783	Sample Variance	0.492754	Sample Variance	0.753623	0.998188	Sample Variance	0.405797	Sample Variance	0.461957
Kurtosis	3.136364	Kurtosis	3.95495	Kurtosis	1.563542	2.972812	Kurtosis	5.118308	Kurtosis	3.315688

Table 2 Results from the significant effects on K-drama non-watchers in terms of developing the NU core values

Integrity		Compassion		Innovation		Resilience		Patriotism	
Mean	3	Mean	3.333333	Mean	3.166667	Mean	3.166667	Mean	3.125
Standard Error	0.134595	Standard Error	0.143288	Standard Error	0.177203	Standard Error	0.130032	Standard Error	0.138738
Median	3	Median	3	Median	3	Median	3	Median	3
Mode	3	Mode	3	Mode	3	Mode	3	Mode	3
Standard Deviation	0.65938	Standard Deviation	0.701964	Standard Deviation	0.868115	Standard Deviation	0.637022	Standard Deviation	0.679674
Sample Variance	0.434783	Sample Variance	0.492754	Sample Variance	0.753623	Sample Variance	0.405797	Sample Variance	0.461957
Kurtosis	3.136364	Kurtosis	3.95495	Kurtosis	1.563542	Kurtosis	5.118308	Kurtosis	3.315688
Skewness	-0.99267	Skewness	-1.40172	Skewness	-1.21636	Skewness	-1.24361	Skewness	-1.06216
Range	3	Range	3	Range	3	Range	3	Range	3
Minimum	1	Minimum	1	Minimum	1	Minimum	1	Minimum	1
Maximum	4	Maximum	4	Maximum	4	Maximum	4	Maximum	4
Sum	72	Sum	80	Sum	76	Sum	76	Sum	75
Count	24	Count	24	Count	24	Count	24	Count	24
t-test	3.7148	*t*-test	5.8158	*t*-test	3.7622	*t*-test	5.1270	*t*-test	4.5049
p-value	.0006	*p*-value	.0000	*p*-value	.0005	*p*-value	.0000	*p*-value	.0001

Table 3 Results from the significant difference between effects of K-drama watchers and effects of K-dramas non-watchers in terms of NU core value of Integrity

Group 1 vs. Group 2	T-test for Independent Samples									
	Mean Group 1	Mean Group 2	*t*-value	df	*p*	Valid N Group 1	Valid N Group 2	Std. Dev. Group 1	Std. Dev. Group 2	F-ratio Variances	*p* Variances
Integrity(Non) vs. Integrity	3.000000	3.223108	-1.42058	273	.156579	24	251	0.659380	0.741636	1.265055	0.515434

Table 4 Results from the significant difference between effects of K-drama watchers and effects of K-dramas non-watchers in terms of NU core value of Compassion

Group 1 vs. Group 2	T-test for Independent Samples									
	Mean Group 1	Mean Group 2	*t*-value	df	*p*	Valid N Group 1	Valid N Group 2	Std. Dev. Group 1	Std. Dev. Group 2	F-ratio Variances	*p* Variances
Compassion (Non) vs. Compassion	3.333333	3.378486	-0.272346	273	.785562	24	251	0.701964	0.782416	1.242356	.551576

Table 5 corresponds to the significant difference between effects of K-drama watchers and non-watchers for the NU core value of Innovation. For these data, the variables were treated as independent samples and since *p*-value is equal to .335376, which is not less than .05, there is no sufficient evidence to say that the effects in developing the NU core values is different between the non K-drama watchers and the K-drama watchers.

Table 6 corresponds to the significant difference between effects of K-drama watchers and non-watchers for the NU core value of Resilience. For these data, the variables were treated as independent samples and since the *p*-value is equal to .444295, which is not less than .05, there is no sufficient evidence to say that the effects in developing the NU core values is different between the non K-drama watchers and the K-drama watchers.

Table 7 corresponds to the significant difference between effects of K-drama watchers and non-watchers

Table 5 Results from the significant difference between effects of K-drama watchers and effects of K-dramas non-watchers in terms of NU core value of Innovation

Group 1 vs. Group 2	T-test for Independent Samples										
	Mean Group 1	Mean Group 2	*t*-value	df	*p*	Valid N Group 1	Valid N Group 2	Std. Dev. Group 1	Std. Dev. Group 2	F-ratio Variances	*p* Variances
Innovation (Non) vs. Innovation	3.166667	3.334661	-0.965046	273	.335376	24	251	0.868115	0.809663	1.149598	.585606

Table 6 Results from the significant difference between effects of K-drama watchers and effects of K-dramas non-watchers in terms of NU core value of Resilience

Group 1 vs. Group 2	T-test for Independent Samples										
	Mean Group 1	Mean Group 2	*t*-value	df	*p*	Valid N Group 1	Valid N Group 2	Std. Dev. Group 1	Std. Dev. Group 2	F-ratio Variances	*p* Variances
Resilience (Non) vs. Resilience	3.166667	3.298805	-0.766072	273	.444295	24	251	0.637022	0.821193	1.661812	0.147953

Table 7 Results from the significant difference between effects of K-drama watchers and effects of K-dramas non-watchers in terms of NU core value of Patriotism

Group 1 vs. Group 2	T-test for Independent Samples										
	Mean Group 1	Mean Group 2	*t*-value	df	*p*	Valid N Group 1	Valid N Group 2	Std. Dev. Group 1	Std. Dev. Group 2	F-ratio Variances	*p* Variances
Patriotism (Non) vs. Patriotism	3.1250 00	3.1075 70	0.1019 74	27 3	.9188 52	24	251	0.6796 74	0.8101 74	1.4208 75	0.3188 66

Note: Variables were treated as independent samples

for the NU core value of Patriotism. For these data, the variables were treated as independent samples and since the *p*-value is equal to .918852, which is not less than .05, there is no sufficient evidence to say that the effects in developing the NU core values is different between the non K-drama watchers and the K-drama watchers.

Braun and Clarke's framework for thematic analysis will be used to interpret and describe how K-drama personally affects the respondents in terms of the NU core values. Braun & Clarke define Thematic analysis (TA) as a: "method for identifying, analyzing, and interpreting patterns of meaning ('themes') within qualitative data." (2016). As a result of this research, how K-drama affects the participants was formulated through three main themes: [1] Visualization, [2] Emotional Connection, and [3] Relationship with others. The five subthemes are the core values of the institution: Integrity, Compassion, Innovation, Resilience, and Patriotism. (Table 8)

Participants explained how watching K-drama aids them in visualizing the core values. They feel that

Table 8 Illustrating the emergent themes, cluster of themes and formulated meaning from participant responses

Emergent themes	Theme clusters	Formulated Meaning
Visualization	Patriotism	Portrayal of Patriotism for the country, Depiction of care for history and culture, Saving the country from foreign influence.
	Innovation	Thinking outside the box, Working towards a goal, Improvement of work and skills.
Emotional Connection	Resilience	Getting back on their feet, Starting small, Hard work pays off, Developing inner strength
	Integrity	Importance of honesty, Development of strong moral principles, Honoring yourself.
Relationship with Others	Compassion	Sympathize with others, Show concern towards others, Empathy for the people around you.
	Integrity	Respect others, Trusting your classmates, Honoring others.

watching it being played out on screen helps them further understand how these values can be applied to real life experiences.

A participant describes how patriotism is depicted in drama: "And lastly, patriotism. Koreans deeply care for their history and culture. Such is evident in period dramas depicting stories of kings, queens, and commoners trying to save their country from absolute demise or protect it from foreign invaders."

Another describes innovation: "Thinking outside the box and solving all the complex issues in the series with her determination, and attaining her dream goal, by the help of her innovative thinking skills on how she can improve her work in this series."

Emotional Connection

Participants describe how watching K-drama sparks an emotional connection within them and how this inspires them to become a better person. The issues depicted in the series also encourages them to do some self-reflection and ask questions on how to become a better person.

A participant explains how K-drama made her more resilient: "There is a scene where a student got a failing score on an exam. She cried her heart out, yelling at the top of her lungs, then she got her book to study again. It inspired me to study better because I can get a failing grade once, but I won't let it happen twice."

Another participant describes how K-drama taught him integrity: So first is integrity, the show *It's okay not to be okay* taught me not to be so hard on myself, because there was a character there with autism and his brother always says that he is okay, and it was actually the brother with autism who pushes him to be honest and to admit if he is not okay. This reminds me of integrity because you should also honor and appreciate yourself."

And lastly, another participant mentioned how K-drama stirs the emotions: "The experiences of the characters allow me to gain insights into the importance of developing the core values I mentioned. It's hard to make something that people will remember for a lifetime in a market with so many options. What K-shows figure out in how to manage without shortcomings creates a lot of feelings you seldom experience in other global shows. Such captivates you with stunning cinematography, an engaging plot, and relatable characters, and ideologies and morals depicted in K-drama like integrity, resilience, and compassion have remained within me."

Relationship with others

Participants discuss how K-drama taught them how to build and maintain relationships with those around them. The shows teach them how to become a better person through treating others well and showing the values of compassion and integrity to the people they interact with.

A participant describes how K-drama taught her empathy for others: "K-drama is one of the many media that played a prominent role in molding my moral consciousness. With a relatively small social circle and limited interactions, I like exploring the nuances of humanity without the burden of socialization. Do you know how they say people unconsciously copy their loved ones' mannerisms and personalities? This is similar to how a K-drama's narrative, visual patterns, ideas, and ideologies leave an imprint on me, and help me be more compassionate towards others, to sympathize and empathize with their issues and problems."

Another participant discusses how K-drama teaches the importance of treating others with integrity: "Some people may think that K-drama is all about entertainment, but for me it is not just for entertainment, it also makes me reflect about what kind of life I am living. It personally helped me to wonder if I was still respectful towards others, and if I treated them with sincerity and compassion."

Discussion

The findings were analyzed based on the enumerated problems of the study. As per the result of the quantitative data of the study, 89.32 percent of the respondents are watching K-drama with an average of 27 total shows watched. More so, they spent an average of 16.30 hours a week doing so. Applying the media dependency and media cultivation theory, the length and intensity of the consumption of the students of K-drama have influenced the respondents in several ways, which include values formation and reinforcement. This could also mean that a lot of students are quite familiar with the different stories, characters, styles or themes presented in the shows they have watched. The students can also determine whether K-drama has an impact on their thought process, values or attitudes. This assumption is supported by the result of the interview where some of the respondents mentioned how K-drama helped them understand issues in society and reflect on the values that are good or morally right. Some respondents mentioned how watching K-drama molded their morality and aided them in applying the

core values to their day to day lives as K-drama shows how to tackle issues and solve them as well.

For the impact of K-drama on the personal development of the institution's core values, results suggest based on *t*-test of <0.05 that watching K-drama has an effect on students and the possibility of them further developing the core values. This means that the more K-drama students watch that depicts the school's values, the more the respondents may be affected and may possess those attributes as well. This is true as well for other K-drama non-watchers who attested about the same impact of shows on the development of core values. The result of > 0.05 of *t*-test for independent samples does not make any difference as to the impact of drama to values formation whether they are K-drama watchers or not.

More so, based on the result of *t*-test for independent samples > 0.05, which is to determine the difference between the effects of K-drama watchers and non-watchers in terms of development of all the core values of the university (namely integrity, compassion, innovation, resilience, patriotism) in the students, this implies that the respondents can develop those specified core values whether or not the show they are watching is K-drama.

However, the students were able to recognize specific core values depicted or shown in the K-drama they watched. Some of the most identified values were resilience, compassion and integrity. Recognizing these values is a good sign that the students can identify the message and lessons that the story is specifically sharing to the viewers. Using the media dependency theory explains how a viewer who has been exposed to a certain type of media may have been influenced in the long run. The respondents were also able to easily recognize the consistent values being depicted in K-drama compared to other foreign shows. The media proximity theory might be able to explain this as South Korea's culture is nearer to the culture of the Philippines, and thus, their values and traditions are similar especially if you compare it to western countries. The respondents to the interview also explained that the production quality of K-drama: cinematography, music makes them feel more immersed in the story and thus, having more impact on the viewers. This might have made it easier for the viewers to recognize the values that are being portrayed. The respondents also noticed how compassion and resilience were commonly emphasized and shown in the stories.

Based on the result of the interviews, all the respondents admitted that K-drama helped them develop the university's core values. Some of them explained that it was easy for them to relate to the stories since they depict real life scenarios. Moreover, the message or moral of the story is really applicable to real-life issues. Some of their plans or decisions in life somehow were influenced by the K-drama they had watched. The cultural hybridity theory might give some insights about how the viewers would combine certain elements they watched from media into their own lifestyle. One respondent relayed that the program that was chosen in college, how to overcome challenges and to be more positive in school life, were some of the things that influenced them through K-drama. This shows that the respondents were impacted in different ways by the shows that they had watched.

Furthermore, there are common depictions of K-drama for some core values of the university. According to the respondents, resilience is always expressed by the lead character or protagonist in overcoming the challenges in life like in the show *Reply 1988*. The value of compassion especially for the elders is a common scene in K-drama as well. Integrity was also shown prominently in the series *It's okay not to be okay*. Easily identifying the core values depicted in the shows means that it was thoroughly or repeatedly expressed and highly noticeable for the viewers. Some of the recommended titles to watch by the respondents (depicting core values) are: *Reply 1988, Twenty-five twenty-one, Hometown Chachacha, Business Proposal, One Beloved Summer, Rookie Historian, Extraordinary Attorney Woo, It's okay to not be okay, The Penthouse, Forgotten, Parasite, School 2013, Itaewon Class etc.*

There is a clear connection between K-drama and core values development of students since the respondents recognized the portrayal of many core values in these shows. Through this we can say that some of the university's core values are also present in the Korean culture or tradition as further strengthened by the conclusion of Lood et al. (2023) that the cultures of the Korea and Philippines have cultural proximity. More so, they also appreciate the different storylines that depict real-life situations which most people can easily relate to or reflect on.

Conclusion and Recommendation

After a thorough investigation of the possible effects of watching K-drama, the researchers have arrived at well-rooted and factual conclusions. Initially, due to massive consumption of K-drama by the students, the five core values of National University were further enhanced and developed through gaining different lessons at the end of

each series they were fans of. Subsequently, the results of this study suggest that based on the p-values and since all *p*-values are less than .05, there is sufficient evidence to suggest that watching K-drama has a significant effect in developing all of the NU core values.

However, the results of this study also revealed that there is no significant difference between watchers and non-watchers of K-drama in connection to the formation of core values of Nationalian students. Thus, it is safe to say that watching TV shows in general has a significant effect on the core values formation of National University students. More so, this research also found that even if there was no significant difference in the results of K-drama watchers and non watchers in terms of National University values formation, the majority of the respondents were K-drama viewers as the researchers could only find thirty (30) non-watchers, which further proves that there is a significant number of K-drama watchers from the student population. TV shows can thus be concluded as a useful tool in the education and values formation for the students of the university. And because of the availability of quality K-drama through different mediums, it will be beneficial for the university to look into the usage of these types of media to further enhance the values formation of the students.

The findings of the study show that watching K-drama has a significant effect on the development of the institution's core values. The study also proves that there was a significant number of K-drama watchers from the student population, in which the researchers were able to come up with the following recommendations: (1) That the members of the institution need to re-visit the syllabus as media such as TV shows, specifically K-dramas, can be used as part of the methodology or resource to further incorporate the institution's core values throughout their assessments. (2) Future researchers may conduct further and more in-depth studies on the impact of K-dramas and media among Filipino youth, specifically in connection to their academic performance. (3) For Filipino filmmakers, the research can inspire them to create Filipino dramas wherein Filipino Values are incorporated and demonstrated so the future generation would further understand the values and learn how to incorporate them in their daily lives. (4) And lastly, for policy makers, may this research convey the interest of the youth for media and its usefulness for values formation for future development of the entertainment industry of the Philippines.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Appendix

Appendix A – Interview Questions

1. Out of the NU Core Values, which were the ones that are being depicted in the K-dramas you have watched? (Pick at least 3).
2. Did the values you mentioned become further developed after watching K-drama? (Yes/No).

How did K-drama personally help you develop the mentioned NU core values?

3. How does K-drama portray these values? (Please describe the scenes or situations in the drama)
4. Would you recommend watching K-drama to fellow Nationalians for NU core values formation? (Yes/No. Why?) If yes, which specific K-drama titles would you recommend? Give at least 3.

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Cooperative learning, positive classroom climate, school environment, and mindset: Unraveling their impact on students' social-emotional learning

Suntonrapot Damrongpanit

Department of Educational Foundations and Development, Faculty of Education, Chiang Mai University, Chiang Mai 50200, Thailand

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Abstract

This study investigates the complex dynamics between cooperative learning, positive classroom climate, school environment, and mindset in fostering students' social-emotional learning (SEL). Using Partial Least Squares Structural Equation Modeling (PLS-SEM) and mediation analysis of data from 1,111 early secondary students in Northern Thailand, the findings reveal a nuanced interplay of factors. Cooperative learning emerged as the strongest direct influencer on SEL, demonstrating a medium effect size ($f^2 = 0.176$), followed by growth mindset ($f^2 = 0.076$). Notably, school environment exhibited the highest total effect ($b = 0.537$) and indirect effect ($b = 0.447$), primarily channeled through positive classroom climate and cooperative learning. Both fixed and growth mindsets demonstrated remarkable mediating capabilities when integrated with supportive environmental factors, achieving full mediation in two distinct pathways (VAF = 0.8050 for fixed mindset and VAF = 0.8255 for growth mindset). These findings underscore the critical importance of aligning external educational ecosystems with students' internal mindsets, offering valuable insights for educators and policymakers in designing comprehensive SEL interventions across diverse educational contexts.

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Introduction

Social-Emotional Learning (SEL) is a critical component in fostering an environment that nurtures students' holistic development. When students develop skills in perceiving and managing their emotions, understanding others, and building positive relationships with peers and teachers, it creates an atmosphere of mutual trust and respect in the classroom. This enhances learning motivation, leading to better academic performance and personal well-being (Weissberg et al., 2015). With high learning motivation, students become more expressive, confident, and able to analyze and solve problems effectively (Durlak et al., 2011; Taylor et al., 2017). Furthermore, developing social and emotional skills encourages students to take greater responsibility

E-mail address: suntonrapot.d@cmu.ac.th (Damrongpanit, S.).

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for their learning and actions as they gain better self-awareness and self-management (Collaborative for Academic, Social, and Emotional Learning, 2020).

However, promoting SEL in classrooms faces numerous challenges. Many teachers lack the knowledge and training to integrate SEL activities into their lessons effectively, potentially due to insufficient professional development in this area (Schonert-Reichl et al., 2017). Excessive teaching workloads limit teachers' time for planning and implementing SEL-promoting activities (Humphries et al., 2018). Large class sizes hinder personalized attention to students' needs (Durlak et al., 2011). Additionally, cultural norms in some societies prioritize academic achievement over social-emotional development, which could undermine SEL initiatives (Collie et al., 2015). Finally, underlying behavioral, emotional, or family-related issues may impede SEL development if appropriate support is not provided (Greenberg et al., 2017). These factors pose significant obstacles that require collaboration from all stakeholders—teachers, administrators, parents, and researchers—to overcome and achieve holistic student development.

Students' SEL development results from the interplay of various internal and external factors. Specifically: (i) Cooperative Learning fosters social-emotional skills by encouraging teamwork, communication, and acceptance of differing viewpoints (Johnson & Johnson, 2009). It develops emotional intelligence, self-confidence, intrinsic motivation, empathy, responsibility, and conflict resolution (Bialik & Tinari, 2015; Slavin, 2014), (ii) A Positive Classroom Climate characterized by empathetic teacher-student interactions promotes SEL competencies like self-expression, emotion regulation, and resilience (Caniëls et al., 2019; Jennings & Greenberg, 2009; Reyes et al., 2012). It reduces undesirable behaviors such as aggression and anxiety while enhancing engagement and achievement, (iii) A supportive School Environment lays the foundation for SEL by creating safe, inclusive spaces that encourage positive relationships, respect differences, and provide opportunities for experiential learning (Barr, 2016; Thapa et al., 2013). It influences SEL indirectly through shaping classroom climates and enabling cooperative pedagogies.

The mediating role of Mindset is crucial in linking environmental factors to SEL outcomes. Growth Mindset, which views abilities as malleable through effort, fosters motivation, perseverance, and adaptability, conducive to SEL development (Burnette et al., 2013; Yeager & Dweck, 2012). Conversely, Fixed Mindset undermines potential by reinforcing beliefs that abilities are static and unchangeable (Dweck, 2006). Cooperative learning and interactive environments cultivate Growth Mindset, promoting SEL-conducive traits such as confidence, perspective-taking, communication, empathy, and teamwork (Alzahrani et al., 2019; Zhao et al., 2021). Thus, studying the mediating role of Mindset between external factors (school environment, classroom climate, cooperative learning) and adolescents' SEL provides theoretical and practical insights into the mechanisms driving these developmental trajectories.

This study aims to comprehensively understand how cooperative learning, positive classroom climate, school environment, and Mindset shape adolescents' social-emotional learning (SEL). It examines the mediating role of Mindset between these factors and SEL outcomes among 1,111 early secondary students in Northern Thailand. By employing Bronfenbrenner's (1979) Ecological Systems Theory and the bioecological model of human development (Bronfenbrenner & Morris, 2006), together with Dweck's (2006) Mindset Theory, the findings will inform strategies for creating nurturing educational ecosystems that promote desirable mindsets and unlock students' full potential.

Literature Review

Social-Emotional Learning (SEL) has gained prominence since the 1990s as educators realized its importance alongside academics for thriving in today's complex society. Early research examined SEL programs' impact on students' achievement, behavior, and mental health (Durlak et al., 2011; Jones & Bouffard, 2012). Subsequent studies expanded to factors influencing program effectiveness, such as classroom climate, school culture, teaching approaches (Jennings & Greenberg, 2009; Oberle et al., 2016), and learners' self-perception and regulation processes (Taylor et al., 2017; Yang et al., 2019). A key finding was that SEL fosters higher emotional intelligence for better emotion control, focus, and effective learning (Brackett et al., 2011); stronger social skills for building positive relationships, collaboration, empathy, and constructive conflict resolution (Durlak et al., 2011); and promotes a positive learning environment conducive to academic success (Panayiotou et al., 2019).

Current SEL research explores program design, long-term evaluation, and applications for addressing societal issues (Brackett et al., 2019; Mahoney et al., 2020), contributing valuable knowledge to continuously enhance SEL instruction for developing learners' essential competencies. The CASEL Framework systematically

outlines five core SEL components: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Durlak et al., 2015; Weissberg et al., 2015). This comprehensive theory provides clarity on necessary SEL competencies, guides program/curriculum development and evaluation (Lawson et al., 2019), and highlights SEL's connections to academic learning, well-being, and positive behaviors (Yang et al., 2018). Thus, it serves as a valuable foundation for effectively and sustainably developing SEL.

Positive classroom climate significantly impacts adolescents' social-emotional learning. A warm, supportive atmosphere enhances motivation, engagement, and achievement through empathetic, respectful teacher-student interactions (Durlak et al., 2011; Jennings & Greenberg, 2009; Reyes et al., 2012). It also reduces undesirable adolescent behaviors like aggression, anxiety, and depression while building resilience during challenging transitions (Domitrovich et al., 2017). For instance, when students feel connected to their teachers and peers, they are more likely to develop SEL competencies like self-confidence, emotion regulation, and intrinsic motivation for self-improvement.

Cooperative learning powerfully develops social-emotional skills and collaborative concepts, promoting achievement and social skills through small-group interactions and peer support (Bandura, 1977; Johnson & Johnson, 2009; Johnson et al., 2000; Roseth et al., 2008; Sharan, 2010). It cultivates respect for diversity, effective communication, creative teamwork, leadership/follower roles, understanding responsibilities, and group processing (Slavin, 2014). Additionally, cooperative learning fosters intrinsic motivation, self-expression, confidence, and critical thinking—key traits of 21st-century learners (Bialik & Tinari, 2015). These findings align with Vygotsky's (1978) Social Learning Theory emphasizing how interactive environments facilitate cognitive and social growth.

School environment significantly shapes adolescents' SEL development, as schools serve as their primary daily context. A positive, safe, and orderly school climate promotes emotional well-being, positive attitudes, and appropriate social behaviors (Roeser et al., 1996; Thapa et al., 2013). Supportive policies, collaborative teaching methods, respectful student participation opportunities, and conducive physical spaces enable effective cooperative learning and positive classroom climates (Barr, 2016; Durlak et al., 2011; Johnson & Johnson, 2009). Overall, a positive school environment lays the crucial foundation for comprehensively developing students' social-emotional skills for future success. This encapsulates Bronfenbrenner's (1979) Ecological Systems Theory which underscores how macro-level environmental factors influence micro-level developmental processes.

Mindset refers to beliefs about abilities and potential, categorized into two types: Fixed Mindset (FIX) and Growth Mindset (GRO). Fixed mindset assumes that abilities are innate and unchangeable, potentially undermining motivation and adaptability (Dweck, 2006). Conversely, growth mindset views abilities as malleable through effort and practice, fostering intrinsic motivation, perseverance, and adaptability conducive to SEL development (Burnette et al., 2013; Dweck, 2016; Romero et al., 2014; Yeager & Dweck, 2012). Research shows that growth mindset amplifies the effects of supportive environments and interactive pedagogies, promoting SEL-conducive traits like confidence, perspective-taking, communication, empathy, and teamwork (Alzahrani et al., 2019; Zhao et al., 2021). While growth mindset demonstrates stronger individual mediation effects than fixed mindset, both mindsets exhibit comparable mediation when dynamically integrated alongside school environment, classroom climate, and cooperative learning factors. This suggests that mindsets alone are insufficient catalysts; their actualization hinges upon being nurtured through conducive schoolwide foundations and interactive pedagogies (Hattie, 2008).

Mediation analysis is theoretically and practically significant for understanding how external factors (school environment, classroom climate, cooperative learning) influence internal SEL outcomes via mindset mediators. Specifically, single mediator models examine the role of mindset between independent variables and SEL, while series mediation models investigate combined influences of multiple mediators (Hayes, 2018). Variance Accounted For (VAF = IE/TE) quantifies mediation magnitude: full (VAF > 0.80), partial (0.20 < VAF < 0.80), or no mediation (VAF < 0.20). For example, results indicate that growth mindset exhibits more pronounced individual mediation in single paths but diminishes when integrated with additional mediators. Both mindsets fully mediate in joint mediator models, suggesting their realization depends on supportive schoolwide foundations and interactive pedagogies.

To address the conceptual framework's alignment with data analysis, this study examines whether POC, COO, FIX, and GRO act as mediators linking SEC to SEL outcomes. Hypotheses H6-H17 explore these mediation effects, informed by empirical evidence showing that mindset mediates relationships between external factors and SEL. For instance, H16 (SEC → POC → COO →

FIX → SEL) and H17 (SEC → POC → COO → GRO → SEL) demonstrate near-equal full mediation effects, underscoring the importance of integrating mindset into educational ecosystems.

Organizing the literature review around relationships between SEL and related factors ensures coherence and flow from general to specific. Studies confirm that school environment indirectly influences SEL through shaping classroom climates and enabling cooperative pedagogies (Collie et al., 2015). For example, supportive school policies promote inclusivity, safety, and experiential learning, creating conditions conducive to SEL development. Similarly, a positive classroom climate enhances trust, respect, and engagement, while cooperative learning facilitates teamwork, communication, and empathy—all integral to fostering SEL competencies.

Methodology

Participants

Participants for this study were 1,111 early secondary school students from various schools in the northern region of Thailand. The selection process utilized a multi-stage random sampling method, ensuring diversity and representativeness across different school sizes and geographic locations. The sample size was determined using power analysis, considering 10 latent variables and 22 observed variables in the hypothesized model. A power level (1-β) of 0.80 was chosen, reflecting a 20 percent probability of failing to reject a false null hypothesis. An effect size (f^2) of 0.15 was selected as medium based on prior research recommendations, and a significance level (α) of 0.05 was applied, representing a 5 percent probability of error (Cohen, 1992). This yielded a minimum required sample size of 876 participants, which was exceeded by the actual data collection.

Schools in Northern Thailand were categorized into three strata based on size: (i) small schools: Fewer than 300 students, (ii) medium schools: Between 300–600 students, and (iii) large schools: More than 600 students.

In the northern region, small schools constituted the majority (56.61%) of all schools. Using stratified random sampling, schools were proportionally selected from each category to ensure balanced representation. For schools with multiple classrooms at the target grade levels (Grades 7–9), classrooms were randomly selected using cluster sampling. Specifically:

- In small schools, where there were fewer classrooms per grade, all available classrooms were included.
- In medium and large schools, one classroom was randomly selected to avoid over-representation.

This approach ensured that students from diverse classroom environments were included in the study. The demographic characteristics of participants were 11–17 years, with an average age of approximately 13.713 years, male (41.4%, n = 460) and female (58.6%, n = 650), grade 7 (34.7%, n = 385), grade 8 (32.4%, n = 361), and grade 9 (32.9%, n = 365). Students completed questionnaires without time limits, taking approximately 12–19 minutes per questionnaire. Researchers contacted schools, introduced the study, explained instruments and procedures to students, and ensured confidentiality throughout the data collection process.

Data Collection

To measure the variables in this study, a 5-point rating scale questionnaire was developed. The scale ranged from 1 = strongly disagree/never practiced to 5 = strongly agree/always practiced, ensuring comprehensive coverage of the observed variables in the hypothesized model. To ensure content validity, the questionnaire was reviewed by four experts in education and psychology, and their feedback was incorporated to improve completeness before piloting with 100 students. The pilot data were analyzed for discriminant validity using item-total correlation via Pearson's correlation coefficients (r_{XY}), and reliability was assessed for each observed variable using Cronbach's alpha coefficients (α). Below is an explanation of how each variable was measured, along with sample items for clarity.

Positive Classroom Climate (POC) reflects teacher-student and peer interactions characterized by understanding, support, respect, friendliness, relaxation, and safety, fostering self-confidence and motivation for self-development. It comprises three observed variables: autonomy (CLA1), challenge (CLA2), and promoting respect for others (CLA3), measured by nine items such as "I am given opportunities to express my opinions in class," "My teacher encourages me to try new things that challenge me," and "The classroom atmosphere helps me recognize the value of diversity." Discriminant values ranged from 0.291–0.663, and reliability (Cronbach's alpha) was 0.861, indicating good internal consistency.

Cooperative Learning (COO) emphasizes positive student interactions through teamwork, exchanging viewpoints, and collaborative problem-solving. It includes four observed variables: positive interdependence (COO1), exchanging viewpoints (COO2), small group

work (COO3), and group processing (COO4), measured by twelve items such as "When working in groups, we all depend on each other to succeed," "I listen to others' ideas during group activities and incorporate them into our work," "Group tasks help me understand the material better than working alone," and "We discuss how to improve our group dynamics after completing tasks." Discriminant values ranged from 0.491–0.680, and reliability (Cronbach's alpha) was 0.895, reflecting robust measurement properties.

Mindset refers to students' beliefs about their abilities and potential, categorized into two types: Fixed Mindset (FIX) and Growth Mindset (GRO). FIX assumes that abilities are innate and unchangeable, measured by three items such as "My intelligence is something I cannot change much" (FIX1), "I cannot significantly improve my skills no matter how hard I try" (FIX2), and "Talent determines success more than effort" (FIX3). Discriminant values ranged from 0.533–0.731, and reliability (Cronbach's alpha) was 0.712. GRO views abilities as malleable through intentional effort and practice, also measured by three items such as "No matter who we are, we can always develop our intelligence" (GRO1), "Humans can always change their intelligence with practice" (GRO2), and "I believe I can always improve my intelligence regardless of my starting point" (GRO3). Discriminant values ranged from 0.702–0.747, and reliability (Cronbach's alpha) was 0.795, confirming the distinct roles of both mindsets in SEL development. These items were adapted from Dweck (2006) and modified for adolescent learners.

School Environment (SEC) encompasses physical and social characteristics that promote peaceful coexistence, acceptance of differences, respect, adaptability, and harmonious living. It includes four observed variables: spaces promoting interaction (ENV1), extracurricular activities for social learning (ENV2), freedom to choose activities (ENV3), and promoting acceptance of identities (ENV4), measured by twelve items such as "Our school provides areas where students can interact and collaborate effectively," "School activities help me develop friendships and social skills," "I have the opportunity to choose activities that interest me," and "Our school respects and celebrates cultural diversity among students." Discriminant values ranged from 0.534–0.707, and reliability (Cronbach's alpha) was 0.928, demonstrating high validity and reliability.

Social-Emotional Learning (SEL) was operationalized into five core components: Self-awareness (SEA), Self-management (SEM), Social Awareness (SOA), Relationship Skills (RES), and Responsible Decision-making (RDM). Each component was measured using specific items: SEA (9 items), SEM (15 items), SOA (16 items), RES (15 items), and RDM (10 items). Discriminant values and reliability scores were reported for each aspect, with composite reliability (CR) ranging from 0.7995 (POC) to 0.8860 (SEL) and average variance extracted (AVE) ranging from 0.5078 (POC) to 0.7097 (GRO).

Data collection involved contacting schools, introducing the study objectives, explaining instruments and procedures to students while ensuring confidentiality. Students completed questionnaires without time limits, taking approximately 12–19 minutes per set. Out of 1,200 distributed questionnaires, 1,111 valid responses were collected, with only four excluded due to incomplete answers exceeding 30 percent. This study received ethical approval from the Chiang Mai University Ethics Committee (COA No. 053/66; CMUREC No. 66/085).

Data Analysis

To analyze the relationships between the variables in this study, Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed. This method is particularly suitable for studying causal relationships among multivariate constructs and aligns well with the hypothesized model's complexity (Hair et al., 2017). Parameters were estimated using the PLS algorithm, while significance was tested through Bootstrapping with 5,000 resamples (Hair et al., 2017).

Given that the hypothesized model included formative-formative higher-order constructs, the disjoint two-stage approach was used to reduce complexity, prevent multicollinearity, and minimize measurement error (Sarstedt et al., 2019). In the first stage, a model with lower-order constructs and mediators was analyzed to obtain standardized lower-order construct scores. These scores were then used as indicators for newly created higher-order constructs in the second stage, re-analyzing the model while maintaining the mediating roles of mindset (FIX/GRO) between external factors (SEC, POC, COO) and social-emotional learning (SEL).

The analysis was conducted using ADANCO version 2.4 software (Henseler & Dijkstra, 2015), which facilitates robust estimation of parameters for complex models with multiple mediators. Below are the key steps followed in the data analysis process: (i) Overall Model Fit Assessment: The Standardized Root Mean Square Residual (SRMR) was used to evaluate the overall fit of the model. A value below 0.080 indicates good alignment between the estimated and empirical covariance matrices

(Hair et al., 2017), (ii) Measurement Model Evaluation: Reflective measurement structures were assessed using loadings, Cronbach's Alpha coefficients (CA), construct reliability measures (ρA), composite reliabilities (CR), and average variance extracted (AVE). For discriminant validity, both the Heterotrait-Monotrait Ratio of Correlations (HTMT) and Fornell-Larcker Criterion were applied. HTMT values less than 0.85 and square roots of AVE greater than correlations with other latent variables confirmed adequate discriminant validity (Fornell & Larcker, 1981; Sarstedt et al., 2019), and (iii) Structural Model Assessment: Path coefficients, R^2 values, and f^2 effect sizes were calculated to evaluate the structural model. Indirect effects (IE) and total effects (TE) were also assessed to determine the mediating role of mindset (FIX/GRO) between independent variables (SEC, POC, COO) and the dependent variable (SEL). Variance Accounted For (VAF = IE/TE) quantified the magnitude of mediation effects, categorized as full (VAF > 0.80), partial (0.20 < VAF < 0.80), or no mediation (VAF < 0.20) (Hayes, 2018).

To test single mediator models, the direct effect (DE) was compared before (C) and after (C') adding the mediator, along with indirect effects (IE) and total effects (TE). Significance levels for both direct and indirect effects were tested at the 0.01 level. For series mediation analysis, additional mediators were included sequentially based on hypotheses H12-H17. This approach ensured a systematic evaluation of mediation pathways, reflecting the interplay between school environment, classroom climate, cooperative learning, and mindset in influencing SEL outcomes.

The justification for using PLS-SEM over traditional SEM lies in its suitability for handling complex models with formative constructs and mediation pathways. It also provides robust estimates even when data distributions deviate from normality, enhancing the reliability and validity of findings (Hair et al., 2017). Furthermore, the disjoint two-stage approach ensures accurate handling of measurement error by analyzing lower-order constructs separately before integrating them into higher-order constructs, reducing multicollinearity and increasing confidence in the reported results (Sarstedt et al., 2019).

Results

Overall and Measurement Model Assessment

After analyzing the higher-order construct model using Partial Least Squares Structural Equation Modeling (PLS-SEM), the SRMR value of 0.0614 indicates good fit between the estimated and empirical covariance matrices. Evaluating the reflective measurement structures reveals observed variable means ranging from 3.374 (CLA1) to 4.339 (GRO3), with standard deviations between 0.770 (COO3) and 1.111 (CLA1), except for the standardized social-emotional learning variable derived from z-scores in the first step of analysis. Data distribution is approximately normal based on skewness (-0.995 to -0.194) and kurtosis (-0.580 to 0.679). Loadings for each observed variable range from 0.7301 (SEA and FIX3) to 0.8467 (GRO2), all significantly different from zero at the 0.01 level. Reliability assessments show Cronbach's Alpha values between 0.7137 (FIX) and 0.8427 (SEL), construct reliability measures between 0.7184 (FIX) and 0.8749 (SEC), composite reliabilities between 0.7995 (POC) and 0.8860 (SEL), and AVE values from 0.5078 (POC) to 0.7097 (GRO), all exceeding recommended thresholds. These results demonstrate good measurement model quality, reliability, and suitability for structural model analysis. Details are presented in Table 1.

Discriminant Validity Assessment

The discriminant validity assessment confirms that latent variables exhibit good separation. The HTMT values range from 0.1404 (FIX-POC) to 0.8034 (SEL-COO), meeting the criterion of HTMT < 0.85. Additionally, the square roots of AVE shown diagonally in parentheses exceed correlations with other latent variables below the diagonal AVEs. This supports discriminant validity across all six latent variables, ensuring accurate measurement of intended constructs. Results are detailed in Table 2 and Table 3.

Structural Model Assessment

The structural model analysis revealed that the latent variables collectively explained 53.10 percent of the variance in social-emotional learning (SEL). This finding aligns with Bronfenbrenner's (1979) Ecological Systems Theory emphasizing how macro-level environmental factors interact with micro-level processes to shape developmental trajectories. Specifically, the school environment (SEC) emerged as the most influential variable with the highest total effect (b = 0.537) and indirect effect (b = 0.447) on SEL, indicating its foundational role in fostering SEL outcomes through supportive classroom climates and cooperative learning environments.

Cooperative Learning (COO) demonstrated the

Table 1 Measurement model result

Construct	Mean	SD	Sk	Kur	Loading	CA	ρ_A	CR	AVE
Social-emotional Learning[a] (SEL)									
SEA	0.000	1.000	-0.194	-0.006	0.7301**				
SEM	0.000	1.000	-0.210	-0.430	0.8003**	0.8428	0.8495	0.8860	0.6155
SOA	0.000	1.000	-0.396	0.534	0.7244**				
RES	0.000	1.000	-0.445	0.136	0.8415**				
RDM	0.000	1.000	-0.379	-0.229	0.8192**				
Fix Mindset (FIX)									
FIX1	3.589	0.946	-0.533	0.190	0.8273**	0.7137	0.7184	0.8402	0.6375
FIX2	3.474	0.932	-0.383	0.130	0.8337**				
FIX3	3.558	0.974	-0.418	-0.077	0.7301**				
Growth Mindset (GRO)									
GRO1	4.292	0.812	-0.995	0.679	0.8446**	0.7961	0.7992	0.8800	0.7097
GRO2	4.120	0.858	-0.627	-0.341	0.8467**				
GRO3	4.339	0.773	-0.971	0.425	0.8361**				
Positive Classroom (POC)									
CLA1	3.374	1.111	-0.339	-0.580	0.7714**	0.7325	0.7995	0.7995	0.5078
CLA2	3.489	1.024	-0.458	-0.177	0.7411**				
CLA3	3.849	0.851	-0.305	-0.406	0.7538**				
Cooperative Learning (COO)									
COO1	3.992	0.822	-0.464	-0.178	0.7501**	0.7912	0.7941	0.8645	0.6148
COO2	3.929	0.829	-0.476	0.105	0.8107**				
COO3	4.006	0.770	-0.470	0.082	0.7966**				
COO4	3.869	0.807	-0.419	0.096	0.7777**				
School Environment (SEC)									
ENV1	3.827	0.963	-0.565	-0.077	0.7818**	0.8093	0.8749	0.8749	0.6362
ENV2	3.845	0.831	-0.337	-0.114	0.8161**				
ENV3	3.895	0.889	-0.579	0.219	0.8121**				
ENV4	3.719	0.898	-0.458	0.179	0.7798**				

Note: a: Used standardized z-scores in the first step of the analysis; CA: Cronbach's Alpha; CR: composite reliability; ρA: construct reliability measure; AVE: average variance extracted.

largest direct effect (b = 0.404) and medium-sized direct impact (f^2 = 0.176), reflecting its critical role in promoting SEL skills such as teamwork, communication, and empathy. Growth Mindset (GRO) followed closely with a significant direct effect (b = 0.212) but smaller direct impact (f^2 = 0.076), highlighting its importance in enhancing intrinsic motivation and perseverance for SEL development. Positive Classroom Climate (POC) exhibited the third-largest direct effect (b = 0.171) and small direct impact (f^2 = 0.042), yet it had the second-highest indirect effect (b = 0.130) and third-highest total effect (b = 0.302) on SEL. These results underscore the

Table 2 Discriminant validity assessment

Latent	SEL	FIX	GRO	POC	COO	SEC
SEL						
FIX	0.3245					
GRO	0.5933	0.2283				
POC	0.6775	0.1404	0.4302			
COO	0.8034	0.2279	0.5352	0.6911		
SEC	0.6488	0.2238	0.4275	0.7117	0.8111	

Table 3 Discriminant validity: Fornell-Larcker criterion

Latent	SEL	FIX	GRO	POC	COO	SEC
SEL	(0.6155)					
FIX	0.0638	(0.6375)				
GRO	0.2387	0.0299	(0.7097)			
POC	0.2515	0.0097	0.0992	(0.5078)		
COO	0.4349	0.0296	0.1815	0.2562	(0.6148)	
SEC	0.2884	0.0287	0.1187	0.2812	0.4255	(0.6362)

interplay between external factors (SEC, POC, COO) and internal mediators (FIX/GRO) in shaping SEL competencies.

Mediation Effects Analysis

Two paths exhibited full mediation: SEC → POC → COO → FIX → SEL: With VAF = 0.8050 (this supports H16) and SEC → POC → COO → GRO → SEL: with VAF = 0.8255 (this supports H17). These findings confirm that both mindsets fully mediate the relationship between SEC and SEL when combined with appropriate learning approaches and positive classroom climates, as suggested by Bronfenbrenner's theory.

Six paths demonstrated partial mediation, with VAF values ranging from 0.2689 to 0.7875: 1) POC → GRO → SEL: VAF = 0.2689 (supporting H7), 2) SEC → GRO → SEL: VAF = 0.4446 (supporting H11), 3) SEC → POC → FIX → SEL: VAF= 0.5474 (supporting H12), 4) SEC → POC → GRO → SEL VAF = 0.6456 (supporting H13), 5) SEC → COO → FIX → SEL: VAF = 0.7573 (supporting H14), and 6) SEC → COO → GRO → SEL: VAF = 0.7875 (supporting H15).

When considering joint mediators, both Fixed Mindset (FIX) and Growth Mindset (GRO) exhibited comparable mediation effects, particularly in serial mediation models. However, as single mediators, only Growth Mindset demonstrated mediation potency, underscoring its prominence in individual mediation paths. This aligns with Hayes' (2018) framework for conditional process analysis, which emphasizes the importance of examining multiple mediators simultaneously.

Serial Mediation Analysis

The serial mediation analysis investigated the combined influence of SEC, POC, and COO on SEL through FIX/GRO as mediators. Seven out of eight paths followed a serial rather than parallel mediation pattern. Notably, when school environment (SEC) was included as the primary independent variable, both mindsets (FIX/GRO) fully mediated the relationship between SEC and SEL. The near-equal full mediation effects were observed for SEC → POC → COO → FIX → SEL (VAF = 0.8050) and SEC → POC → COO → GRO → SEL (VAF = 0.8255). This suggests that while mindset plays a crucial role, its actualization depends on being nurtured through conducive schoolwide foundations and interactive pedagogies. Results are detailed in Table 4.

Table 3 presents the discriminant validity assessment using the Fornell-Larcker Criterion. The square roots of Average Variance Extracted (AVE) shown diagonally in parentheses exceeded the correlations of each latent variable with others below the diagonal AVEs. For example: 1) The square root of AVE for SEL (0.6155) was greater than its correlations with other variables (e.g., FIX: 0.0638, GRO: 0.2387, POC: 0.2515, COO: 0.4349, SEC: 0.2884). 2) Similarly, for School Environment (SEC), the square root of AVE (0.6362) surpassed its correlations with other constructs (e.g., SEL: 0.2884, FIX: 0.0287, GRO: 0.1187, POC: 0.2812, COO: 0.4255). This confirms adequate discriminant validity among all six latent variables, ensuring accurate measurement and suitability for further structural model analysis. Details are presented in Table 3, which also supports the conceptual framework's alignment with the data analysis. The structural model results are illustrated in Figure 1.

Discussion

The comprehensive analysis of this study provides valuable insights into the intricate interplay between cooperative learning, positive classroom climate, school environment, and mindset in shaping students' social-emotional learning (SEL). These findings not only confirm theoretical frameworks like Bronfenbrenner's (1979) Ecological Systems Theory but also offer practical implications for fostering holistic development within educational ecosystems.

Table 4 Result of mediation and serial mediation analysis

Path	Effect	Coefficients	t-value	VAF	Conclusion
POC→ FIX → SEL	TE	0.1903**	7.2695	0.0568	No Mediation (Not Support H6)
	DE (C)	0.1802**	6.9774		
	DE (C')	0.1795**	6.9163		
	IE	0.0108*	2.4265		
POC→ GRO →SEL	TE	0.2435**	8.9399	0.2689	Partial Mediation (Support H7)
	DE (C)	0.1802**	6.9774		
	DE (C')	0.1780**	6.8266		
	IE	0.0655**	6.2636		
COO → FIX → SEL	TE	0.4213**	5.2405	0.0468	No Mediation (Not Support H8)
	DE (C)	0.4012**	12.7208		
	DE (C')	0.4016**	12.7383		
	IE	0.0197**	3.5672		
COO → GRO → SEL	TE	0.4905**	16.1784	0.1838	No Mediation (Not Support H9)
	DE (C)	0.4012**	12.7208		
	DE (C')	0.4003**	12.6577		
	IE	0.0902**	7.2381		
SEC → FIX → SEL	TE	0.1121**	3.3842	0.1748	No Mediation (Not Support H10)
	DE (C)	0.0917**	2.7561		
	DE (C')	0.0924**	2.7820		
	IE	0.0196**	3.3895		
SEC → GRO → SEL	TE	0.1635**	4.8057	0.4446	Partial Mediation (Support H11)
	DE (C)	0.0917**	2.7561		
	DE (C')	0.0908**	2.7125		
	IE	0.0727**	6.6313		
SEC → POC → FIX → SEL	TE	0.2013**	6.4813	0.5474	Partial Mediation (Support H12)
	DE (C)	0.0917**	2.7561		
	DE (C')	0.0911**	2.7160		
	IE	0.1102**	6.9734		
SEC → POC→GRO → SEL	TE	0.2540**	8.0337	0.6456	Partial Mediation (Support H13)
	DE (C)	0.0917**	2.7561		
	DE (C')	0.0900**	2.6753		
	IE	0.1640**	9.1492		
SEC→COO → FIX → SEL	TE	0.3725**	12.6620	0.7573	Partial Mediation (Support H14)
	DE (C)	0.0917**	2.7561		
	DE (C')	0.0904**	2.7053		
	IE	0.2821**	12.0973		
SEC → COO→ GRO → SEL	TE	0.4255**	14.7021	0.7875	Partial Mediation (Support H15)
	DE (C)	0.0917**	2.7561		
	DE (C')	0.0904**	2.6927		
	IE	0.3351	14.1824		
SEC → POC → COO → FIX → SEL	TE	0.4638**	18.0467	0.8050	Full Mediation (Support H16)
	DE (C)	0.0917**	2.7561		
	DE (C')	0.0904**	2.6898		
	IE	0.3734**	14.2406		
SEC → POC → COO → GRO → SEL	TE	0.5175**	20.8781	0.8255	Full Mediation (Support H17)
	DE (C)	0.0917**	2.7561		
	DE (C')	0.0903**	2.6779		
	IE	0.4272**	16.2945		

Note: ** $p < .01$, VAF= Variance Accounted For, C: DE before mediator added, C': DE after mediator added

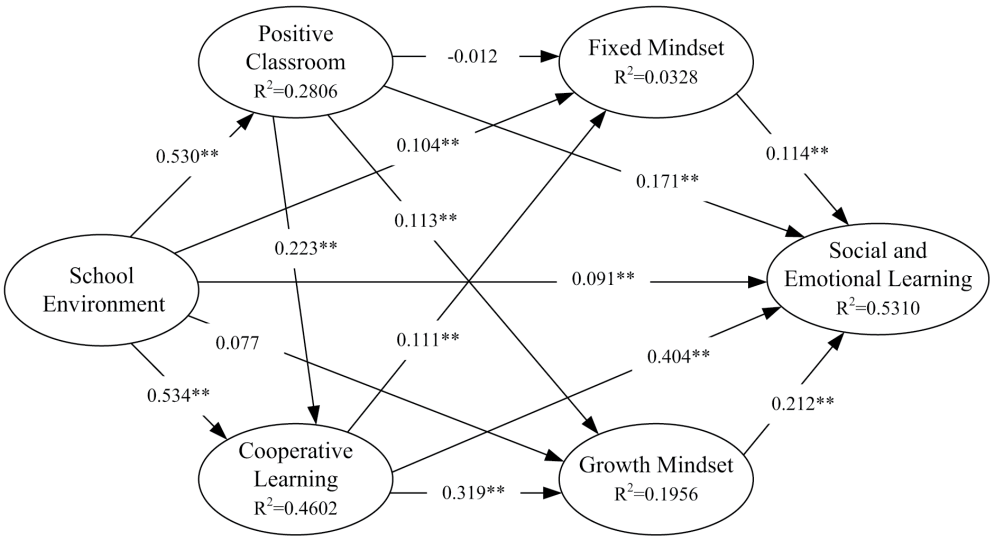


Figure 1 Results of the analysis of the influence of the five factors on social-emotional learning
Note: ** $p < .01$, R2: coefficient of determination

The results highlight that the school environment (SEC) plays a foundational role in nurturing SEL outcomes, indirectly influencing them through positive classroom climate (POC) and cooperative learning (COO). This aligns with Bronfenbrenner's perspective that human development emerges from interactions across multiple ecological levels—macro (school policies), meso (classroom practices), and micro (individual mindsets). Specifically: Cooperative Learning (COO) emerged as the strongest direct influencer on SEL, emphasizing its critical role in promoting teamwork, communication, and empathy. This finding resonates with Vygotsky's (1978) Social Learning Theory which underscores how collaborative environments enhance cognitive and emotional growth. Growth Mindset (GRO) demonstrated significant mediation effects when combined with supportive external factors such as SEC, POC, and COO. While GRO was more prominent in single mediation paths, differences diminished in series mediation models, indicating that mindset alone cannot fully unlock SEL potential without conducive environmental foundations.

Creating an effective ecosystem for SEL requires intentional alignment between macro-level structures (e.g., school policies and culture) and micro-level processes (e.g., teacher-student interactions and peer collaboration). For instance: A positive classroom climate (POC) fosters trust, respect, and motivation, essential for SEL development. This supports Jennings & Greenberg's (2009) argument that empathetic teacher-student relationships significantly enhance student engagement and well-being. Cooperative learning (COO) enables students to practice real-world skills such as negotiation, conflict resolution, and perspective-taking. It transforms classrooms into vibrant micro-societies where students learn to value diversity and work collaboratively, consistent with Johnson & Johnson's (2009) findings on the benefits of interactive pedagogies.

Interestingly, while both Fixed Mindset (FIX) and Growth Mindset (GRO) acted as mediators in series mediation models, their effectiveness depended heavily on the presence of supportive external factors. When integrated with SEC, POC, and COO, FIX exhibited near-equal full mediation potency alongside GRO, suggesting that even rigid beliefs can evolve under nurturing conditions. This insight challenges conventional views of mindset rigidity and reinforces Hattie's (2008) emphasis on the transformative power of systemic interventions.

The findings underscore the importance of integrating multiple factors to foster SEL competencies. For example: School Environment (SEC) had the highest total effect on SEL, primarily through indirect pathways mediated by POC and COO. This highlights the need for administrators to prioritize inclusive school cultures that promote safety, diversity appreciation, and participatory learning opportunities. The combination of SEC, POC, and COO amplified the mediating role of mindset, particularly in series mediation models. This suggests that fostering SEL is not merely about instilling desirable mindsets but also about creating contexts where these mindsets can flourish.

Moreover, the results suggest that while Growth Mindset is crucial for individual perseverance and

adaptability, its actualization hinges upon being embedded in supportive systems. This echoes Dweck's (2006) call for aligning external stimuli with internal self-theories to catalyze meaningful change.

Conclusion and Recommendation

This study reveals significant insights into how cooperative learning, positive classroom climate, school environment, and mindset shape students' social-emotional learning (SEL). Cooperative learning (COO) and growth mindset (GRO) demonstrate the strongest direct effects, while school environment (SEC) shows the highest total and indirect effects through mediating variables. These factors collectively explain 53.10 percent of SEL outcomes variance. The findings confirm that cooperative learning serves as a micro-society fostering teamwork, communication, empathy, and conflict resolution skills, while growth mindset acts as a crucial mediator when combined with supportive environmental factors. Additionally, school environment (b = 0.537) fundamentally influences SEL through indirect pathways mediated by positive classroom climate and cooperative learning.

For effective implementation, teachers should design cooperative activities fostering psychological safety and teamwork, model growth mindset through constructive feedback, integrate SEL into daily teaching practices, and collaborate to address implementation barriers. School administrators should focus on cultivating inclusive school cultures prioritizing safety and diversity, investing in professional development for SEL integration, and building partnerships with parents and community stakeholders to create comprehensive support systems. Parents can contribute by encouraging team-based activities, emphasizing effort over natural talent, supporting balanced educational policies, and maintaining consistent communication with educators.

Future research should examine digital SEL platforms and AI-driven applications, investigate equity and accessibility in implementation, study cross-cultural patterns and adaptations, and develop integrated policy frameworks. This research emphasizes the importance of aligning educational ecosystems with students' internal mindsets to foster holistic development. Through intentional design of collaborative, inclusive learning environments, we can empower students to become adaptive, empathetic global citizens prepared for future challenges.

Conflict of Interest

The author declares that there is no conflict of interest.

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Effects of contextual teaching and learning-based instruction with digital learning tools on writing competency of upper secondary students

Chutima Nukuea[a,*], Wipawan Wongsuwan Kongpao[b,†]

[a] *Master of Education Program in Teaching Thai Language, Department of Curriculum and Instruction, Faculty of Education, Chulalongkorn University, Bangkok 10330, Thailand*

[b] *Department of Curriculum and Instruction, Faculty of Education, Chulalongkorn University, Bangkok 10330, Thailand*

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Abstract

This research aimed to (1) compare the writing competency of students before and after learning through contextual teaching and learning-based instruction with digital learning tools, and (2) analyze changes in the writing competency of upper secondary students after learning through contextual teaching and learning-based instruction with digital learning tools. The participants were 40 Grade 11 students from an extra-large school under The Secondary Educational Service Area Office Nakhon Si Thammarat. The research materials were writing tests, questionnaire on attitude towards writing, individual writing competency records, student learning records, and lesson plans. The data obtained were analyzed by mean, standard deviation, and t-test. The research findings indicated that (1) students' scores were higher after the implementation of contextual teaching and learning-based instruction with digital learning tools, statistically significant level of .05, (2) all components: knowledge, skills, and attitudes improved after learning through contextual teaching and learning-based instruction with digital learning tools.

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Introduction

This research aimed to (1) compare the writing competency of students before and after learning through contextual teaching and learning-based instruction with digital learning tools, and (2) analyze changes in the writing competency of upper secondary students after learning through contextual teaching and learning-based instruction with digital learning tools. The participants were 40 Grade 11 students from an extra-large school under The Secondary Educational Service Area Office Nakhon Si Thammarat. The research materials were

* Corresponding author.
E-mail address: chutimanukuea@gmail.com (Nukuea, C.)
† Co-first authors.

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writing tests, questionnaire on attitude towards writing, individual writing competency records, student learning records, and lesson plans. The data obtained were analyzed by mean, standard deviation, and t-test. The research findings indicated that (1) students' scores were higher after the implementation of contextual teaching and learning-based instruction with digital learning tools, statistically significant level of .05, (2) all components: knowledge, skills, and attitudes improved after learning through contextual teaching and learning-based instruction with digital learning tools.

Introduction and Literature Review

Writing competency is a crucial aspect of communication competency, encompassing the ability to organize information, convey knowledge, and deliver thoughts and feelings to others. This proficiency relies on the ability to write via appropriate process, and a positive attitude that enables to produce effective written work (Ismail & Sabil, 2019; Ministry of Education, 2008; Ratminingsih et al., 2018; Skar & Aasen, 2021; Tari & Dianita, 2023: Tribble, 1996). Writing competency consists of three main components: knowledge, skills, and attitude (Skar & Aasen, 2021). Furthermore, writing competency holds significant importance for learners of all levels as it equips them to communicate within specified contexts via writing skill. Moreover, the assigned topics should meet students' expectations and allow them to utilize the language accurately and appropriately. It can be said that one who is considered as a proficient writer would have more opportunity to be employed (Isnin, 2017; Organisation for Economic Co-operation and Development, 2005; Tribble, 1996).

Even though current basic education curricula aim to enable learners to learn and develop writing skills at all levels, the ability to write does not meet the goal. Thus, the researchers have studied previous research and gathered information on the teaching of writing and writing problems from Thai teachers who have been teaching high school students in various schools under the Office of the Basic Education Commission. Several writing problems among students have been identified (Graham et al., 2020; Intharakasem, 2020; Petcharat, 2017; Thongjun, 2017; Umedilloevna & Olimovna, 2023). These problems are comprised of various aspects, for example (1) writing format, (2) content presentation, (3) organizing thoughts, and (4) language usage.

As previously mentioned, those problems are probably from students' negative attitudes towards writing, unfamiliar topics, inadequate knowledge or experiences to serve as creative writing inputs, and inappropriate teaching practices. Additionally, are a lack of various teaching methods, insufficient teacher skills in organizing effective learning activities, limited student-involvement in learning activities, a lack of hands-on practice, and a lack of valuable feedback for writing improvement.

With regard to the problems, the researchers conducted a study based on related documents and previous research papers on the development of writing competency. It is considered that Contextual Teaching and Learning (CTL) is the approach that can be employed to enhance students' writing competency. Moreover, this approach encourages educators to connect subject content with real-life writing situations that help students integrate what they have learned to their real lives. This approach also helps students achieve a profound understanding and promotes long-term retention of knowledge and skills. Additionally, CTL enables students to apply their acquired knowledge appropriately in the future and raises awareness of the significance of their knowledge. Furthermore, CTL cultivates a commitment to practical application, ultimately resulting in meaningful and beneficial learning experiences (Artiza, 2017; Berns & Erickson, 2001; Hudson & Whisler, 2007; Hull, 1999). The implementation of CTL approach into writing class allows students to learn both the fundamentals of writing and engage in practical writing exercises. According to the previous research findings, CTL can help develop writing skills as well as foster a positive attitude toward writing (Hasani, 2016; Jubhari et al., 2022; Pongpajon, 2020; Satriani et al., 2012;).

CTL cannot only enhance students' writing competency in terms of knowledge, skills, and attitude, but it also motivates students to write. (Atsawatrakunwong, 2018; Chusanachoti, 2016; Graham et al., 2007). To promote students to be able to write effectively, the researchers have explored instructional strategies from textbooks, literature review about effective digital learning tools in developing students' writing competency and the way to foster a positive attitude towards writing.

According to scholars and various organizations, the meaning of digital learning tools refers to software and platforms for teaching and learning that can be used on computers or smartphones. They enable collaborative work with texts, images, audio, and videos. These tools also include programs for editing digital content, collaborating, and sharing resources with others (Interactive Teaching in Languages with Technology, 2017).

Furthermore, Kongmanus (2018) states that digital learning tools are programs or applications designed for individual or group learning. Users can access them via the internet connection through computers, tablets, or smartphones.

Moreover, digital learning tools serve as convenient tools for seeking knowledge and self-development in various areas such as knowledge, skills, critical thinking, and attitudes. They can be used to create, present, share, exchange, and contribute value to their own knowledge to the public. Additionally, digital learning tools can be used for communication and interaction with others anytime, anywhere (Phoodee, 2020). Digital learning tools are widely mentioned as they stimulate curiosity, increase engagement and better understanding, and increase learning outcomes. It is seen that the integration of technology into the teaching and learning process activates students to learn better (Kilpatrick, 2014).

Nowadays, students are living in the digital age where traditional writing methods with pen and paper are gradually being replaced by digital tools. It can be said that digital writing tools are more convenient and efficient in terms of promoting writing skills (Chusanachoti, 2016). Thus, modern digital technologies are applied into classroom. Those digital learning tools re available via software or applications for self-directed learning, enhancing individuals' knowledge and skills, promoting thinking abilities, and increasing positive attitudes. Moreover, digital learning tools promote both individual and group-based learning that help students share ideas, create a piece of work, present to their friends, and so on (Kongmanus, 2018; Interactive Teaching in Languages with Technology, 2017; Phoodee, 2020). Therefore, utilizing digital learning tools in classes to develop students' writing abilities is seen as an effective method to prepare a real-world writing environment (Collins et al., 2019; Donaldson & Kötter, 1999). This method also provides opportunities for students to develop their writing skills via familiar topics that can motivate them to write as well as raise positive attitudes towards writing. Moreover, research papers and academic articles related to digital learning tools show that these tools can enhance various types of writing skills, promote collaboration in writing, boost student interaction, motivate students, and foster a positive attitude towards writing (Freiermuth, 2001; Graham et al., 2007; Kern, 1995; Kongmanus, 2018; Pennington, 2004).

As stated earlier, the researchers integrate the contextual teaching and learning (CTL) approach with digital learning tools into writing instruction for high school students. This combination of strategies aims to enhance students' writing competency. In this study, there are 2 research questions:

1. Does implementing contextual teaching and learning with digital learning tools improve upper secondary students' writing competency?

2. How does the writing competency of upper secondary students change after the implementation of contextual teaching and learning with digital learning tools?

Conceptual Framework

The framework of this study was developed by using contextual teaching and learning- based instruction with digital learning tool as presented in Figure 1.

Methodology

This study employed a pre-experimental, one-group pre- and posttests design. The researcher applied the Contextual teaching and learning-based (CTL) approach with digital learning tools to compare the writing competency of high school students toward CTL-based instruction with digital learning tools before and after the experiment and to analyze the changes in writing competency of high school students toward CTL-based

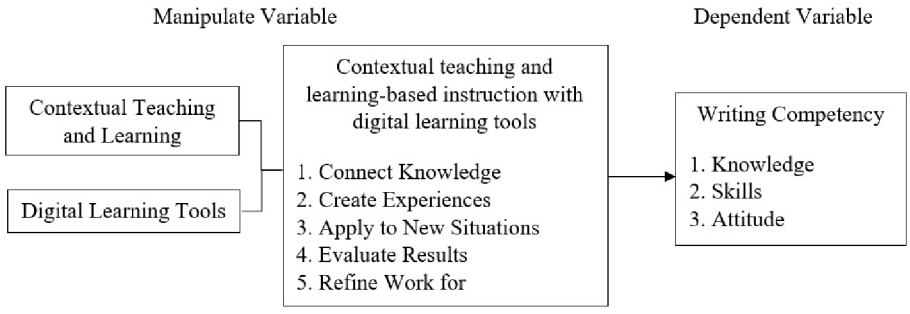


Figure 1 Conceptual Framework

instruction with digital learning tools.

The instruction lasted for 8 weeks. Quantitative data were collected by pre- and posttests. The writing ability tests and the questionnaire on attitude were used to compare writing competency before and after the experiment. Qualitative data were collected by students' writing performance records and students' learning records to analyze the changes in writing competency of the experimental group.

Participants

The population for this study consisted of high school students from various schools under the Nakhon Si Thammarat Secondary Educational Service Area Office. The participants were 40 Grade 11 students from mixed-ability Thai language classes at these schools. They were selected using a multi-stage random sampling technique.

According to the Ministry of Education, secondary schools with no more than 45 students per class and mixed-ability classrooms were eligible for recruitment. Grade 11 students were chosen as participants because the approach is suitable for grade 11 lessons, and they can apply this knowledge with other subjects and their further education. The participants were selected through simple random sampling by drawing lots to choose one classroom for the study.

In terms of ethical considerations, the participants had the right to withdraw at any time, and their personal information was kept confidential.

Data Collection

This research received ethical approval from the Office of the Research Ethics Review Committee for Research Involving Human Subjects at Chulalongkorn University. The study utilized two types of instruments: research instruments and instructional instruments.

There were four research instruments in this study.

1. Writing Ability Tests: These research instruments were used to collect quantitative data to measure writing ability before and after the intervention. The tests had 21 items with the total scores of 40. The tests were comprised of 2 parts. Part 1, there were 20 items of four- multiple-choice questions. Each item contained 1 score (20 points in total). The difficulty level of the test ranged from 0.23–0.77. The discriminant index ranged from 0.20–0.60, and the reliability level was 0.74. Part 2, it was a 500–1,000-word-essay (20points). With regard to part 2 of the test, the researchers evaluated students' writing competency via 4 criteria: content presentation, thought organization, language use, and writing format and mechanics. With regard to the interrater reliability, Pearson correlation coefficient was used, revealing a value of 0.898. The rubric was adapted from the essay writing ability of Atsawatrakunwong (2018) and Rueangkitchanan (2016). The rubric and criterial was submitted to three experts to evaluate the Index of Objectives Congruence (IOC). The results revealed 0.67 and 1.00, which were acceptable.

2. Questionnaire on attitude toward writing: This instrument was used to collect quantitative data to measure the attitude of students at the end of the intervention. There were 20 items in the questionnaire with 5-point Likert scale (5=strongly agree, 4=agree, 3=neutral, 2=disagree, and 1=strongly disagree). The questionnaire consisted of 13 affirmative and 7 negative statements. It covered three aspects (1) 7 items on thoughts about writing, (2) 7 items on feelings about writing, and (3) 6 items on behaviors about writing. The questionnaire was submitted to three experts for the IOC. The results showed 0.67 and 1.00, which was acceptable. The researchers tried out the research materials with students who did not take part in the research but who had similar characteristics to the participants. The reliability of the questionnaire was then evaluated by Cronbach's alpha coefficient. The results showed that the reliability was .97.

3. Individual Student Writing Performance Record: This research instrument was used to collect qualitative data by the teacher after grading each type of essay writing. There were 4 types of essays in total. This instrument was used to study the changes in students' writing performance. It was adapted from the Individual Student Prose Writing Ability Record of Tiacharoen (2021). The record consisted of two parts: Part 1 was general information of each student. Part 2 was student's writing performance. The Individual Student Writing Performance Record was submitted to three experts for the IOC, and the IOC result was 1.00

4. Learning Logs: This instrument was used to collect qualitative data. Students were asked to complete the record after each session. The student learning record consisted of two parts. Part 1 was general information of the students. Part 2 was about what students learned via CTL-based instruction with digital learning tools. This research material was submitted to three experts, and the result of IOC was 1.00.

In terms of instructional materials, there were four lesson plans for four different types of writing: essays, documentaries, speech for different occasions, and advertisements. Each lesson plan consisted of four

periods of learning (50 minutes each). With regard to the IOC, the results from the experts revealed 1.00. The researchers then tried out the lesson plans with students who were similar to the participants of the study. The students suggested to have a strict rule for those who need to assess their friend's writing within the time provided in order to spare some time for the writer to edit his/her writing.

In terms of the intervention and data collection procedures, this study took 8 weeks to cover four-period-lesson plans (50 minutes each). There were 40 participants who partook in this study. Both quantitative and qualitative data were collected. The researchers collected the data via the following materials.

1. Pre-test: The participants completed the pre writing test and the questionnaire on the attitude toward writing before the intervention. The pre-test took 120 minutes to complete. The scores of the pre-test were not used to measure the participants' writing abilities.

2. Instruction: In weeks 1-8, the researchers instructed the participants to develop their writing competence using a contextual teaching and learning-based (CTL) approach with digital learning tools. Referring to the lesson plans, the instruction covered 4 types of writings: essays, documentaries, speech for different occasions, and advertisements. Each unit took four periods of learning (50 minutes each).

3. Learning Logs: The participants completed learning logs at the end of each unit.

4. Individual Student Writing Performance Records: The researchers recorded the participants' writing performance via the individual student writing performance records at the end of each unit.

5. Post-test: In week 8, the participants were asked to complete the post writing test and the questionnaire on the attitude toward writing again after the intervention. The post-test was parallelly designed to the pre-test. The post-test took 120 minutes to complete.

The intervention and data collection procedures could be briefly presented as in the following Table 1.

Table 1 The Research Procedures

Weeks	Activities
1	Conducted the pre-test and questionnaire on the attitude toward writing
1–2	Unit 1: Essays
3–4	Unit 2: Documentaries
5–6	Unit 3: Speech for Different Occasions
7–8	Unit 4: Advertisements
8	Conducted the post-test and questionnaire on the attitude toward writing

Data Analysis

In this study, the researchers analyzed both quantitative and qualitative data. Quantitative data were obtained from the writing performance from the pre- and post-writing tests and the questionnaire on the attitude toward writing. Descriptive statistics were used to analyze the data: mean, standard deviation, and t-test. For qualitative data, the data were obtained from the learning logs and the individual student writing performance records that were collected at the end of each unit were analyzed to see the changes of the participants' writing competence in all three components: knowledge, skills, and attitude.

Results

The purposes of this study were (1) to compare students' writing performance before and after using CTL with digital learning tools and (2) analyze changes in the writing competency of upper secondary students while receiving contextual teaching and learning-based instruction with digital learning tools. The results of this study are presented in Table 2.

As presented in Table 2, the students had significantly higher average writing performance scores in all three components at the end of the intervention. With regard to

Table 2 Comparison of students' writing performance before and after using CTL with digital learning tools

Writing Competency	Total Scores	Before		After		*t*	*p*
		M	*SD*	*M*	*SD*		
1. Knowledge	20	8.60	2.22	13.38	2.27	27.52	.00*
2. Skill	20	8.38	1.87	12.99	1.88	36.26	.00*
3. Attitude	5	2.57	.63	3.86	.30	21.14	.00*

Note: *$p < .05$

knowledge, the pre-test scores were (M = 8.60, SD =2.22) and the post-test scores (M = 13.38, SD = 2.27); $p < .05$. In terms of skill, the pre-test scores were (M = 8.38, SD =1.87) and the post-test scores (M = 12.99, SD = 1.88); $p < .05$. And for attitude, the pre-test scores were (M = 2.57, SD =0.63) and the post-test scores (M = 3.86, SD =0.30); $p < .05$.

With regard to the changes in the writing competency of high school students via CTL with digital learning tools, three main components were discussed.

Knowledge and skills ran parallelly. According to the analyzed data, the students had no background knowledge under the topic they were asked to write in the first two writing tasks. To be more obvious, the students were not able to select information related to the topic, and organize the ideas either. In addition, they produced incomplete sentences, used wrong punctuation, and misspelled many words. However, the students did a lot better for the other two writing tasks. For task 3 and 4, the students were able to select related information under the topic they were asked to complete. In addition, they were able to provide details, organize ideas appropriately, produce complete sentences, use correct punctuation, and spell words correctly.

In terms of attitudes, the data analysis revealed that the students were not aware of the importance and benefits of writing when they were assigned to complete their writing task 1. Additionally, they neither had good emotions nor positive behaviors towards writing. In writing task 2, the students began to be aware of the importance and benefits of writing. Their emotions and behaviors towards writing became positive. And, the students were aware of the importance and benefits of writing during writing task 3 and 4. Additionally, their emotions and behaviors towards writing were obviously positive. The following excerpts were from learning logs before conducting the research.

"การเขียนความเรียงเป็นเรื่องเสียเวลา และไม่จำเป็นต่อการเรียน"

("It was a waste of time to write an essay and it was not necessary")

(นักเรียนคนที่ 5 ครั้งที่ 1)

(Student 5, 1st time)

"การเขียนความเรียงไม่ใช่สิ่งที่จำเป็นกับเด็กม.ปลาย ยังไม่ได้ใช้ประโยชน์ในชีวิต"

("Writing an essay was neither necessary for high school students nor would it apply in real life")

(นักเรียนคนที่ 7 ครั้งที่ 1)

(Student 7, 1st time)

In addition to this, the following excerpts were from learning logs presented how changes occurred.

"การเขียนความเรียงจำเป็นต่อการเรียนและมีประโยชน์ต่อชีวิตมากกว่าที่คิด สามารถสร้างรายได้ระหว่างเรียนได้ด้วย ควรฝึกฝนให้ทำได้จริง"

("Writing an essay was necessary and beneficial for my studies. Also, it could help make money during the studies. Thus, we should practice to write an essay")

(นักเรียนคนที่ 5 ครั้งที่ 4)

(Student 5, 4th time)

"การเขียนความเรียงเกี่ยวข้องกับชีวิตและมีประโยชน์ ทั้งในการเรียนวิชาภาษาไทย การสมัครเรียนต่อระดับมหาวิทยาลัย และการประกวดต่าง ๆ"

("Writing an essay associated with my life. Also, it was beneficial for learning Thai subject, studying in a university, and participating in any competition")

(นักเรียนคนที่ 7 ครั้งที่ 3)

(Student 7, 3rd time)

Discussion

Contextual Teaching and Learning-Based Instruction with Digital Learning Tools on Writing Competency to Develop Students' Writing Skills

The study found that the students' writing competency after learning via CTL with digital learning tools was significantly higher than before in all components; knowledge, skills, and attitudes at a statistical significance level of .05. In addition, CTL with digital learning tools can solve students' writing skill problems. That is to say, the 5 steps of CTL with digital learning tools are clear, and those steps are integrated with digital learning tools that cover 3 main components to develop writing competency: knowledge, skills, and attitudes. To begin with knowledge, the students' background knowledge is activated. This allows them to link their previous knowledge to the current knowledge that is related to their real-life contexts. This makes the students aware of the importance of writing better when they link their prior and current knowledge. Another step is creating experience. This step allows the students to gain direct experiences that occurred in the classroom. The students can understand and construct new knowledge from the activities organized by the teacher. In addition, this step leads the students to acquired important knowledge and skills to help them write. Applying to a new situation is another step. The students try to apply what they have learned to new situations related to their real lives. The teacher assigns the students tasks, and the tasks are related to the students' real-life situations. This step truly allows students to practice their writing skills based on their real-life situations. The next step is evaluation. Both the teacher and the students evaluate the writing tasks using writing criteria and provide useful feedback

This allows the students to edit their writing tasks via the feedbacks to improve their writing skills. This is the development of both knowledge and writing skills at the same time. The last step is completing the writing task. The students are allowed to revise their writing task until it is completely finished, and then publish their writing task. This allows students to develop all 3 components: knowledge, skills, and attitudes.

According to the previous discussion, the information is related to the results of previous studies. Jubhari et al. (2022), Hasani (2016) and Satriani et al. (2012) found that teaching writing using CTL is a successful method for developing students' writing skills. It also makes students have more positive attitudes towards writing (Pongpajon, 2020). Additionally, Satriani et al. (2012) found that CTL is beneficial in making students participate in writing activities, increase students' motivation to participate in writing classes, help students create written work, help students overcome the problems in writing, help students to exchange or interact with friends, and help students summarize the lessons.

Students outperform after learning through CTL with digital learning tools

The research findings revealed that the students who learned through CTL with digital learning tools showed positive changes in their writing competency in all three components: knowledge, skills, and attitudes.

The students' writing competency in terms of knowledge and skills improve significantly during four assessments. It can be said that CTL with digital learning tools is an effective teaching approach in enhancing students' knowledge of writing. With regard to the 5 steps of CTL teaching approach, the first step is linking knowledge. The students are activated and guided to connect their prior knowledge to the current knowledge. This step aligns with the constructivist theory of learning, which emphasizes the continuous nature of learning through the exploration, organization, and integration of information with prior knowledge (Hudson & Whisler, 2007).

The second step is creating experiences. Students analyze sample written works provided by the teacher, focusing on content and essential knowledge for effective writing. Then, they summarize the key points using digital tools, such as the Padlet platform. With Padlet Platform, all the students were allowed to share their ideas and everyone could have discussions via those shared ideas at the same time. This step also allowed the students to discover knowledge through teacher-facilitated activities. Crawford (2001) asserts that contextual learning emphasizes student-centered knowledge construction, leading to meaningful learning and a deeper understanding of the subject matter. In addition, Itsaraprida (2004) pointed out that meaningful learning and the connection of prior experiences with new knowledge enable faster and more enduring learning.

The third step is applying to new situations. This step prompts students to apply their constructed knowledge to new writing scenarios. Furthermore, the teacher helps to practice applying knowledge to new situation via assigned activities in class. Another platform named Medium was applied to allow the students to write their own essays.

The fourth step is evaluation. This step allows both students and teachers to evaluate the written tasks and provide constructive feedback to themselves and their peers. In this step, the Medium platform provided some comments. Thus, this step encourages the students to learn from their peers' mistakes and give constructive feedback at the same time. Johnson (2002) and Muller (2012) explain that assessment promotes genuine learning by providing opportunities for students to demonstrate their true knowledge through practical writing skill which is editing mistakes. In addition, Sherman (1994) asserts that feedback is crucial for learning as it facilitates the improvement of written work. This finding is further supported by Paulus's (1999) research, providing feedback on written work leads to significant improvements in students' writing skills.

The final step is completing the writing task. This step allows students to revise their written task until it is completely finished. Additionally, this step allows them to check the accuracy of their writing task before publication. The completed writing tasks were then published on social media platforms including Facebook and Medium.

As previously stated, applying to new situations, evaluation, and completing the writing tasks steps emphasized collaborative learning strategy. Those steps encourage students to exchange ideas, interact, and communicate with their peers. Crutkong (2013) emphasizes that students' knowledge should be constructed and applied related to their real-life situations. Additionally, the activities in each step encourages students to review and repeat until they are familiar with the skill.

With regard to the use of digital learning tools, it is suggested students use Popplet as a platform to write the essays, and Medium as a platform to write documentaries. These platforms facilitate students to practice writing

skills. According to Atsawatrakunwong (2018), training students to plan and prepare the outline can help students organize the ideas before writing. Purcell et al., (2013) mention that digital learning tools for writing make the editing process easier. Furthermore, numerous research studies have found that students who use technology for writing can produce longer and higher-quality texts (Goldberg et al., 2003; Little et al., 2018; Sessions et al., 2016; Wollscheid et al., 2016). Additionally, integrating digital tools into writing class can enhance students' writing skills (Aktas & Akyol, 2020; Nobles & Paganucci, 2015; Tandiana et al., 2017).

In terms of attitudes, CTL integrated with digital learning tools indicate positive attitudes toward writing. To begin with the first step, linking knowledge helps students establish connections between their prior knowledge and new knowledge. For step two, creating experiences allows students to analyze the components of written works and follow the writing process. In step three, applying to new situations provides students the opportunities to apply the knowledge gained from the previous step to new contexts through practical assignments relevant to their real-life experiences. When students aware of the importance, significance, and usefulness of applying content to real-world scenarios, they will have positive attitudes towards writing. During step four, evaluation allow students to get feedback from teachers and peers. This can help them develop and improve their writing tasks. Lastly, completing the writing allows students to revise their writing task until it is completed. This step is related to Atsawatrakunwong's (2018) research, whereby allowing students to correct writing errors can enhance their confidence and reduce anxiety during writing practice, as well as promote positive attitudes towards writing. Additionally, those steps and digital learning tools create a writing environment, motivate students to write, and increase positive attitudes (Collins et al., 2019; Donaldson & Kötter, 1999; Sessions et al., 2016)

Conclusion

Writing skill is considered as a crucial competency. Moreover, writing skill acts as an essential tool that enables students to learn and communicate effectively through writing. Contextual teaching and learning integrated with digital learning tools can effectively enhance students' writing competence. The findings of this study on contextual teaching and learning integrated with digital learning tools emphasizes the effectiveness of CTL approach with the aim of activating students to learn new things via their real-life situations. Furthermore, CTL provides students the opportunities to actively participate in the teaching and learning environment. CTL also promotes positive attitudes towards learning, motivates students to learn, raises awareness of the value of learning, promotes sustainable learning, and prepares students to apply their knowledge in real-world situations.

As a result, CTL can help students develop comprehensive writing competence in terms of knowledge, skills, and attitudes. Additionally, CTL enables students to produce effective and high-quality written work as well as they can gain proficiency in using digital tools. Therefore, if teachers can adapt these guidelines to enhance their teaching practices, they can create effective learning environments that play a pivotal role in shaping and developing students into high-quality human resources for the nation.

Recommendation

In terms of the implications, any teacher who is interested in applying CTL with digital learning tools to teach their students should select platforms that provide clear steps for students to follow, and those platforms should be charged. Whenever, the students can access those learning platforms anywhere and anytime, they will be willing to learn. Importantly, the teacher should monitor and facilitate students' learning progress. In addition, the teacher should provide a clear example of each type of writing task, for example essay, documentary, speech for different occasion, and advertisement. This will help students understand and visualize the writing process. Additionally, the teacher should utilize applicable innovations that promote students' writing skills.

The writing tasks used in this research were only essays. Therefore, those interested can adapt the CLT with digital learning tools to experiment with other types of writing tasks.

Conflict of Interest

The authors declare that there is no conflict of interest.

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A preliminary mapping of organizational culture and intercultural communication competence in Indonesian state-owned enterprises

Kussusanti Kussusanti*, Soraya Fadhal, Nauralita Dwi Novanny

Communications Science, Faculty of Social and Political Sciences, Universitas Al Azhar Indonesia, South Jakarta, DKI Jakarta 12110, Indonesia

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Abstract

Studies on organizational culture and intercultural communication have long been conducted. One prominent organization fostering an organizational culture in Indonesia is Indonesia's State-Owned Enterprises (SOEs). Despite this focus, limited research has examined intercultural communication competence among SOE employees and their perception of organizational culture. In fact, organizations in Indonesia, which consist of diverse cultures, require cross-cultural communication skills and a shared understanding of organizational culture in order to achieve their goals. Employing Cameron and Quinn's Organizational Culture Assessment Instrument (OCAI) and Deardorff's (2006) Intercultural Competence framework, this quantitative study surveyed 315 employees across 42 state-owned enterprises. Results indicate a prevailing Market culture, defined by five key dimensions: leadership, human resources, organizational cohesion, strategic priorities, and success criteria. However, based on dominant characteristics, SOEs also align with a Hierarchy culture—formal, structured, and reliant on established procedures. The findings indicate a significant relationship between organizational culture and intercultural communication competence, highlighting the importance of intercultural competence in market-oriented organizations.

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Introduction

In today's globalized world, effective organizational culture and cross-cultural communication are critical determinants of organizational success. Several previous studies have shown that organizational culture positively impacts company performance (Aboramadan et al., 2020), increasing business competitiveness and organizational effectiveness in the long term (Wahyuningsih et al., 2019). This is particularly pronounced in Indonesia, a

* Corresponding author.
E-mail address: kussusanti@uai.ac.id (Kussusanti, K.)

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country characterized by its immense cultural diversity, with 1,340 ethnic groups spread across 38 provinces (Na'im & Syaputra, 2011). This diversity often becomes a source of conflict within Indonesian society. Conflict refers to disagreements or tensions between two or more parties caused by differences in opinions, interests, or goals (Afra, 2023). These conflicts have resulted in casualties, injuries, and displacement. The Denny JA Foundation recorded that in the 14 years following the reform era, at least 2,398 cases of violence and discrimination occurred in Indonesia. Of these cases, 65 percent were religion-based, 20 percent were ethnic violence, 15 percent were gender-based violence, and 5 percent were sexual violence (Welianto, 2020).

Various organizations have cultures, ranging from non-profit organizations, private companies, and government agencies to State-Owned Enterprises (SOEs). Indonesian SOEs, under the governance of the Ministry of State-Owned Enterprises, adhere to the AKHLAK core values, which stands for Amanah, Kompeten, Harmonis, Loyal, Adaptif, Kolaboratif, which means trustworthy, competent, harmonious, loyal, adaptive, and collaborative, as a cornerstone of their organizational culture (BUMN, 2020). These values are intended to create a cohesive and productive work environment amidst the diverse cultural backgrounds of employees. Research by Mayasa and Setiawan (2022)2020 regarding the Core Valuess of Human Resources of State-Owned Enterprises, all SOEs including PT. X Parent Unit for South Sulawesi, Southeast Sulawesi and West Sulawesi Regions are required to apply the main valuess of AKHLAK as Corporate Culture, the Ranger Team has the responsibility to socialize them. The purpose of this study was to determine the effectiveness of the Ranger Team's communication in socializing the core valuess of AKHLAK to employees. The research method used is quantitative with a descriptive study approach. Data collection techniques obtained in the form of research questionnaires with 63 respondents and literature studies relevant to this research. The dimensions of communication effectiveness measured in this study are known as \"7-Cs Communication\" (Cutlip et.al showed that the seven dimensions gave positive results, so it was concluded that most employees considered the socialization of AKHLAK in SOEs necessary.

One example of a case involving organizational culture in a SOE in Indonesia is PT Garuda Indonesia. One factor that contributed to Garuda Indonesia's poor financial performance was the company's deeply entrenched organizational culture, which has been difficult to change over time (Nadlir, 2017). Corruption cases in Indonesian SOEs have also frequently come under scrutiny, as though these issues are never-ending. This case not only highlights weaknesses in oversight but also underscores the lack of seriousness in implementing good corporate governance (GCG) within SOEs. The corruption that occurs is not merely a matter of moral hazard by executives but also reveals the fragile state of organizational culture in SOEs (Purwanto, 2024).

However, implementing these values in such a complex cultural landscape presents unique challenges, particularly in aligning employees' cultural perceptions and enhancing cross-cultural communication competence. It underscores the need for a nuanced understanding of organizational culture and intercultural competence within Indonesian SOEs. While existing literature has explored these themes extensively, limited attention has been given to how these dynamics play out in the context of SOEs in multicultural environments.

In previous research, there is much done on cross-cultural communication in society and everyday life. However, there has not been much research on organizational culture and cross-cultural communication competence in SOEs in Indonesia, which consists of various ethnic groups. Addressing this gap is essential for improving the operational effectiveness and competitive edge of Indonesian SOEs. Thus, the research question to be addressed is: RQ 1: How do organizational culture and cross-cultural communication competence manifest in State-Owned Enterprises (SOEs) in Indonesia? RQ 2: Is there a significant relationship between organizational culture and intercultural communication competence?

Therefore, this research objective is to map the organizational culture and cross-cultural communication competence within Indonesia's State-Owned Enterprises (SOEs). By situating the research within Indonesia's unique cultural and organizational context, this study not only contributes to the academic discourse on organizational culture and cross-cultural communication but also offers practical insights for policymakers and practitioners seeking to optimize the management of diversity in SOEs.

Literature Review

Several previous studies have shown that organizational culture positively impacts company performance (Aboramadan et al., 2020), increasing business competitiveness and organizational effectiveness in the long term (Wahyuningsih et al., 2019). Organizational culture is closely related to the speed of response between

work units, decision-making, risk management, and reward for achievement, and it even affects change management (Bagga et al., 2023). Organizational culture and internal communication positively and significantly influence millennial employee engagement (Prasetya & Kartikawangi, 2021). Organizational culture shapes the climate, which reflects members' perceptions of internal conditions and influences their behavior, attitudes, and emotions (Rahmah et al., 2022). Organizational culture sets companies apart and gives them a competitive advantage, playing a key role in their success. It consists of shared beliefs among group members, shaping their perceptions, thoughts, actions, and feelings (Sackmann, 2021).

Several measurement tools have been used to examine organizational culture in various countries, such as Al-Sada et al. (2017), who examined organizational culture in Qatar using the Organizational Culture Instrument (OCI). Using The Stakeholders' Cultural Framework, Kumar and Boesso (2017) investigate how cultural values are implemented in Japan, the United States, and Italy. Another measurement tool was developed by (Cameron & Quinn, 2006) using the Organizational Culture Assessment Instrument (OCAI). This instrument assesses four organizational cultures: Clan, Adhocracy, Market, and Hierarchy, which are built on a theoretical framework of how organizations work and the values underlying their culture.

"Clan" culture is characterized by a work environment like an extended family, united by commitment and tradition, and emphasizes the development of local human resources. Morale is a strong connection among workers. An "Adhocracy" culture features a dynamic and inventive workplace where leaders act as innovators and embrace risk. Launching new products or services and fostering an environment that values individual creativity and autonomy measure success. Meanwhile, the "Market" organizational culture has strong leaders and high expectations to win by entering the market widely and striving to stay ahead of competitors. The "Hierarchy" organizational culture is formal and structured, where work follows formal rules and policies.

One of the studies that used OCAI is Susilo (2018), who formulated an organizational culture, including four dominant cultural types and analysis, including cultural strength, current and expected cultural gaps, and cultural congruence. Another study using the OCAI found that organizational culture influenced satisfaction differently across dimensions, with the highest satisfaction reported by employees in "Clan" cultures, followed by "Adhocracy," "Hierarchy," and the lowest in "Market" cultures. Employees in "Clan" cultures showed greater satisfaction across six OCAI dimensions (Pamula & Zalewska-Turzynska, 2023).

Organizational culture is complex, consisting of signs like procedures, values, and communication rules, shaped by cross-cultural communication. Rather than viewing culture as conveyed through communication, studies now focus on the communication processes that create culture. Organizational culture builds the organization's brand through policies agreed upon by members to achieve its goals (Amornpatipat & Anantachart, 2022). In an organization, members speak different languages or interact with co-workers from different ethnicities. The relationship between language and culture emphasizes a symbiotic relationship that emphasizes communication activities (Pishghadam et al., 2017). Humans must adjust, familiarize themselves with, and participate in this world. Cultural differences result in different expectations, norms, attitudes, beliefs, and ways of performing different tasks and jobs (Trisasanti et al., 2021).

The cultural perspective in communication highlights the exchange of information influenced by diverse cultural backgrounds. Effective communication ensures that all members share a common understanding of organizational culture. Clear cultural values prevent conflicts and save resources, while successful cross-cultural communication is crucial for global business development. Thus, the communication process is clearly more complicated in intercultural negotiations than in negotiations with people of the same culture (Bamanty et al., 2020). Cross-cultural communication focuses on understanding the other person's language and cultural background to create effective communication. Research by Wello et al. (2017) showed that cross-cultural skills and communication are prerequisites for improving teachers' or lecturers' cross-cultural sensitivity and professional identity.

Measurement of cross-cultural communication competence developed by Deardorff (2006) consists of five dimensions, namely, attitudes, skills, knowledge, and understanding, as well as internal outcomes and external outcomes. The first dimension is a person's attitude in communicating with people from other cultures, which can be seen in how he/she respects other cultures and cultural differences. The second dimension of intercultural competence is communication skills, namely, listening, observing, interpreting, analyzing, and evaluating. This skill competence is included in addressing various problems, including conflicts with people of different cultures in the organization. Communication competence

relates to many things, including communication style, conflict resolution, and tolerance level. The third dimension of intercultural competence is knowledge and understanding, assessing a person's cultural awareness, comprehension of cultural context and sociolinguistics, and grasp of specific cultural information. Effective cross-cultural communication manifests internally as adaptability to diverse communication styles, flexibility in cultural settings, cognitive flexibility, an ethno relative perspective, and empathy. Externally, it requires competent and appropriate intercultural behavior to achieve organizational goals.

Methodology

This research uses a quantitative approach with numerical data collection. The population for this study is Indonesian employees of state-owned enterprises in Indonesia. The sampling method was purposive sampling and quota sampling. Purposive sampling in this study is to attract respondents based on predetermined respondent criteria (Cooper & Schindler, 2014). In this study, the respondents were male or female, over 17 years old, domiciled in Indonesia, and employed by SOEs. The total number of respondents obtained was 315 from 42 SOEs in Indonesia. The data collected in this research are primary data, conducted by an online survey using questionnaires in Google Forms format and sent directly via e-mail and WhatsApp to respondents. This online survey technique is web-based and self-administered, where the research questions in the questionnaire are structured.

Specific conditions are identified for each dimension to determine whether the organizational culture falls into the Clan, Adhocracy, Market, or Hierarchy type. To collect the data, each respondent selected one of four characteristics they deemed most appropriate for the SOEs where they work, and were summed using Microsoft Excel spreadsheet software. The highest score in each dimension indicates the dominant type of organizational culture. Similarly, to determine the overall dominant organizational culture type, the scores from all respondents were summed across all dimensions. After calculating the total responses for each dimension of organizational culture, the distribution of results was plotted in a pentagram diagram. The pentagram illustrates the proportion and distribution of organizational culture types across six dimensions. For each dimension, the total score for each organizational culture type was plotted on the graph, creating a pentagram shape reflecting the proportions of each type. Table 1 presents the concept operationalization for organizational culture variables.

For collecting data of intercultural communication competence, respondents selected each statement using a six-point Likert scale. The questionnaire consisted of 20 statements based on five dimensions: attitudes, skills, knowledge and understanding, internal outcomes, and external outcomes. The collected data were also processed using Microsoft Excel to calculate the total score for each dimension. Scores of one to three were grouped into the low category, while scores of four to six were grouped into the high category. The results showed the distribution of respondents with low and high intercultural communication competence.

Pearson's chi-square test was conducted using SPSS to examine the relationship between organizational culture and intercultural communication competence. A significance level of 0.05 was applied to determine statistical significance. The strength of the association was assessed using a contingency coefficient, with values ranging from 0 to 1 (Aron et al., 2014).

The validity test in this research uses Pearson correlation. A coefficient closer to 1 or -1 indicates a stronger relationship between the two sets of data (Creswell & Creswell, 2018). Looking at the *R* Table for *n*-2 in this study, namely, 315 - 2 = 313, and a significance level of 0.01, the *R* Table value is 0.148. Therefore, all statement items in this research instrument are declared valid. The complete results of the validity test can be seen in Table 2 and Table 3 below.

The reliability test in this study was carried out by measuring the consistency between items in one instrument. The method often used is Cronbach's Alpha coefficient. An alpha value above 0.7 indicates good reliability (Creswell & Creswell, 2018). As shown in Table 4 and Table 5, the reliability test results in this study show a Cronbach's Alpha of 0.967 for the intercultural communication skills variable and 0.793, therefore, the research instrument is declared reliable.

Results and Discussion

This study involved 315 SOE employees in Indonesia as respondents. 52.4 percent, or 165 respondents, were women, and the remaining 150 people, or 47.6 percent, were men. Most of them were aged 26–32, as many as 198 people (62.9%). Next, 77 people (24.4%) were aged 19–25 years, followed by 35 people (11.1%) aged 36–40 years, and the remaining five people (1.6%) aged 40–50 years. Most were from Java (51%), Sunda (45%),

Table 1 Concept operationalization of organizational culture variables

Dimensions	Clan	Adhocracy	Market	Hierarchy
Dominant characteristics	Organizations are like extended families. People share a lot about themselves.	The organization is very dynamic. People commit themselves and are ready to face risks.	The organization is very result-oriented. The main goal is to get the job done. Every member of the organization is highly competitive and results-oriented.	Organizations are highly controlled and structured. There are formal procedures that govern what people do.
Organizational leadership	Leaders provide mentoring role models, facilitate, or maintain.	Leaders model entrepreneurship, innovation, or risk-taking.	Leaders model that all things are achievable, aggressive, and results-focused.	Leaders set an example of coordination, management, or running efficiency smoothly.
Management of employees	Characterized by teamwork, agreement, and involvement.	Employees are encouraged to take risks, be innovative, and give freedom and uniqueness to each individual.	Employees are encouraged to be competitive, to meet high demands, and to achieve results.	Gives employees a sense of security, uniformity, predictability, and stable relationships.
Organizational glue	The organization is united by loyalty and mutual trust. Commitment to the Agency is high.	The organization's glue is its commitment to innovation and growth. Its members are driven to be ahead of the curve.	The organization fused is achievement-oriented and results-driven.	The organization merges around formal rules and policies. Maintaining the smooth running of the Agency is essential.
Strategic emphases	The organization emphasizes human resource development, high trust, openness, and participation and always involves members of the Agency.	The organization emphasizes acquiring new resources and creating new challenges. It values trying new things and expecting opportunities.	The organization emphasizes competition and achievement. Exceeding work targets and winning the competition is paramount.	The organization emphasizes the importance of constancy and stability. Control, and smooth execution of work.
Success criteria	Success comes from people development, teamwork, employee commitment, and caring for Agency members.	Success comes from having the most unique or latest product/service and being an innovator.	Success is victory in marketing and excellence in competition. Being a competitive market leader is critical.	Success is judged based on efficiency. Reliability in meeting demands, smooth scheduling, and budget efficiency are essential.

Table 2 Results of the validity test of intercultural communication competence variables

No.	Statement	Number Pearson Correlation	Results
1	I respect other cultures.	0.707	Valid
2	I can accept other cultural differences.	0.690	Valid
3	I want to learn about other people's cultures.	0.747	Valid
4	I am open to colleagues from other cultures.	0.749	Valid
5	I can refrain from judging other cultures.	0.813	Valid
6	If I need understanding, I learn about other cultures.	0.714	Valid
7	I know other cultures.	0.712	Valid
8	I have knowledge about other cultures.	0.707	Valid
9	I understand the context, role and impact of other cultures.	0.762	Valid
10	I have specific information about other cultures.	0.687	Valid
11	I understand that there are language differences within different cultures.	0.786	Valid
12	I can adapt to the different communication styles of colleagues from other cultures.	0.785	Valid
13	I can adapt to different behaviors in colleagues from other cultures.	0.810	Valid
14	I can adjust to different cultural environments.	0.811	Valid
15	I am flexible when choosing and using communication styles when speaking with colleagues from other cultures.	0.805	Valid
16	I am pretty flexible in my behavior with colleagues from other cultures.	0.798	Valid
17	I can appreciate other cultures as much as I appreciate my own.	0.774	Valid
18	I can empathize with colleagues from other cultures.	0.804	Valid
19	I can communicate effectively with colleagues from other cultures to achieve specific goals.	0.788	Valid
20	I can behave appropriately with colleagues from other cultures to facilitate work.	0.743	Valid

Table 3 Organization culture variable validity test results

	Indicator	Number Pearson Correlation	Results
1	Dominant characteristic	0.527	Valid
2	Organizational leadership	0.477	Valid
3	Management of employees	0.558	Valid
4	Organizational glue	0.600	Valid
5	Strategic emphases	0.590	Valid
6	Success criteria	0.527	Valid

Table 4 Reliability statistics of intercultural communication skills variables

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	of Items
.967	.967	20

Table 5 Reliability statistics of organization culture variables

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	of Items
.793	.794	6

Table 6 Distribution of respondents by ethnic group ($n = 315$)

Ethnic Group	Total	Ethnic Group	Total
Aceh	7	Madura	4
Bali	21	Makassar	6
Banjar	5	Maluku	3
Banten	23	Malay	16
Batak	13	Minangkabau	17
Betawi	36	Nias	3
Bugis	6	Sulawesi	2
Cirebon	5	South Sumatra	6
Gorontalo	2	Sumatra	8
Java	51	Sunda	45
Kalimantan	4	Other *	5
Lampung	16	Grand Total	315

Note: *Other ethnic groups that only consist of 1 respondent are Dayak, Minahasa, West Nusa Tenggara, East Nusa Tenggara, Chinese.

and Betawi (36%). Complete data for the distribution of ethnic groups can be seen in Table 6 below.

Organizational Culture

This research maps the organizational culture of SOEs using the Organizational Culture Assessment Instrument (OCAI), with results in Table 7 and Figure 1 below.

Overall, the results of this study show that SOEs in Indonesia have a Market-type organizational culture, as presented in Table 8.

In pentagram form, the distribution of organizational culture types of SOEs in Indonesia is presented in Figure 2.

The results of this study show that, overall, SOEs have a "Market" organizational culture, which can be seen from five dimensions: organizational leadership, management of employees, organizational glue, strategic emphases, and success criteria. "Market" organizational culture is a results-oriented organization that focuses on getting the job done, has competitive people, and concentrates on goals. Leaders are drivers, producers, and competitors at the same time. They are resilient and have high expectations, with a desire to win, and even reputation and success are of utmost importance. This organizational style is based on competition, so the long-term focus is on winning and achieving organizational goals. Market penetration and stock define success in organizations with this "Market" culture. Competitive pricing and market leadership are critical to the organization (Cameron & Quinn, 2006).

It is similar to the findings of a study by Faizaty et al. (2020) conducted on an Indonesian state-owned

Table 7 Distribution of dimensions of SOE organizational culture (n = 315)

Dimensions	Clan	Adhocracy	Market	Hierarchy	Total
Dominant characteristics	52	52	98	113	315
Organizational leadership	35	44	147	89	315
Management of employees	61	77	90	87	315
Organizational glue	70	81	102	62	315
Strategic emphases	75	86	107	47	315
Success criteria	95	38	97	85	315

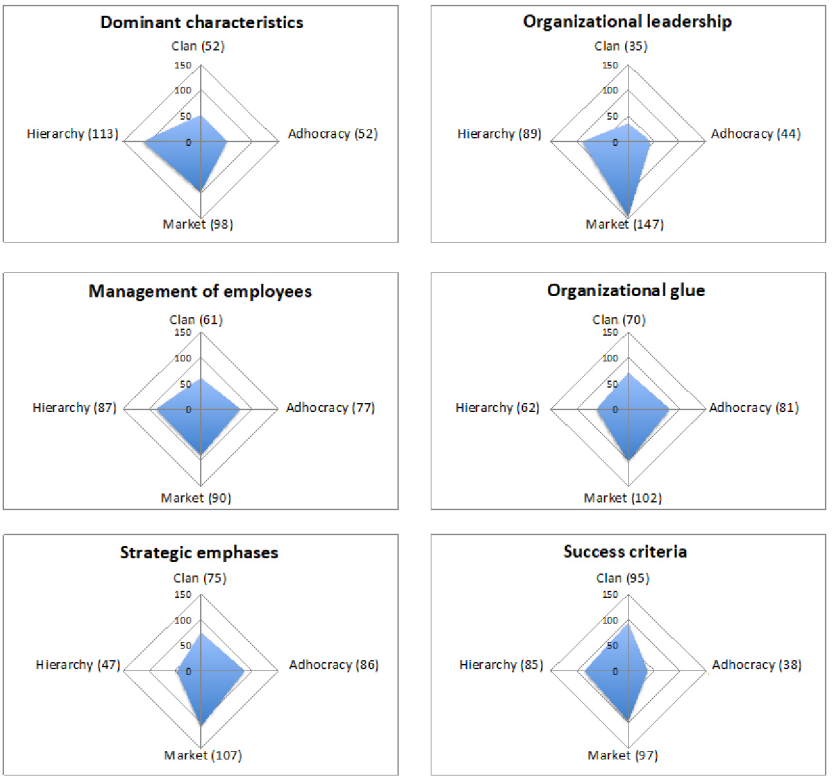


Figure 1 Pentagram of organizational culture distribution of SOEs in Indonesia

Table 8 Distribution of SOEs organizational culture types

Types of Organizational Culture	Clan	Adhocracy	Market	Hierarchy
Total	388	378	641	483

enterprise, PT Semen Indonesia (Persero) Tbk. The study demonstrated the presence of two types of culture supporting the "winning culture" program toward becoming a world-class company. The primary or common culture observed in the SOEs is the market culture, while the second or dominant subculture is the hierarchy culture. It aligns with the expectation that General Managers leading SOEs should embody and foster a competitive culture to compete effectively in the upcoming Industry 4.0 era and become a world-class company.

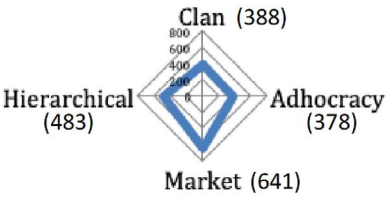


Figure 2 Pentagram of total organizational culture of SOEs

The same is evident at PT Perkebunan Nusantara V, a state-owned enterprise in Pekanbaru, Indonesia. The organizational culture influencing employee competence is the market culture, a result-oriented culture where values such as competence and productivity are essential. This type of culture is characterized by market dominance, with an organizational style prioritizing agility, competitiveness, and a strong work ethic (Syaifullah et al., 2019).

However, for the dominant characteristics dimension, SOEs in Indonesia belong to the "Hierarchy" group, which is formal and structured and uses procedures to guide everyone to work. The most important thing for leaders with a "Hierarchy" culture is efficiency-based coordination to keep the organization functioning correctly. It is made possible by the existence of formal rules and policies to hold the organization together. The long-term goal is stability and results, combined with efficient and smooth execution of tasks, resulting in job security with measurable values. For example, reliable delivery, smooth planning, and low costs. It is the measure of success for organizations with a "Hierarchy"

culture (Cameron & Quinn, 2006).

One important aspect is that top managers and employees may have different perspectives regarding the culture an organization should adopt. For instance, in a scale-up organization, top managers perceive the market culture as more dominant and the hierarchy culture less dominant than employees' views. Clan and adhocracy cultures positively correlate with performance and are more preferred by employees. Conversely, market and hierarchy cultures negatively correlate with performance and are the least preferred by employees. While top management focuses on new market opportunities, a key element of success is building an organizational culture where all employees feel part of the growth journey (Strengers et al., 2022).

Intercultural Communications Competence

In terms of intercultural communication competence, the results of this study are presented in Table 9 below.

The highest competencies possessed by employees of SOEs in Indonesia are attitude and results in the external environment, each at 90.2 percent. In terms of attitude, Bamanty et al. (2020) explained that a person should be receptive to learning about other cultures, open to people from diverse backgrounds, and refrain from making judgments. Curiosity, tolerance of doubt, and uncertainty are also essential factors. Meanwhile, the lowest competency is skills, with 15.6 percent still having low skill levels. 86.3 percent of respondents already have high knowledge, and 89.2 percent show strong internal environment results.

The importance of competencies for SOE employees is emphasized by (Ramadhani et al., 2024). Communication is crucial in internalizing the culture of SOEs in Indonesia. Corporate culture is shaped through everyday conversations (dialogues). Language functions as a reflection of an individual's cultural identity, indicating the extent to which they have adopted elements of their culture. Understanding a person's culture can be achieved through the language they use. Interacting with individuals from diverse backgrounds reveals valuable insights into cultural cues embedded in their communication. The language used, unique terms applied, and even the tone of speech signify deep cultural roots. Organizational culture can be reflected through the way members of the organization communicate.

Intercultural communication competence enhances collaboration within multicultural teams by fostering understanding, which in turn helps reduce anxiety, discomfort, and uncertainty. Conversely, team members who adopt different communication styles may contribute to bias and miscommunication. This competence is crucial in improving well-being by cultivating trust and fairness. Furthermore, intercultural communication competence is a significant predictor of satisfaction and happiness, with a direct positive correlation to the performance of multicultural teams (Balakrishnan et al., 2021).

Table 9 Intercultural communication competence of SOE employees in Indonesia

No.	Dimensions	Low	High
1.	Attitude	31 (9.8%)	284 (90.2%)
2.	Skills	49 (15.6%)	266 (84.4%)
3.	Knowledge	43 (13.7%)	272 (86.3%)
4.	Results in the Internal Environment	34 (10.8%)	281 (89.2%)
5.	Results in the External Environment	31 (9.8%)	284 (90.2%)

Table 10 below shows the relationship between organizational culture and intercultural communication competence among SOE employees in Indonesia.

A chi-square test was conducted to determine whether there is a significant relationship between organizational culture and intercultural communication competence, and the results are shown in Table 11.

The chi-square analysis yielded a value of 8.245, indicating a statistically significant relationship (p = .041). The contingency coefficient was .160, suggesting a weak association between organizational culture and intercultural communication competence (Table 12). Therefore, this study addresses the second research question, confirming the relationship between organizational culture and intercultural communication competence. However, the strength of the relationship between these two variables is small, at only 0.160 for the contingency coefficient.

The market-type organizational culture requires a high level of intercultural communication competence because result orientation, competitiveness, and cross-cultural collaboration are essential elements. This competence ensures effective communication, cultural adaptation, and a deep understanding of partners and customers from diverse cultural backgrounds, enabling the organization to achieve competitive advantage and succeed in the global market. This result is aligned with Ta'an et al. (2024) who said there is a significant correlation between organizational culture and communication skills. Erfan (2024) also confirmed that intercultural communication competence (ICC) has become a crucial necessity for individuals in today's interconnected world, particularly

Table 10 Relationship between organization culture and intercultural communication competence of SOE employees in Indonesia (n = 315)

		Organizational Culture				Total
		Clan	Adhocracy	Market	Hierarchy	
Intercultural Communications Competence	Low	7	10	7	7	31 (9.8%)
	High	58	42	124	60	284 (90.2%)
Total		65	52	131	67	315 (100%)

Table 11 Chi-Square tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.245a	3	.041
Likelihood Ratio	7.773	3	.051
Linear-by-Linear Association	1.076	1	.299
N of Valid Cases	315		

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.12.

Table 12 Symmetric measures

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.160	.041
N of Valid Cases		315	

in the context of modern business. The same applies to the aviation industry. The intercultural communication competence and cultural intelligence (CQ) of airline cabin crew members is positively associated with service attentiveness and helps reduce anxiety (Suthatorn & Charoensukmongkol, 2018).

Conclusion and Recommendation

This study provides a preliminary mapping of organizational culture and intercultural communication competence in Indonesian SOEs. Using the Organizational Culture Assessment Instrument (OCAI), which categorizes culture into Clan, Adhocracy, Market, and Hierarchy types, the study found that SOEs in Indonesia tend to have a "Market" culture type across most dimensions. However, in the dominant characteristic dimension, SOEs in Indonesia exhibit a "Hierarchy" culture type, emphasizing formality and structure.

Additionally, the study found that intercultural communication competence among SOE employees in Indonesia is high, particularly in organizations with a Market culture, as this culture type focuses more on results, competition, and goal achievement. In this context, employees need to work in a dynamic, market-oriented environment that involves interaction with various internal and external parties. With the cultural diversity within and outside the organization, intercultural communication competence helps reduce potential conflicts and misunderstandings that may arise due to differences in perspectives, values, or communication styles. Furthermore, the ability to communicate effectively with individuals from various cultural backgrounds also supports more productive collaboration and strengthens relationships with clients, customers, and business partners from diverse cultures. With intercultural communication competence, organizations can improve their adaptability to the diverse needs of the market.

A practical recommendation for Indonesian SOEs is to conduct periodic evaluations to assess whether the existing culture aligns with the enterprise's goals and strategies. Given the diversity of SOE employees from various cultural backgrounds, it is crucial to develop intercultural communication competence, such as through employee training. For future research, it is recommended that the relationship and influence of intercultural communication competence across different organizational culture types in other types of enterprises or industries be investigated further.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Improving educator effectiveness through transformational leadership and collaborative social support: Insights from a study in Indonesian police education

Medy Dwi Indardi[a,*], Suwito Eko Pramono[b,†], Tri Joko Raharjo[c], Arief Yulianto[d]

[a] *Department of Education, Faculty of Education, Universitas Negeri Semarang, Semarang, Central Java, 50229, Indonesia*
[b] *Department of Social and Political Studies, Faculty of Social Sciences, Universitas Negeri Semarang, Semarang, Central Java, 50229, Indonesia*
[c] *Department of Elementary Education, Faculty of Education, Universitas Negeri Semarang, Semarang, Central Java, 50229, Indonesia*
[d] *Department of Management, Faculty of Economy, Universitas Negeri Semarang, Semarang, Central Java, 50229, Indonesia*

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Abstract

This research explores the elements affecting the teacher's achievement at Sekolah Polisi Negara (SPN) in Purwokerto, Central Java, focused on transformational leadership, social support, professional commitment, and motivation. The main aim is to clarify economic issues concerning the ways the effectiveness of teachers are improved in specialized educational settings. Quantitative descriptive research was used where 150 teachers from different departments in SPN Purwoker to were surveyed as participants in the study. The information was gathered by means of systematized and structured questionnaires and was evaluated employing SEM to model the structural relationship between the identified variables. In addition, qualitative data were collected through semi-structured interviews with selected educators, allowing for a deeper understanding of their experiences and perspectives regarding leadership and support. The findings showed that transformational leadership together with social support increased the teacher's commitment as well as motivation, which eventually enhanced their performance. These insights portray how teacher engagement and effectiveness are driven by good leadership in teaching and a supportive work environment. Lastly, the study recommended the introduction of policies directed at the enhancement of transformational management and social support policies within educational systems. These issues should enable the administrators and other educational stakeholders to create a better learning environment conducive to good quality of teaching and even better student performance.

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* Corresponding author.
E-mail address: medydwiindardi@students.unnes.ac.id (Indardi, M. D.).
† Co-first authors.

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Introduction

Context and Importance of the Study

In recent years, the quality of education has garnered significant attention from policymakers and educational leaders worldwide. This interest extends to specialized institutions, highlighting the case of Sekolah Polisi Negara (SPN) Purwokerto in Central Java, Indonesia, where the effectiveness of teacher performance is a crucial component of the educational framework (Novita, 2022). Teaching encompasses far more than the mere dissemination of knowledge; educators play a pivotal role in shaping future law enforcement and public safety professionals. Consequently, it is essential to comprehend how teacher performance is achieved within this specialized context to enhance overall educational outcomes.

As societal conditions evolve, the significance of factors such as commitment-based engagement, motivation, and transformational leadership style is increasingly recognized as being as critical as teaching qualifications and instructional strategies in evaluating teachers' effectiveness. Transformational leadership has generated considerable interest due to its capacity to motivate educators and foster conditions conducive to both personal and professional development, as well as to improved student learning outcomes. However, the interplay among these factors in the context of police education warrants further investigation (Timotheou et al., 2022).

Gaps in the Literature

While the importance of teacher activities is well documented, relatively few studies have examined the challenges associated with such activities in police and military training institutions. Existing literature addresses the impact of leadership styles and social support on teacher effectiveness; however, there is a paucity of information regarding how commitment and motivation manifest within the specific context of SPN Parroket. This lack of knowledge is particularly concerning, as training for law enforcement personnel should emphasize leadership and support styles distinct from those used in other educational settings. Furthermore, primary studies have often treated transformational leadership and social support as independent variables, neglecting to examine their interrelationships and cumulative effects on teacher performance. For instance, while it is acknowledged that transformational leadership fosters a supportive environment, the mechanisms through which social support and work motivation influence teacher effectiveness remain insufficiently explored. To address the identified gaps in the literature, this study explores the following research questions: (1) How do different leadership styles affect the work commitment and motivation of educators at SPN Purwokerto? This question aims to investigate the specific leadership styles that are most effective in fostering commitment and motivation among educators in a police education setting; (2) In what ways does social support contribute to the attainment of work commitment and motivation in the educational sector? This question seeks to understand the various forms of social support that educators receive and how these contribute to their overall commitment and motivation; and (3) How do work commitment and motivation interact to influence an educator's performance? This question aims to explore the relationship between work commitment and motivation, examining how these factors work together to enhance or hinder educator performance.

The Value of Conducting the Research

The findings of this study hold significant implications for stakeholders in the field of education, particularly at SPN Purwokerto and similar institutions. Given that a leader embodies multiple roles, their actions, along with specific social support initiatives, profoundly influence teachers' work commitment and motivation. For instance, the results of this study enable management to formulate policies that emphasize the importance of management training, social support, and motivation tailored specifically for police education instructors. Furthermore, the implications of this study extend beyond the practical applications at SPN Purwokerto; other educational institutions of comparable nature in Indonesia and internationally may find these results valuable. Education practitioners should develop policies and cultivate an institutional culture that promotes the welfare and professional development of teachers. Such efforts are likely to enhance the quality of teaching and, consequently, the learning outcomes of students (Kim et al., 2021). While this is a general principle applicable to education as a whole, in the specific context of police education, the relationship is reciprocal: the quality of teachers is a determinant of the education received by students who aspire to become law enforcement officers.

Commissioning of Constructs

In this study, which employs a mixed-methods approach, specific dimensions such as self-efficacy and work motivation are evaluated through various actions. Self-efficacy is assessed by measuring the extent of anticipated emotional, informational, or practical support from colleagues and management. This assessment includes inquiries regarding the utilization and quality of communication with peers and management mentors, as well as how such interactions impact educators' work experiences. The study emphasizes the measurement of self-efficacy and encompasses internal factors, including self-satisfaction and passion for teaching, as well as external factors such as rewards and recognition. Additionally, it addresses constructs that evaluate educators' motivational levels, commitment, and perceived support for professional development. Consequently, the researchers aim to gain a deeper understanding of how these constructs influence teacher performance (Ross & Morrison, 2020).

Research Hypothesis

Based on the literature review and the identified gaps, the following hypotheses guide this research:

1. Transformational leadership positively influences the work commitment and motivation of educators at SPN Purwokerto.
2. This hypothesis posits that educators who perceive their leaders as transformational report higher levels of commitment and motivation
3. Higher levels of social support are associated with increased work commitment and motivation among educators.
4. This hypothesis suggests that educators who feel supported by their peers and leaders demonstrate greater commitment to their work and higher motivation levels.
5. Work commitment and motivation play a crucial role in enhancing educator performance.

This study aims to deepen the understanding of educator performance within specialized educational institutions by exploring the interrelated influences of leadership, social support, work commitment, and work motivation.

Literature Review

The quality of education that Musyawarah Guru Mata Pelajaran (MGMP) achieves with its students is heavily influenced by the performance of its educators, especially in specialized institutions such as Sekolah Polisi Negara (SPN) Purwokerto located in Central Java, Indonesia. This literature review combines existing literature on educator performance with knowledge on organizational leadership, social and work commitment, occupational and work motivation. A detailed discussion of these themes provides a system for understanding how these factors improve educator effectiveness (Schultz et al., 2021). The quality of education at Sekolah Polisi Negara (SPN) Purwokerto is heavily influenced by the performance of its educators. This literature review explores the factors influencing educator performance, with a specific focus on the context of SPN Purwokerto.

Management and Trainer Performance at SPN Purwokerto

Effective leadership is crucial for fostering a positive culture and climate that encourages educators at SPN Purwokerto to perform to the best of their abilities. Transformational leadership, in particular, has been recognized as a significant factor that positively influences teacher motivation and performance in comparable institutions (Labrague et al., 2020). SPN Purwokerto aims for its leaders to actively cultivate community and collaboration among the educators.

Furthermore, SPN Purwokerto's management recognizes the importance of empowering trainers to take ownership of their professional development. By providing opportunities for trainers to participate in workshops, seminars, and conferences, the institution aims to enhance their teaching skills, subject matter expertise, and leadership abilities. This, in turn, enables trainers to design and deliver high-quality training programs that meet the evolving needs of police educators, ultimately contributing to improved police training outcomes.

Social Support and Teachers' Performance at SPN Purwokerto

The performance of educators at SPN Purwokerto has shown improvement, which can be correlated with social support from others (Gimbert et al., 2021). A positive culture and climate afford teachers the opportunity to reflect, share, and develop constructive processes with their peers and leaders. Social support within the context of SPN Purwokerto is essential for enhancing teachers' commitment and motivation, which are critical in a community-focused institution.

As indicated in the preceding paragraphs, professional

commitment is directly or indirectly related to teacher outcomes at SPN Purwokerto (Mueller et al., 2020). Generally, a higher level of professional commitment correlates with increased job satisfaction, reduced turnover rates, and enhanced performance. At SPN Purwokerto, there is a pressing need for commitment among educators to effectively meet institutional goals, particularly concerning the agency's objective of producing quality police officers. Motivation can be defined as the driving force behind teacher outcomes at SPN Purwokerto (Shabanowitz et al., 2024). Motivational theories, such as Maslow's hierarchy of needs (Kim, 2020) and Herzberg's two-factor theory, offer insights into how and why educators engage in their work. Understanding the motivations of educators is essential for effectively planning strategies aimed at performance improvement, especially given the institution's emphasis on community policing.

The influence of leadership towards educational achievement is unquestionable. It is important that the leadership has the ability to formulate key objectives, mobilize resources, and provide a conducive environment for teaching and learning to take place. If we turn to educational research where transformational leadership is concerned, more scholars have focused their studies on this area because of its increasing influence on educators' motivation and performance. These are the leaders who cause their followers to become more concerned with the interests of the organization rather than their own self-interests. This kind of leadership promotes teamwork, creativity, and professional growth, all of which are important in increasing the efficiency of the educator.

Empirical evidence indicates that increased job satisfaction and commitment from educators is experienced in an environment characterized by transformational leadership. Educators are able to provide high quality teaching and other services to students in an environment that encourages purpose and belonging and this can be achieved through transformational leadership (Gebreheat et al., 2023). Additionally, there is also the category of leaders termed instructional leaders who are preoccupied with the quality of teaching and learning and whose practices also impact positively on educator performance. Instructional leaders are effective when they give direction, provide encouragement, and give feedback to educators which improves their practice and subsequently students' learning.

Social Support in Educational Contexts in the workplace of educational organizations has been stated to be another factor that is related to teacher's performance. Social support is defined as a category of services such as emotional, informational, and practical assistance provided by members of the respective society. In education context, such support includes, but is not limited to, professional colleagues, mentors and other structures within the school. Studies suggest that stressed educators who report high levels of support are less prone to job dissatisfaction and burnout. Equally, it has been outlined for educators that work ambience that can provide them with support is likely to affect their effort and degree of allegiance. For example, stresses on the part of the teachers in the need for learning new activities and working with other teachers as a form of social support for the teachers (Boonanegpata & Kitcharoenb, 2023). A supportive culture and climate enables the educators to be involved in reflective processes, exchanging ideas and developing constructive processes with other peers and leaders. Such a culture does not only improve the performance of the educator, but it also has a positive impact on the overall climate of the school and hence student achievement.

Research indicates that effective leadership not only shapes the organizational culture but also significantly influences the levels of social support available to educators. Transformational leadership, in particular, has been shown to foster an environment where educators feel valued and supported, thereby enhancing their commitment to their work and motivation to excel. However, the existing literature often fails to adequately address how these constructs interact within specific educational contexts, such as SPN Purwokerto. There are three dimensions of work commitment: affective commitment (emotion), continuance commitment (leaving comes with certain costs), and normative commitment (there is an obligation to remain). Increased levels of work commitment correlate with increased levels of job satisfaction, decreased turnover, and better performance. As committed teachers, they tend to be more interested in professional enhancement and new strategies of teaching as well as aim for better student outcomes. For instance, a high level of commitment among teachers was found to predict job satisfaction and low instances of a negative state known as emotional exhaustion (Huang et al., 2023). This emphasizes the need for creating a strong sense of obligation among teachers with regard to their performance as well as their general welfare.

Work Motivation: The Driving Force Behind Performance in the teaching profession, work motivation includes both intrinsic and extrinsic factors, which make the educators perform their duties with diligence. Personal satisfaction and interest in the work characterizes intrinsic

motivation, whereas salary and recognition of work are characteristic of extrinsic motivation. Motivated teachers become conscious and ready to offer a better quality of delivery of instruction, which in turn enhances student learning outcomes.

There are many theories of motivation which can be employed in explaining factors that drive educators to work. Maslow's Theory of Hierarchical Needs argues that people are motivated by a sequence of needs, starting with basic physiological needs through self-actualization needs. In the educational aspect, providing educators with the basic need of sense of security, whereby the educator's job is sustained and appreciation in the form of recognition, can help to raise an educator's motivation and commitment to work. In the same vein, Herzberg's Two-Factor Theory recognizes the existence of hygiene factors (salary, working conditions) and motivators (e.g. recognition, professional growth) that determine job performance and satisfaction.

Interconnections Between Leadership, Social Support, Work Commitment, and Motivation

Leadership, social support, professional commitment, and motivation are interrelated constructs within the educational context. Instructional leadership, for instance, has been shown to foster social support, which, in turn, enhances educators' motivation and reinforces their commitment to the teaching profession. Furthermore, social support from peers and supervisors contributes to educators' sense of belonging and commitment to their profession, ultimately enhancing their motivation and increasing their capacity to perform their duties effectively. The motivational dimensions of professional commitment are likewise positively correlated; specifically, educators who exhibit strong commitment tend to demonstrate higher levels of motivation in executing their responsibilities. Leadership plays a crucial role in bolstering professional commitment among educators, as effective leaders can inspire and encourage teachers to collaborate towards common objectives. Within the context of SPN Purwokerto, the interconnections between leadership, social support, professional commitment, and motivation are particularly pronounced. Institutional leaders can significantly influence the development of a conducive organizational culture and climate that promotes social support, professional commitment, and educator motivation. This study aims to elucidate the relationships among these variables to identify practical strategies for enhancing teacher performance, thereby improving student outcomes.

Educators at SPN Purwokerto encounter various challenges that may impede their performance, many of which are linked to leadership dynamics and insufficient social support. A key concern is the lack of adequate information systems to provide educators with timely and reliable data regarding student performance. This inadequacy hampers teachers' ability to identify students in need of additional assistance and to devise appropriate improvement strategies. Another challenge facing educators at SPN Purwokerto is the lack of motivation among some educators. This can be due to a range of factors, including lack of opportunities for professional development, inadequate resources and support, and poor leadership. As a result, some educators may feel disconnected from their work and lack the motivation to provide high-quality instruction to their students.

In your opinion, what do you think is the main challenge that HOLB currently faces as leader institutions? It is at this point where I start answering the questions. SPN Purwokerto heads intensely with all of the factors that are challenging like all other institutions. For SPN Purwokerto however, there are two issues that continuously recur – lack of relevant Information systems and motivation of educators. Research emphasizes the importance of feedback in motivation. Educational leaders can combine motivation with rewarding feedback so that educators become custodians of their professional growth and as a result enhance their instructional practices. (Han et al. 2021).

Education encompasses a collection of functions performed within a framework shaped by the combination of leadership, support received from others, commitment to work, and motivation. Good leadership is crucial, as it fosters an environment where social support emerges, commitment to work is high, and motivation is boosted. Conversely, a lack of support and motivation is detrimental, demotivating employees and hindering their commitment to their work. This research also highlights the critical qualities of leaders who value autonomy in developing motivation, including the ability to provide followers with a focus on objectives while allowing them to determine the means on their own. As Ryan and Deci (2020) postulate, teachers' ownership of core aspects of their work tends to increase their personal motivation to perform that work, reinforcing their sense of purpose and commitment.

Research Gap

There exists a significant need to comprehend the

interrelationships among leadership, social assistance, and professional commitment and motivation within the context of SPN Purwokerto. A notable gap in the literature pertains to teacher performance within such institutions and the influence of the aforementioned variables. This study seeks to address this gap by examining the relationships among these variables and teacher performance at SPN Purwokerto. The literature review elaborates on existing gaps, particularly the lack of social support and the insufficient commitment and motivation exhibited by teachers in this institution. By focusing on these relationships, this study aims to provide insights into the performance aspirations of teachers from the perspective of the institution.

To address this gap, the study intends to elucidate these complex relationships to develop and formulate specific measures aimed at enhancing teacher productivity and, ultimately, student performance at SPN Purwokerto. The findings underscore the necessity of adjusting certain leadership approaches to better support teachers' decision-making autonomy and foster collaboration among educators. As indicated in the literature on teacher performance, the interplay of leadership diversity, social support, commitment, and motivation is critical for understanding teacher effectiveness. This analysis facilitates a broader understanding of the multifaceted issues impacting educational stakeholders and identifies relevant research areas that require further exploration. The educational model at SPN Purwokerto should be revised to incorporate these concepts, as there is a pressing need for more in-depth research to enhance the productivity of both teachers and students (Abu & Moorley, 2023).

Methodology

Research Design

The study employs a mixed-methods approach, which combines both quantitative and qualitative research methodologies. This approach is particularly suitable for this research as it allows for a comprehensive exploration of the factors influencing educator performance at SPN Purwokerto. By integrating quantitative data from surveys with qualitative insights from interviews, the study aims to provide a richer, more nuanced understanding of the relationships between leadership styles, social support, work commitment, and motivation. However, it is essential to provide a clear rationale for this choice, emphasizing that mixed methods can enhance the validity of findings through triangulation, allowing for a more robust analysis of complex educational phenomena (Dawadi et al., 2021).

Participants

The subjects of this study consist of 50 educators drawn from various departments at Sekolah Polisi Negara (SPN) Purwokerto in Central Java, Indonesia. The selection of respondents for the quantitative survey employs a stratified random sampling method to target respondents across different educational levels and subject matters (Restuadhi et al., 2024). In addition to the survey participants, 10 educators participate in semi-structured interviews to provide qualitative insights. These interview participants are selected based on the following criteria:

The selection criteria for educators participating in the study included three key factors. First, educators were required to have at least three years of teaching experience in police education, ensuring they had a sufficient background to provide valuable insights. Second, the study aimed to include educators from various departments, such as law enforcement, public safety, and ethics, to capture a range of perspectives. Finally, educators were selected based on their performance, with a focus on individuals who had demonstrated effective teaching practices as indicated by student feedback and administrative evaluations.

The goal of including these participants is to gather in-depth insights into the factors that influence educator effectiveness, particularly in the context of transformational leadership and social support. The complete address for data collection is:

1. Sekolah Polisi Negara Purwokerto, 2. Jalan Raya Purwokerto No 123, 3. Parroket, Central Java, Indonesia.

Instrument use for data collection

The data collection instruments used in this study include structured questionnaires for quantitative data and semi-structured interview guides for qualitative data.

Quantitative data collection

Instrument: A structured questionnaire designed to assess factors influencing teacher effectiveness, including transformational leadership, social support, professional commitment, and motivation.

The questionnaire is structured into several sections to gather comprehensive data. It begins with demographic information, including age, gender, and teaching

experience. The subsequent sections assess various constructs, including transformational leadership, which is measured using adapted items from Bass and Avolio's Multifactor Leadership Questionnaire. Social support is evaluated through a modified version of the Social Support Questionnaire, while professional commitment is measured using the Organizational Commitment Questionnaire. Finally, motivation is assessed through the Work Extrinsic and Intrinsic Motivation Scale. The questionnaire consists of a total of 40 items, with 5−10 items dedicated to each construct, ensuring a concise yet comprehensive data collection tool.

The questionnaire demonstrated strong content validity, having been developed through an extensive literature review and reviewed by experts in the field of educational leadership. This rigorous development process ensured that the questionnaire comprehensively covered all relevant items. Additionally, the questionnaire's reliability was established through a pilot test conducted with a sample of 30 teachers. The results of the pilot test yielded a Cronbach alpha of 0.80 or higher for each construct, indicating high internal consistency and confirming the reliability of the questionnaire.

Qualitative data collection

A semi-structured interview guide was developed as the primary instrument for data collection, with a focus on exploring teachers' perceptions of leadership, social support, motivation, and challenges faced in the teaching environment. The interview guide consists of 10 open-ended questions, carefully designed to stimulate discussion and allow participants to share their experiences in detail. The guide is structured around four main themes, which provide a framework for exploring teachers' perspectives on their experiences with leadership styles, perceived level of social support, factors influencing motivation, and challenges faced in the educational environment.

To ensure the quality and accuracy of the interview data, a rigorous pre-testing process was undertaken. The interview questions were informed by existing qualitative research in the educational environment, and pilot interviews were conducted to refine the questions, ensuring clarity and relevance. To enhance reliability, all interviews are recorded and transcribed verbatim. A coding scheme is developed based on a preliminary study of the transcripts, and a subset of interviews is independently coded by multiple researchers to establish inter-coder reliability. By combining these rigorous methods, the study provides a comprehensive understanding of the factors influencing teacher effectiveness in SPN Purwokerto, thereby enhancing the overall validity and reliability of the study.

Sampling

This survey designates 50 trainers for surveys and 10 trainers for interviews. While the rationale for these sample sizes has been outlined, it is crucial to clarify that these numbers are based on prior statistical power analysis, ensuring that they are sufficient to address the quantitative research questions effectively. Additionally, the inclusion of participants from diverse departments is intended to enhance the study's comprehensiveness. Stratification practices employed reflect various educational levels and subjects, ultimately strengthening the research quality. The eligibility criteria for research participation have been clearly defined, promoting an accurate representation of the target population and mitigating potential non-response biases (Makwana et al., 2023).

Data collection

Data collection is conducted through an online survey distributed via email, which presupposes that all participants possess equal access to and familiarity with digital tools. This presumption may not be universally applicable to all educators, particularly in regions where access to technology varies. To address this potential disparity, alternative methods of data collection, such as paper surveys or in-person interviews, are considered for individuals who may encounter barriers to digital access (Busetto et al., 2020). Details regarding the survey instrument, including the types of questions (e.g., Likert scale, open-ended) and response scales, are essential for understanding how the data are quantified and analyzed. Similarly, the interview guide delineates the key themes or sample questions that are explored during the interviews, thereby ensuring that the qualitative data collected is relevant and aligned with the study's objectives.

Data Analysis

The data analysis section currently incorporates technical terminology, such as maximum likelihood estimation (MLE), which may not be accessible to all readers. To enhance comprehension, it is essential to provide a brief explanation of these terms. Furthermore, the study should elaborate on the use of triangulation in integrating quantitative and qualitative findings, ensuring that the results from both data sources complement and

reinforce one another. To elucidate the modeling of structural equations, model suitability criteria should be clearly defined, including specific indices such as the root mean square error of approximation (RMSEA) and the comparative fit index (CFI). Clear Coding Protocols Develop and follow a detailed coding framework that includes clear definitions of themes and categories. This consistency minimizes subjective biases and aids in replicating the coding process.

Finally, ethical considerations in data analysis are addressed, including strategies to mitigate bias in the coding of qualitative data, thereby ensuring that the analysis remains objective and accurately reflects the experiences of the participants. By incorporating these elements, the methodology attains greater reliability and transparency, ultimately enhancing the overall credibility of the study's results (Naeem et al., 2023).

Results

The results of this study are structured systematically, covering both quantitative data obtained from the study and qualitative knowledge gathered through semi-structured interviews. The analysis highlights the links between SPN Purwokerto's leadership styles, social support, dedication to work, work motivation, and trainers' performance. Quantitative results show significant practical significance, with the analysis conducted at SPN Purwokerto providing valuable information about the factors influencing teacher outcomes. A thorough interpretation of the results is presented below, highlighting their practical consequences. The mean scores and standard deviations for the key variables are as show in Table 1:

The survey results revealed several key findings that can inform strategies for improving educator satisfaction and performance. Notably, educators reported a high level of social support (Mean = 4.25), indicating that they feel well-supported by their colleagues and administration. This suggests that educational institutions should prioritize creating a collaborative environment where educators can rely on each other for assistance and encouragement. Additionally, educators reported a high level of work motivation (Mean = 4.30), which is crucial for effective teaching and learning. To maintain and enhance motivation, institutions should consider implementing strategies such as recognition programs, professional development opportunities, and a positive work culture.

Furthermore, the survey results showed that educators have a positive perception of their leadership styles (Mean = 4.12) and work commitment (Mean = 4.10). This suggests that leadership development programs should be a focus for educational institutions, as strong leadership is linked to higher levels of commitment and motivation among staff. Finally, educators reported a positive perception of their performance (Mean = 4.15), indicating that they believe they are effectively fulfilling their roles. This finding can guide administrators to recognize and reward high-performing educators, which can further enhance motivation and commitment.

Structural Equation Modeling (SEM) Analysis

The SEM analysis revealed significant relationships among the variables, with the following path coefficients shown in Table 2:

The study revealed significant relationships between various factors that impact educator performance. Notably, a positive relationship was found between leadership styles and work motivation (0.42), indicating that effective leadership directly enhances educators' motivation. This suggests that training leaders in transformational and supportive leadership styles can lead to a more motivated workforce, ultimately improving educational outcomes. Furthermore, social support was found to have a positive impact on work commitment (0.36), highlighting the importance of fostering a supportive environment to enhance educators' dedication to their roles.

The study also revealed a strong relationship between work commitment and work motivation (0.48),

Table 1 Descriptive statistics of key variables

Variable	*M*	*SD*	*N*
Leadership Styles	4.12	0.58	50
Social Support	4.25	0.62	50
Work Commitment	4.10	0.55	50
Work Motivation	4.30	0.60	50
Educator Performance	4.15	0.57	50

Source: Prepared by the author (2025)

Table 2 Path coefficients from structural equation modeling analysis

Relationship	Coefficient
Leadership Styles → Work Motivation	0.42
Social Support → Work Commitment	0.36
Work Commitment → Work Motivation	0.48
Work Motivation → Educator Performance	0.55

Source: Prepared by the author (2025)

emphasizing that committed educators are more likely to be motivated. To enhance commitment, institutions should focus on strategies such as involving educators in decision-making processes and providing opportunities for professional growth. Most notably, a significant relationship was found between work motivation and educator performance (0.55), indicating that motivated educators are likely to perform better. This finding underscores the importance of maintaining high motivation levels through recognition, support, and a positive work environment, ultimately leading to improved student outcomes.

The quantitative findings of the study provide valuable insights for educational institutions, emphasizing the practical implications of enhancing leadership styles, fostering social support, and promoting work commitment and motivation. By focusing on these key areas, educational leaders can significantly improve educator performance and, consequently, student success.

Indirect Effects and Graphical Representation

The indirect effects identified in the SEM analysis at SPN Purwokerto highlight the pathways through which leadership styles and social support influence educator performance. While the statistical results provide valuable insights, a graphical representation, such as a SEM path diagram, can enhance understanding of these relationships.

Indirect Effects Summary

The analysis of indirect effects highlights the important mediating roles of work commitment and work motivation in explaining how leadership styles and social support influence educator performance. The first pathway, from leadership styles to work commitment, then to work motivation, and finally to educator performance, produced an indirect effect of 0.24. This finding suggests that effective leadership does more than directly stimulate motivation; it also strengthens educators' commitment to their work, which subsequently enhances their motivation levels and leads to improved performance outcomes. In other words, leadership operates through a chain of psychological and behavioral mechanisms, where increased commitment fosters stronger motivation, and together these factors translate into better educator performance.

The second pathway, from social support to work motivation and ultimately to educator performance, yielded an indirect effect of 0.18. This indicates that social support plays a meaningful role in shaping educator performance by first enhancing work motivation. When educators perceive supportive relationships within their professional environment, their motivation to perform increases, which in turn positively affects their overall performance. Collectively, these findings demonstrate that both leadership styles and social support exert significant indirect influences on educator performance through motivational processes, underscoring the importance of fostering committed and motivated educators within educational institutions.

Coefficients

The coefficients shown in Figure 1 indicate the strength and direction of the relationships among the key variables in the model. Leadership styles demonstrate a moderately strong positive effect on work commitment (0.42), suggesting that effective leadership practices significantly enhance educators' sense of dedication and attachment to their work. Similarly, social support has a positive and meaningful influence on work commitment (0.36), indicating that supportive professional environments contribute to stronger commitment levels. Work commitment, in turn, exerts a substantial positive effect on work motivation (0.48), implying that educators who feel committed to their roles are more likely to exhibit higher motivation in carrying out their responsibilities. Finally, work motivation shows the strongest relationship in the model with educator performance (0.55), highlighting that motivated educators tend to achieve higher levels of performance. Overall, the coefficients suggest a coherent pathway in which leadership styles and social support enhance work

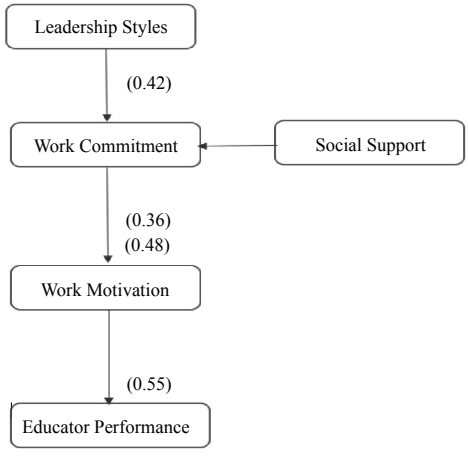


Figure 1 SEM Path Diagram

commitment, which then strengthens work motivation and ultimately improves educator performance.

Practical Implications

This flow diagram visually summarizes the pathways through which leadership styles and social support impact educator performance, emphasizing the importance of fostering a supportive and committed work environment to enhance overall educational outcomes. The analysis also revealed important indirect effects. Leadership styles positively influence educator performance through their impact on work commitment, with an indirect effect of 0.24. Similarly, social support impacts educator performance indirectly through work motivation, with an effect of 0.18. These findings illustrate the pathways through which leadership and social support contribute to performance, emphasizing the importance of these factors in shaping work-related attitudes and behaviors.

Qualitative Findings

The qualitative insights gathered from semi-structured interviews with educators at SPN Purwokerto shed light on the factors influencing their performance. The thematic analysis revealed several key issues, which are presented below along with direct quotes from participants to enhance the credibility and depth of the findings.

Data Collection Participants

The qualitative insights in this study were obtained through semi-structured interviews with 30 educators at Sekolah Polisi Negara (SPN) Purwokerto. The participants were selected to represent a diverse range of demographic and professional backgrounds. The age range of participants was between 25 and 55 years old, with a balanced gender distribution of 60 percent male and 40 percent female educators. Professionally, the participants represented various departments within SPN Purwokerto, with teaching experience ranging from 3 to 30 years and an average of 12 years. The majority of participants held at least a Bachelor's degree in education or related fields, with some possessing advanced degrees. The participant pool included classroom teachers, department heads, and administrative staff, providing insights from both educational and leadership perspectives. Notably, all participants were actively teaching or engaged in educational roles at SPN Purwokerto, lending pertinent context to their experiences and viewpoints on leadership and support within this unique educational setting.

Key Themes and Supporting Quotes

Educators have noted that transformational leadership significantly enhances their motivation and commitment. This leadership style cultivates an environment in which teachers feel empowered to take initiative and express their creativity. One participant articulated, "Our principal encourages us to take initiative and be creative. This kind of leadership makes me feel valued and motivated to do my best." This statement underscores the critical role that effective leadership plays in enhancing educators' engagement and dedication to their profession.

The role of social support in the work environment cannot be overstated. Participants highlighted the importance of emotional and informational support from colleagues and administration. The presence of supportive colleagues contributes to a collaborative atmosphere that is essential for professional growth. One participant remarked, "Having supportive colleagues who are always ready to help makes a huge difference. It creates a positive atmosphere where we can thrive." This observation emphasizes the significance of a robust support network in fostering a conducive work environment for educators.

Many educators expressed a profound sense of commitment to their roles, motivated by both leadership and support. This commitment extends not only to their students but also to the institution as a whole. One participant articulated, "I feel a deep commitment to my students and my school. The support I receive from my leaders and peers fuels this commitment." This statement reflects how leadership and peer support can enhance educators' dedication to their responsibilities.

Educators indicated that their motivation is closely linked to the recognition and appreciation they receive from both peers and superiors. Acknowledgment of their efforts serves as a powerful motivator, encouraging them to strive for excellence. One participant noted, "When my efforts are recognized, it motivates me to push harder. It's the little things that count." This illustrates the impact of recognition on educators' motivation levels and overall job satisfaction.

Participants concurred that a positive work environment is directly correlated with their performance levels. In a supportive and encouraging atmosphere, educators feel more engaged and are willing to exert additional effort for their students. One participant stated, "In a supportive environment, I find myself more engaged and willing to go the extra mile for my students."

This emphasizes the importance of cultivating a positive workplace culture to enhance educator performance and student outcomes.

Additional Insights

The interviews with educators revealed several key factors that impact their motivation, commitment, and performance. Firstly, the impact of leadership was highlighted as a significant factor, with educators emphasizing the importance of transformational leaders in creating a positive organizational climate. Supportive leaders who encourage growth and development were found to enhance educators' motivation and commitment. Additionally, social support systems were identified as a crucial aspect, with respondents stressing the necessity of trust, collegiality, and support from colleagues and administration to improve motivation and job satisfaction. The interviews also revealed that educators who feel a sense of belonging to the institution exhibit higher motivation levels, which in turn enhances their performance. Furthermore, recognition of efforts and opportunities for professional growth were identified as key factors leading to increased commitment. Other notable achievements mentioned by teacher respondents included a correlation between motivation, commitment, and performance, with many emphasizing that heightened motivation leads to improved teaching quality and student success. Overall, the findings highlight the importance of leadership, social support, and a sense of belonging in driving educators' motivation, commitment, and performance.

Implications of Results

The implications of this study highlight the pivotal role of leadership styles, social support, work commitment, and work motivation in enhancing educator performance at SPN Purwokerto. To foster effective leadership development, it is essential to implement targeted training programs focused on transformational leadership skills that address the unique challenges faced by educators at the institution. These workshops should incorporate case studies relevant to SPN Purwokerto's context, role-playing scenarios, and feedback sessions, allowing leaders to practice and refine their skills in real-time. Additionally, establishing mentorship initiatives where experienced leaders guide newer educators can foster a culture of continuous improvement and support.

Enhancing social support is equally crucial. Institutional policy revisions should be developed to promote positive work relationships, such as formalizing peer mentoring systems and instituting regular check-ins between staff and administration to discuss challenges and successes. Organizing team-building activities that address the unique dynamics of SPN Purwokerto, including collaborative projects involving both teaching and non-teaching staff, can further foster a sense of community and shared purpose.

To foster commitment and motivation among educators, structured recognition programs should be created to celebrate their achievements, such as "Educator of the Month" awards or public acknowledgment during staff meetings. This initiative can enhance motivation and reinforce a culture of appreciation. Additionally, facilitating workshops that assist educators in aligning their personal professional goals with the institution's objectives ensure that they feel invested in the institution's success.

Future research directions should include methodological recommendations that employ mixed-methods approaches with larger sample sizes to enhance the generalizability of findings. Longitudinal studies could provide insights into how changes in leadership and support systems impact educator performance over time. Furthermore, exploring additional variables related to work-life balance, such as workload management and personal well-being, will deepen the understanding of their influence on educator performance.

Addressing specific challenges faced by educators at SPN Purwokerto is imperative. Identifying contextual challenges, including high workloads, limited resources, and issues related to student engagement, enhances the relevance and efficacy of recommendations. An in-depth discussion regarding the feasibility of transitioning to transformational leadership styles must consider potential barriers, such as resistance to change and resource limitations, alongside strategies to mitigate these challenges.

By providing precise and actionable recommendations while addressing the unique context of SPN Purwokerto, these findings can serve as a valuable resource for improving educator effectiveness and overall institutional performance. The integration of both quantitative and qualitative findings further enriches the understanding of the multifaceted nature of educator performance, underscoring the significance of supportive leadership and teamwork in cultivating a motivated and committed workforce (Darling-Hammond et al., 2020).

Discussion

The findings from the structural equation modeling (SEM) analysis conducted at SPN Purwokerto underscore the significance of leadership development and social support in enhancing educator performance. However, the discourse surrounding these concepts could be made more precise and detailed. For instance, when addressing "team-building exercises," it would be advantageous to specify effective activities such as collaborative workshops, peer mentoring programs, or regular feedback sessions that have demonstrated success in fostering teamwork and enhancing communication among educators. These targeted strategies can contribute to establishing a more cohesive and supportive work environment (Morais et al., 2024).

Furthermore, the recommendation to implement "incentives for loyalty and diligence" should be augmented with examples of effective incentive programs within educational settings. Institutions might consider recognition awards, professional development opportunities, or performance-based bonuses, which have proven effective in motivating educators and strengthening their commitment to the institution. To streamline the discussion, it is imperative to avoid redundancy, particularly regarding the importance of leadership styles and social support (Rahmah et al., 2022). A more concise approach could highlight that transformational leadership not only enhances work commitment but also cultivates an environment that encourages educator engagement and dedication. This can be achieved through practices such as open communication, participative decision-making, and providing resources that empower educators to take initiative in their roles. Moreover, the phrase "critical issue of constructing a collaborative workplace" can be clarified by detailing specific actions that contribute to a collaborative environment. For example, establishing regular team meetings, creating cross-functional committees, and fostering a culture of shared goals can significantly enhance collaboration among educators.

Limitations

The limitations of this study warrant further examination. While the sample size was relatively small, potential biases may have emerged from the specific context of SPN Purwokerto, which may not be representative of other educational institutions. Methodological constraints, such as reliance on self-reported measures, could also influence the findings. Future research should consider these factors and strive to include a more diverse array of participants to enhance the generalizability of the results.

Final Statement

In conclusion, the SEM analysis conducted at SPN Purwokerto elucidates the integrative effects of leadership styles, social support, work commitment, and work motivation on educator performance. The findings indicate that educational institutions should prioritize the development of transformational leadership practices and cultivate a supportive work environment to enhance educator effectiveness. By implementing targeted team-building activities and incentive programs, institutions can establish a more engaged and motivated workforce. Future research should build upon these findings by exploring additional variables that influence educator performance and by employing larger, more diverse samples to validate the results. This comprehensive approach not only enriches the existing literature but also provides actionable insights for educational practice and policy (Kang & Ahn, 2021).

Conclusion and Recommendations

The study conducted at SPN Purwokerto provides valuable insights into the integration of leadership styles, social support, work commitment, and work motivation as key factors influencing educator performance. The findings suggest that robust leadership is essential for fostering a committed and motivated workforce among both teaching and non-teaching staff. However, the conclusions would benefit from greater specificity regarding the characteristics of effective leadership and the methods by which it can be operationalized within educational contexts. To cultivate a positive and conducive work environment, it is imperative to identify specific attributes that contribute to such an atmosphere. For instance, a positive work environment may encompass open communication channels, recognition programs for educators, and opportunities for professional development. Concrete examples of practices that promote a supportive culture, such as regular feedback sessions and team-building workshops, are essential to strengthen this recommendation. The recommendations pertaining to leadership development programs should delineate the types of training that would prove most beneficial. For instance, workshops focused on transformational leadership skills, conflict resolution, and effective communication could be incorporated into

the training curriculum. Providing this specificity enables educational institutions to implement more targeted and effective programs.

Furthermore, the recommendation to "expand collaboration" could be streamlined to eliminate redundancy. Instead of reiterating the term "collaboration," it could be rephrased to highlight the importance of fostering teamwork and communication among staff. This could include initiatives such as peer mentoring, collaborative planning sessions, and regular team meetings to enhance the sense of community within the institution. To enhance work engagement and motivation, educational institutions should consider implementing targeted incentive programs that acknowledge and reward educators for their contributions. Such programs may include performance-based bonuses, opportunities for career advancement, and professional development initiatives that align with educators' goals. Continuous appraisal and feedback mechanisms are crucial for assessing teacher satisfaction and work involvement. Institutions should establish routine evaluations that inform leadership strategies and support systems, ensuring responsiveness to the needs of educators. Future research should build on these findings by examining additional factors that influence educator performance, such as access to training opportunities, work-life balance, and external influences, including promotions and salary increases. Increasing the diversity and number of respondents in future studies enhance the applicability of the results across various educational contexts. In summary, this study contributes to the literature on educator performance by underscoring the significance of leadership roles and social factors. By adopting the recommended strategies, educational institutions can cultivate an environment that enhances motivation and, consequently, improves student outcomes. The integration of these elements is essential for fostering a culture of excellence in education, ultimately leading to improved performance among educators and their students.

Conflicts of Interest

The Author declares that there are no Conflicts of Interest.

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Impact of five-stage teacher training program for teaching with problem-based tasks on mathematics teachers' belief and practice

Sri Suryanti[a,*], Liza Puspita Yanti[a,†], Christine Wulandari Suryaningrum[b,†]

[a] *Mathematics Education Department, Universitas Negeri Surabaya, East Java 60231, Indonesia*
[b] *Mathematics Education Department, Universitas Muhammadiyah Jember, East Java 68124, Indonesia*

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Abstract

It is imperative that educators be adequately equipped to develop and execute problem-based tasks (PBT) through a comprehensive teacher training program. The retention of training outcomes among educators remains a challenge for the current teacher training model. This study examines the impact of five-stage teacher training programs on the beliefs and practices of teachers. The program utilized a quasi-experimental design over a six-month period, with a focus on (1) the beliefs of teachers regarding the implementation of PBT and (2) the practices of teachers in utilizing PBT. These variables were evaluated through training worksheets and questionnaires that were distributed both before and after the program. The experimental group consisted of 49 educators, while the control group consisted of 27 educators. The experimental group was involved in the program's five stages: recognizing PBT, analyzing PBT, prototyping PBT, implementing PBT, and evaluating PBT. Comprehensive interviews were conducted with nine teachers at the conclusion of the program to evaluate the program's impact on their ability to devise and implement PBT. The questionnaire was completed voluntarily by the control group, which did not participate in the program. The significance of differences in teacher beliefs was evaluated using the Mann-Whitney U test. The research results revealed significant discrepancies between the experimental and control groups in two aspects: the characteristics of PBT and the belief in its implementation in classroom instruction. The research also underscored the discrepancies in task design between the novice teacher and the senior teacher.

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Introduction

The teacher training program is a crucial element in improving the quality of education and is essential in forming the beliefs and practices of teaching educators (Avalos, 2011; Korthagen et al., 2006). The teacher

* Corresponding author.
E-mail address: srisuryanti@unesa.ac.id (Suryanti, S.).
† Co-first authors.

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training program must enhance the quality of education and alter the attitudes and behaviors of educators. The teacher training program is vital for enhancing educational quality and is fundamental in shaping the ideas and behaviors of educators. The teacher training program must improve educational quality and modify educators' attitudes and behaviors. These programs are essential in equipping instructors with the resources needed to meet the changing demands of modern education, including utilizing problem-based tasks (PBT) (Suryanti et al., 2022). While previous studies have examined the challenges of PBT adoption, limited research has focused on teacher training programs specifically designed to address these challenges, particularly in the context of Indonesia.

PBT is an essential instrument for involving students in the resolution of real-world issues through collaborative and active learning strategies. Research suggests that educators often face challenges in the effective execution of instructional strategies due to inadequate practical skills and a deficiency in confidence regarding the methodology (Ertmer & Glazewski, 2015; Hmelo-Silver, 2004). Ertmer and Glazewski (2015) discovered that, notwithstanding their training, numerous educators demonstrated a deficiency in confidence when implementing PBT within their classrooms. Hmelo-Silver (2004) observed that the beliefs and instructional methods of educators are shaped by their experiences and understanding of PBT, potentially hindering the successful application of this educational strategy. This research assesses a carefully designed five-step (recognition, analysis, prototyping, implementation, and evaluation) PBT training program aimed at enhancing educators' skills and reinforcing their confidence in the proficient application of PBT. This five-step PBT teacher training program is essential as it offers a systematic and incremental framework that fosters both theoretical comprehension and practical implementation, enabling educators to progressively cultivate their confidence and proficiency in effectively applying PBT within their classrooms. This study investigates secondary mathematics educators in Indonesia, a group that often faces unique challenges arising from limited resources and insufficient opportunities for professional growth.

Literature Review

Teacher belief and practice of PBT

Teachers hold beliefs concerning the student learning process, teaching objectives, and their role in the classroom, significantly shaping their instructional approach. Extensive research has demonstrated that teachers' instructional practices are notably influenced by their beliefs and principles regarding teaching and learning (Basckin et al., 2021; Dong et al., 2020; Ertmer et al., 2012; Reichert et al., 2021; Suryanti et al., 2022). For instance, educators who endorse that students effectively acquire knowledge through direct experience and exploration are predisposed to employ problem-based teaching strategies (Ertmer et al., 2012). The teacher's beliefs wield considerable influence over the application of problem-based teaching practices. However, it is imperative to consider additional factors, such as a teacher's inherent inclination toward traditional teaching methods, which may impede the adoption of problem-based tasks (Suryanti et al., 2022).

Teachers who want to apply new teaching strategies, such PBT, and overcome opposition to change must be well-prepared. Administrative problems and classroom management related concerns could aggravate the inclination to apply traditional teaching strategies. To change these habits, teachers need ongoing, thorough training that combines theoretical involvement with critical thought. Effective use of PBT depends on an atmosphere marked by openness and continuous support, which consists of peer cooperation and mentoring. The research done by Sullivan et al. (2015) is a shining example of good professional development applied in line with PBT. Teachers in this study took part in planned professional development courses giving reflective practices and group planning top priority. They created thorough mathematical goals and shared their knowledge on their application in the classroom environment. This joint approach boosted instructional methodologies and confidence in the facilitation of PBT, hence increasing student involvement and better learning results.

Design for the Five-Stages Teacher Training Program

The standard critique of professional development research emphasizes the need for clearer structure and substance. The study explores professional development programs, incorporating Theory of Mind (TOM) and Self-Determination Theory (SDT)) concepts, which are essential components for high-quality development. Combining these ideas improves deep learning and long-term teaching practices. Research has demonstrated that combining these ideas improves deep learning and long-term changes in teaching practices (Desimone, 2009; Mezirow, 2018). Here, we outline the substance

and sequence of activities for each phase of professional growth.

Phase I (recognizing mathematical tasks). The initial stage of PBT involves selecting mathematical tasks that align with students' cognitive development and learning needs. Teachers analyze various activities to determine their effectiveness in fostering problem-solving skills and conceptual understanding. This phase emphasizes designing tasks that gradually increase in complexity, ensuring students build confidence while engaging in meaningful mathematical thinking (Wellman, 2011).

Phase II: Analyzing tasks. The task analysis phases are components of the cognitive task analysis (CTA) theory, which gained popularity through the works of (Cooke, 1994; Chipman et al., 2000). These stages aim to outline strategies for elucidating the cognitive structures and processes involved in performing a task. At this step, the teacher must examine five different sorts of tasks. Below is an example of an assignment evaluated by the teacher (Figure 1)

Stage III, In this stage, prototype tasks are executed, followed by the formulation of a Problem-Based Task (PBT) framework. Teachers collaborate to analyze outcomes, assess challenges, and develop support strategies, ensuring alignment with school curriculum.

Stage IV, teachers implement PBT activities, focusing on acquiring and executing design knowledge. They identify requirements, resources, and evaluate plans. They use Brown's (2004) taxonomy to assess standards and adapt questions. Observations focus on implementing PBT in educational institutions, with a shift towards documentation.

Stage V (Reflecting). This research incorporates Jay & Johnson (2002) typology, which combines the ideas of Dewey (1933) and Schön (1983), categorizing professional development programs into three stages: problem identification, examination from various perspectives, and evaluation. This research, conducted through a focus group discussion, aims to develop a novel viewpoint on PBT. Research Question (RQ):

RQ 1: Does a meaningful teacher training program impact teachers' beliefs about PBT?

RQ 2: Is there an impact of meaningful teacher training programs on teacher's practice of PBT?

Methodology

Design

The professional development initiative took place in East Java province from July to December 2023 to align with Indonesia's national policy requiring the implementation of a problem-based learning (PBL) approach. Despite this policy, numerous educators encounter difficulties in the design and implementation of project-based learning in their instruction. The program was implemented in two districts: Gresik and Jember, to address this gap. Teachers participating in this optional professional development program 49 teachers—25 from Gresik and 24 from Jember—participated in a thorough training program spanning five separate phases: recognizing, analyzing, prototyping, implementing, and evaluating instruction based on Project-Based Learning (PBL). The control group comprised 27 educators from Gresik who did not participate in direct training; instead, they were provided with general guidelines for the development of performance-based assessments across five mathematical domains: algebra, geometry,

PBT	Straight forward tasks
Rectangle ABCD has a length of 15 cm and a width of 8 cm. Draw any quadrilateral that has the same perimeter as the rectangle Check the area of the quadrilateral that you produced Compare the area of the quadrilateral that you produced with the area of the rectangle ABCD; what do you get? Check the shape of the objects produced; which has the most significant area?	Rectangle ABCD has a length of 15 cm and a width of 8 cm. Find the length of the diagonal BD
Instruction for teacher: Identify the two types of tasks regarding: The scope of Geometry that can be learned by students when completing tasks Prerequisite knowledge needed by students to complete tasks The possibility of students' difficulties in completing tasks Alternative scaffolding that can be given to overcome these difficulties	

Figure 1 Example task for analysis activity

measurement, statistics, and number theory.

We employed a quasi-experimental design that incorporated a non-equivalent control group to ensure comparability between the groups. Instructors having past knowledge of PBL ideas who showed a readiness to engage were sought using the purposive sampling technique. Although randomization was not practical given the voluntary character of the program, matching methods were used to ensure that both groups displayed similar teaching backgrounds, years of experience, and subject matter competence. In order to control for extraneous variables, both groups administered the Teacher Belief and Practice questionnaire both prior to and subsequent to the program, thereby evaluating any alterations in their instructional beliefs and practices. Data triangulation was conducted through classroom observations and teacher interviews to validate the self-reported responses obtained from the questionnaires. The involvement of the Secondary School Curriculum Assistant Team in Gresik, along with the Middle School Curriculum Instructor in Jember, provided structured support for the implementation process, thereby ensuring uniformity across the various research sites.

Participants

The experimental cohort consisted of 25 educators from Gresik Regency and 24 educators from Jember Regency, who were selected through purposive sampling based on their willingness to participate and their experience in the implementation of problem-based tasks (PBT). A total of 49 instructors engaged in a training program comprising five structured phases, which were conducted over a duration of six months: recognition, analysis, prototyping, implementation, and evaluation. Teachers in the control group received direction on the construction of performance-based activities across five mathematical domains: algebra, geometry, measurement, statistics, and number theory even though they were not included within the training program. Encouraging their voluntary engagement in the autonomous design and implementation of PBT, the main author extended formal invitations to 35 mathematics teachers from high schools in Gresik Regency. A total of 27 teachers consented to participate, establishing the independent teacher group. The group autonomously designed and implemented PBT, while collaborating with the first author for guidance and feedback. The purposive sampling method was selected to guarantee that participants possessed prior exposure to PBT concepts and demonstrated motivation to participate in structured training or independent implementation.

Data Collection

The data collection procedure in the two districts of East Java—Gresik and Jember—spanned a duration of six months, from July to December 2023. Official clearances were sought from local education authorities and school officials and school administrators to guarantee ethical compliance and seamless execution before data collecting. Prior to their involvement in the study, participating educators provided written consent after being informed about its objectives, methodologies, and confidentiality protocols. In order to accommodate the preferences and schedules of the educators, the questionnaire was disseminated both online and in a face-to-face manner. Educators were allotted a week to complete the surveys, accompanied by subsequent reminders disseminated through email and direct communication to mitigate the incidence of incomplete responses. When replies were discovered to be lacking, teachers were contacted to fill in the blanks, therefore maintaining the integrity of the data. To maintain the integrity of the data quality, responses that were unfinished despite several follow-up efforts were not included in the final analysis. Three primary instruments are employed to data collection about teacher belief and practice of PBT:

Teacher belief and practice of PBT's questionnaire

Measurement of Teacher Belief in using PBT: A Statement Comprises 12 statement items, each rated on a scale of 1 to 5, with one representing "Strongly Disagree" and five representing "Strongly Agree." Five statements measure the statement that measures practice in PBT: 1) Utilizing PBT for learning that facilitates reasoning, 2) Utilizing PBT to establish connections between different representations, 3) Utilizing PBT during practice sessions, and 5) Reflecting on the frequency of PBT usage. The response categories for Scales (2), (4), and (5) are as follows: "Rarely," "Once or Twice per Semester," "Once or Twice a Month," "Once a Week," and "Almost every lesson." The percentage of PBT usage is assessed using a 5-point Likert scale to evaluate Scales (1) and (3). The content validity was determined through evaluations performed by three experts in mathematics education, who appraised the clarity and relevance of each item. A preliminary study involving twenty educators was undertaken to enhance the questionnaire and elucidate any potential ambiguities. An exploratory factor analysis (EFA) was performed to ascertain construct validity,

thereby confirming that the items corresponded with the designated dimensions of teacher beliefs and practices. The instrument demonstrated robust internal consistency, as evidenced by Cronbach's alpha reliability coefficients ranging from 0.76 to 0.87.

Assessment checklist of PBT design

This checklist was guided by the PBT framework (Suryanti et al., 2022). Consequently, two primary components are employed to evaluate the PBT designs that the teacher has developed during the training activities. These components are Context (In alignment with the curriculum's learning objectives and student experience (relatedness)) and Task design (Cognitive levels C4, C5, or C6 are indicated by question sentences and Cognitive levels C4, C5, or C6 are indicated by question sentences (Essential questions)

Semi-structure interview

The semi-structured interview aims to investigate the teacher's belief in the design and implementation of PBT. The interview will consist of five questions, including the teacher's rationale for designing PBT (whether to modify or create new tasks), their purpose, and the scaffolding design they implemented for students who could not complete the tasks.

Data Analysis

Teacher Practices and Beliefs Data from the questionnaire was descriptively analyzed using SPSS 32.0. The objective of descriptive analysis is to establish a profile of teachers' beliefs and practices before and after their participation in the training program. The Mann-Whitney U test was then used to evaluate the variations in teacher opinions between the experimental and control groups in order to enable inferential analysis. The non-parametric test was selected since the belief scores fell short of the required normalcy assumptions for parametric tests such as ANOVA. Especially in cases when the data are ordinal or do not follow a normal distribution, the Mann-Whitney U test is a strong statistical tool used to assess the presence of a statistically significant difference between two independent groups. It is therefore especially relevant for the study of Likert scale-based questionnaire responses. The non-parametric character of the dataset makes the Mann-Whitney U test a more suitable option even another analysis. The teacher practice data against PBT is descriptively analyzed qualitatively using the checklist. Furthermore, NVivo Software was employed to systematically manage, code, and analyze qualitative data from interviews. Additionally, the researcher confirms the descriptive and inferential analysis results by triangulating interview data with quantitative data. This study is subject to certain limitations, notably geographic constraints, as the sample was exclusively comprised of educators from Gresik and Jember. This limitation may affect the generalizability of the findings.

Furthermore, the five-step teacher training program, encompassing the phases of recognition, analysis, prototyping, implementation, and evaluation, facilitated a systematic assessment of each stage's learning development and the effectiveness of teachers. The inquiries and discussions conducted prior to training facilitated an evaluation of educators' initial perceptions of PBT during the recognition phase. Educators engaged in case studies and reflective exercises throughout the analysis phase, during which their analytical abilities were assessed through written reflections and discussions with peers. During the prototype stage, educators developed lesson plans aligned with PBT, which were subsequently evaluated for compliance with PBT guidelines using established rubrics. The implementation phase required teachers to evaluate their lesson plans in actual classroom environments using peer feedback sessions and observations to gauge their effectiveness. To evaluate the development of their ideas and pedagogical strategies over the assessment period, teachers answered post-training questionnaires, interviewed, and practiced self-awareness. This all-encompassing evaluation system methodically tracked teachers' development, therefore encouraging continuous improvement all along the training process.

Results

Subject Characteristics

The experimental and control groups differ in teaching experience. The experimental group consists of 26 teachers (68%) with less than five years of experience, mostly novice educators. In contrast, the control group has a more balanced experience level, with 44 percent having five to ten years of teaching experience, suggesting greater familiarity with various teaching methods. Both groups mainly hold Bachelor's degrees in Mathematics Education (76% in the experimental group and 81% in the control group), ensuring similar academic

backgrounds. These differences in experience may affect how effectively teachers implement PBT. Details are summarized in Table 1.

Impact of Teacher Training Program on Teacher Belief

Significant changes in the teacher's belief in PBT were observed in the experimental group. Figure 2 illustrates the questionnaire results that the participant completed before and after participating in the program. The component "The Most Effective Method of Teaching Mathematics is to Begin with Simple Problems and Progress to More Complex Ones" demonstrates some consistency among participants. Failure to comply with this requirement may lead to students' loss of confidence and the occurrence of errors. The participant believes that the most effective method of teaching mathematics is to begin with a fundamental problem and progress to more complex ones. This belief is in accordance with the scores of participants who disclosed their beliefs before and after participating in the program (4.5 and 4.3, respectively).

Nevertheless, substantial alterations were observed

Table 1 Characteristics of the experimental group and control group subjects

Charateristics		Experimental group		Control group	
		N	Percentage	*N*	Percentage
Gender	Male	18	47%	10	37%
	Female	20	53%	17	63%
Educational background	Bachelor in mathematics education	29	76%	22	81%
	Mathematics	9	24%	5	19%
Mathematics teaching experience	Less than five years	26	68%	5	19%
	5 – 10 years	5	13%	12	44%
	10 – 15 years	3	8%	8	30%
	Over 15 years	4	11%	2	7%

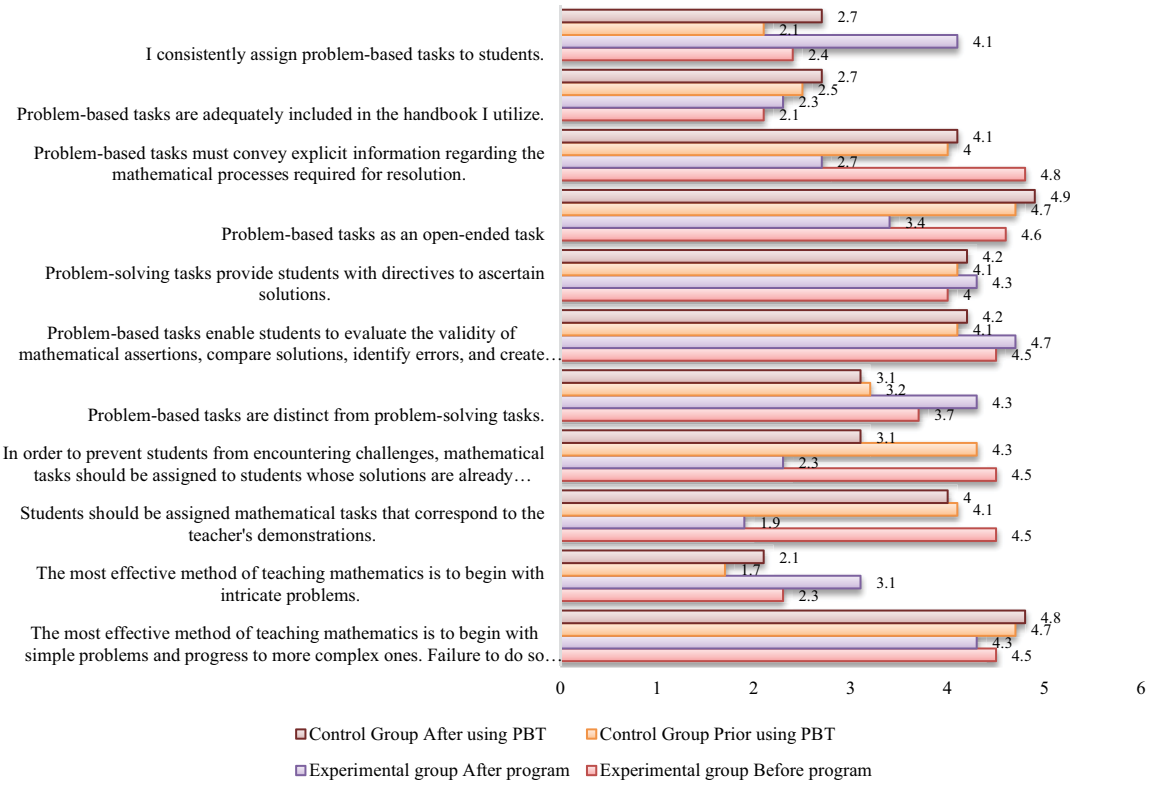


Figure 2 Teacher belief transformation

in other components more closely associated with the implementation of PBT. The conviction that students should be assigned mathematical assignments that correspond to the teacher's demonstrations is one of the most significant changes. Participants in the experimental group generally endorsed this methodology before beginning the program, with an average score of 4.5. This score decreased to 1.9 after the program was completed, indicating a substantial decrease in confidence in the learning characteristics that underpin PBT. The subsequent transition occurs in the PBT characteristic component "problem-based tasks must convey explicit information regarding the mathematical processes required for resolution" before the participant's program tends to concur with a score of 4.8 and then shifts to disagree with a score of 2.3. This change demonstrates a substantial transformation in confidence regarding the characteristics of PBT. Participants in the experimental group exhibited a high level of confidence in a more structured approach, as they tended to believe that PBT must provide clear instructions regarding the mathematical procedure required to solve the problem before the program. Their score of 4.8 indicated this belief. Participants' confidence in consistently using problem-solving strategies in their classes increased after the program, as they realized the importance of experimenting without excessive intervention. They were more self-assured and prepared to integrate PBT into their daily routines, demonstrating a significant decrease in conviction

The control group exhibits some of the same consistency as the experimental group, specifically the component: "The most effective method of teaching mathematics is to begin with simple problems and progress to more complex ones. Failure to do so may result in students making errors and losing confidence." Before the independent learning program on PBT, this belief was firm, with a score of 4.7. It remained consistent after the program, with a minor change to 4.8. This demonstrates that the control and experimental groups continue to maintain the conviction that the gradual approach to mathematics education, which involves the progression from basic to more intricate problems, is the most effective approach for fostering student confidence and minimizing their errors.

Nevertheless, the control group does not exhibit any substantial changes in specific components that contribute to the application of PBT. The control group showed no significant changes in their beliefs or practices regarding PBT. For instance, in the "Problem-Based Tasks must convey explicit information regarding component the mathematical processes required for resolution" section, they tend to agree with a score of 4, indicating that they continue to believe that the problem-based task must include explicit information about the mathematical process necessary for its resolution. This contrasts with the experimental group, which experienced a substantial increase in confidence in this area following the program.

The control group's beliefs and practices did not alter primarily because they did not receive structured PBT instruction. Without exposure to the program's concepts, these instructors were unable to critically evaluate or improve their current teaching methods. Their dependence on traditional methodologies, along with a lack of professional growth and reflective practice, led to a stagnation in their teaching strategies. Furthermore, the lack of collaborative interactions with peers in the experimental group hampered their ability to gain insight into effective PBT implementation. This reliance on traditional teaching approaches harmed their confidence and capacity to incorporate PBT into their practices, in striking contrast to the experimental group, which displayed a strong commitment to novel teaching methodologies. Additionally, is the control group's uncertainty regarding the consistency of implementing PBT in their classroom. The control group still appears confined to a more conventional teaching approach. Unlike the experimental group, it lacks confidence in incorporating PBT as an essential component of its teaching methods, which demonstrates a higher commitment to following the program.

Different Significance Tests Using Mann Whitney U test

Based on the findings of the descriptive analysis, the results from the Mann-Whitney U test reveal two significant components of belief between the control group and the experimental group. These two components pertain to PBT traits and the conviction to implement PBT in daily instruction. Regarding PBT's attributes, precisely 'Problem-Based Tasks Must Convey Explicit Information Regarding the Mathematical Processes Required for Resolution,' the control group exhibits a greater tendency to concur with elevated scores. In contrast, the experimental group demonstrates notable changes post-training program, resulting in diminished scores. The Mann-Whitney U test ($p < .05$) confirms this difference, suggesting that after the training, teachers in the experimental group increasingly embraced the idea that PBT should encourage student exploration rather than provide explicit instructions. This shift aligns with constructivist learning principles, reinforcing

that effective PBT implementation fosters independent problem-solving. The belief component on the usage of PBT, assessed via the statement 'I routinely give problem-based activities to study,' reveals a significant disparity between the two groups. The experimental group exhibited increased confidence in implementing PBT in class post-program, but the control group maintained uncertainty and demonstrated a lower score. The Mann-Whitney U test ($p < .05$) validates this result, indicating that participation in the training program significantly enhanced teachers' readiness to integrate PBT into their instruction. This finding supports the effectiveness of the five-step training model, demonstrating that structured professional development can positively influence teachers' beliefs and teaching practices. The test outcomes are displayed in Table 2.

Impact of meaningful teacher training program on teacher task practice

The teachers reported that they rarely applied PBT before participating in the program. Of the five components of Utilising PBT for learning that facilitates reasoning, 2) Utilising PBT to Establish Connections between Differentiation, 3) Utilising PBT During Practice Sessions, and 4) Utilising PBT to Enhance Individual Learning Usage almost receive an average similar score, which ranges from 2 to 3, which indicates "Once or Twice per semester." This information is based on the questionnaire. These findings suggest that, despite the theoretical comprehension of the advantages of PBT, its practical application remains restricted. This low average score confirms that PBT is employed infrequently, at most once or twice during a single semester, and is not an essential component of the educator's instructional approach.

This study investigates the causal relationship between the training program and changes in teachers' beliefs and practices while also integrating its findings with relevant theoretical frameworks. The training program is founded upon constructivist learning theory, which asserts that educators actively construct knowledge through experiential learning and reflective practice. The five-step training model—comprising recognition, analysis, prototyping, implementation, and evaluation—methodically guides educators from theoretical understanding to practical application. The causal analysis is enhanced through a comparative assessment of the experimental and control groups. The findings of the Mann-Whitney U test indicate significant

Table 2 Test results reflecting varied teacher beliefs experimental and control groups

Component	Group	*M*	Mann Whitney U test	*p*
The most effective method of teaching mathematics is to begin with simple problems and progress to more complex ones	Experimental group	4.3	523.00	.121
	Control Group	4.8		
The most effective method of teaching mathematics is to begin with intricate problems.	Experimental group	3.1	476.00	.107
	Control Group	2.1		
Students should be assigned mathematical tasks that correspond to the teacher's demonstrations.	Experimental group	1.9	643.00	.059
	Control Group	4		
In order to prevent students from encountering challenges, mathematical tasks should be assigned to students whose solutions are already included.	Experimental group	2.3	517.00	.067
	Control Group	3.1		
Problem-based tasks are distinct from problem-solving tasks.	Experimental group	4.3	546.00	.104
	Control Group	3.1		
Problem-based tasks enable students to evaluate the validity of mathematical assertions.	Experimental group	4.7	712.00	.102
	Control Group	4.2		
Problem-solving tasks provide students with directives to ascertain solutions.	Experimental group	4.3	476.00	.107
	Control Group	4.2		
Problem-based tasks as an open-ended task	Experimental group	3.4	643.00	.058
	Control Group	4.9		
Problem-based tasks must convey explicit information.	Experimental group	2.7	487.00	.017
	Control Group	4.1		
Problem-based tasks are adequately included in the handbook I utilize.	Experimental group	2.3	620.00	.104
	Control Group	2.7		
I consistently assign problem-based tasks to students.	Experimental group	4.1	540.00	.004
	Control Group	2.7		

disparities in beliefs and practices, suggesting that structured training interventions may lead to quantifiable alterations. The qualitative interview data elucidate the rationale underlying these changes, demonstrating that educators engaged in hands-on, problem-based activities developed a deeper comprehension of pedagogy and enhanced self-assurance.

Moreover, the teacher adheres to the program for six months and observes its effect on Teacher Task Practice, assessed by the tasks formulated by the teacher throughout the program. The subsequent three PBT samples were created by a teacher group categorized according to teaching experience: the novice teacher group (less than five years), the intermediate teacher group (5−10 years), and the senior teacher group (more than 15 years).

Task design by a novice teacher

An instance of the PBT design created by the novice teacher group is illustrated in Figure 3. This group of novice teachers is proficient in designing PBT according to the established standards. The primary criteria in PBT are the problem setting and the essential question presented to students. The four activities in this PBT fulfill the essential question criteria, promoting students' critical thinking and reasoning skills.

During the discussion and presentation session, the researcher confirmed to the novice teacher group the PBT design they created:

"Learning achievements in statistical elements, including being able to understand the average meaning ..., not understand the Bloom version, but understanding the Witghin framework, one of which is predictive, namely, students can predict data if knowing the average of a set of data ..." *(NF)*

Then, in relation to the reason they tend to select their tasks based on their learning achievements rather than modifying the existing assignment documents:

"The tasks in the school book, almost all of them are routine tasks ..., do not match the learning achievements ..." (ZR)

"From learning achievements ... it is easier to make problem immediately -based assignments as authentic proof of students to achieve learning achievements…" (NF)

Task Design by Intermediate Teacher

Figure 4 illustrates a PBT developed by the intermediate teacher cohort, comprising educators with 5−10 years of teaching experience. This task design also satisfies the PBT requirements. The problem's context aligns with the curriculum. Activities spanning from tasks a) to tasks e), promot critical thinking and student reasoning, while fulfilling the criteria for the essential question.

Teacher groups with this level of competence tend

A total of six runners have varying finish times. It is widely recognized that the average time for the six runners to reach the finish line is 96 seconds. Therefore,

1. Is it possible for an athlete to travel a distance exceeding 96 seconds?

2. Is it conceivable that the runner who completes the race in the shortest time is less than 90 seconds?

3. Is it possible for a runner to complete the race in exactly 96 seconds?

4 Are the subsequent racers unquestionably champions if the five runners achieve a time of less than 96 seconds?

Please express your answer!

Figure 3 PBT design created by novice teacher

A craftsman specializing in aquariums receives orders to produce a variety of blocks, each with a volume of 12 liters.

a. Assist the artisans in creating a feasible design for the aquarium size.

b. Select the maximum size of the aquarium that you can suggest to the artisans to facilitate the construction of the actual aquarium.

c. Select the appropriate aquarium size if you possess a fish that measures 8 cm.

d. Select the most suitable aquarium size

if the aquarium is to be placed on a table that measures 50 cm x 30 cm.

Figure 4 Task design by intermediate teacher

to create tasks based on learning outcome rather than modifying the current task documents in the textbook. During the discussion and presentation session, researchers examined the PBT design created by this group of medium teachers.

"This task is designed to practice students' critical thinking skills, so the questions given must be essential .... (AA)

"In the first assignment, it starts from a simple one to deliver to the second and third tasks ..." (RR)

"Students require training in literacy and numeracy; problem-based tasks are particularly effective in offering a genuine context for learners…"(NH)

Then, in relation to the reason they tend to select their tasks based on their learning achievements rather than modifying the existing assignment documents:

"The task in the textbook is not challenging…"(NH)

The clarifying results indicates that participants possess a robust foundation in PBT design.

Task Design by Senior Teacher

Figure 5 illustrates the results of the PBT random within the senior teacher cohort. This group of senior teachers tends to create tasks that differ from those designed by novice and intermediate teachers. This PBT design offers a more straightforward framework and delineates its task activities.

The senior teacher group tends to create PBT and modify the tasks included in the textbook. During the discussion and presentation session, the researcher investigated the task:

"Usually in the worksheet students are told to immediately determine which wakes up, by being given pictures ..." (AM)

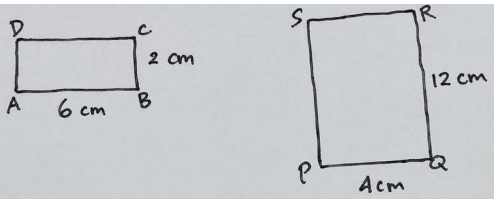
"This assignment is different; students are directed to find their relationship between two buildings, and then in the second assignment, they will think creatively to produce other buildings with the same relationship."

"In the assignment, the third student is challenged to think the opposite ... this will provide much experience to students ..."

Discussion

We have verified that the five-stage training program significantly influences teachers' beliefs and practices. Initially, the finding indicates that the training program enhances teacher belief in PBT's characteristics and willingness to implement them. The results of this study are consistent with previous research that illustrates the influence of specialized teacher training on instructional beliefs and practices. Chakraborty and Biswas (2020) demonstrated that well-organized professional development initiatives significantly bolster educators' confidence and their capacity to implement student-centered learning approaches, such as problem-based tasks. Explicit training in problem-based teaching significantly increases teachers' capacity to encourage inquiry-based learning, according to the study by Swan et al. (2013). This outcome validates our findings since it shows that the five-stage training program helps teachers to become more confident in the features of PBT and in their capacity to apply these techniques properly. Furthermore, our findings coincide with those of Milner and Scholkmann (2023), which showed that active learning approaches underlined in teacher training programs foster positive opinions on the incorporation of problem-based teaching. The results of (Kraft-Terry & Wiebe, 2022), which show that teachers undergoing PBT training move from direct instruction to guided exploration, match the decrease in the dependability on explicit mathematical instructions. This change makes it easier for students to learn how to solve problems on their own.

Rectangles ABCD and PQRS are provided.



a. Examine the correlation between PQRS rectangles and ABCD rectangles.

Figure 5 Task design by senior teacher

Still, different answers are given to some questions. According to Bosica et al. (2021), training courses help teachers learn a lot more about the theory behind PBT. However, time and institutional limits still make it hard to use PBT consistently in the classroom. This is quite different from our results, in which teachers showed more eagerness to include PBT into their daily teaching strategies. Although professional development improves teachers' opinions, Anderson et al. (2022) noted that its long-term viability depends on constant support and extensive use all over the university. This raises a potential barrier that might compromise the ongoing success of our training program.

Secondly, regarding the disparity among teacher groups in the design of PBT, senior teachers decided to modify existing assignment documents, while second, beginner and intermediate teachers developed tasks based on the desired learning outcomes. The variations in PBT design techniques across teachers with various degrees of experience match the body of evidence on subject matter knowledge (SMK) and pedagogical content knowledge (PCK). Senior teachers' inclination to change current assignment materials instead of creating new problem-based activities is consistent with Hashweh (2005) observations, which show that experienced teachers are prone to draw upon their established pedagogical repertoire, modifying previously used instructional materials to fit new contexts instead of building tasks from the outset. The research conducted by Blömeke, (2024) and Stahnke and Blömeke, (2021) reinforces this trend, suggesting that experienced educators generally prioritize efficiency and practicality in their lesson planning, often depending on established resources rather than pursuing innovative instructional methodologies.

In contrast, the methodology employed by novice and intermediate educators—formulating tasks that are grounded in specified learning outcomes rather than modifying pre-existing assignments—corresponds with research that underscores the significance of teacher creativity in the process of lesson planning. Less experienced teachers, despite their more weak pedagogical content knowledge (PCK), according to Chan and Yung, (2018) show more inclination to adopt creative and student-centered teaching practices. Their eagerness to learn new approaches instead of depending on past teaching experiences drives this attitude. Hennessy (2014) and Wolff et al. (2016) similarly observed that novice educators, despite their limited classroom experience, exhibit a heightened enthusiasm for developing tasks that are congruent with curriculum objectives and the learning requirements of students. This substantiates our findings that novice and intermediate educators participating in this study exhibited a greater propensity to develop new performance-based tasks (PBT) in alignment with anticipated learning outcomes.

Still, much research shows data that refute this claim by implying that teacher experience by itself does not define instructional creativity. Regardless of teachers' level of experience, Gerhard et al. (2023) showed that the combination of pedagogical content knowledge (PCK) and technical pedagogical knowledge (TPK) significantly influences their instructional decisions. The study revealed that educators possessing a high degree of digital literacy, irrespective of their experience, were more inclined to create original PBT materials instead of merely modifying existing ones. This indicates that elements beyond simple teaching experience, including adeptness with technological resources and participation in professional development concerning curriculum design, may likewise affect the degree to which educators devise innovative problem-based tasks.

Conclusion and Recommendation

Professional development programs that emphasize problem-based tasks substantially positively influence the beliefs and practices of teachers who implement PBT. Recognizing, analyzing, prototyping, implementing, and evaluating were the stages of training that were most effective in enabling instructors to adopt the PBT-based approach. The design process varies between novice, medium, and senior instructors, with senior experience influencing assignment selection. Collaboration between medium and senior instructors is crucial for enhancing task design, incorporating creativity, task analysis expertise, and senior experience in modifying assignments for class context.

Conflict of Interest

The authors declare that there is no conflict of interest.

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A meta-analysis study: Does the open-ended approach to learning mathematics have an effect on students' high-level mathematical thinking abilities?

Jarnawi Afagani Dahlan[a,*], Syifa Syafira Al Ghifary[b], Edi Supriyadi[c]

[a] *Mathematics Education Study Program, Universitas Pendidikan Indonesia, Bandung, West Java, 40154, Indonesia*
[b] *SMA Negeri 1 Subang, Subang, West Java, 41211, Indonesia*
[b] *Department of Industrial Engineering, Universitas Teknologi Bandung, Bandung, West Java, 40235, Indonesia*

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Abstract

The objective of this study is to comprehensively examine the impact of an open-ended instructional approach on students' high-order mathematical thinking skills. The study utilized meta-analysis, using a dataset consisting of 63 scientific papers that contained experimental research findings. Publication bias testing was conducted on 36 papers in 5 iterations, resulting in the identification of 30 publications that fulfilled the intended conditions. The analytical results indicated that, on average, the open-ended approach had a significant impact on students' high-order mathematical thinking skills, falling inside the category of adequate. According to the educational level, it was discovered that the open-ended approach had a consistent impact across all levels of education, ranging from elementary school to university. Additionally, there was no variation in the extent of the impact between different levels of education. The impact of the open-ended approach on high-order mathematical thinking skills is highly significant in both small and large classrooms, with no obvious distinction between the two. According to the mathematics material, the open-ended approach has a highly significant effect size in enhancing high-order mathematical thinking skills. The findings of this study validate that the open-ended approach is critical in enhancing students' high-order mathematical thinking skills at all educational levels, and is not influenced by the quantity of students in a class.

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* Corresponding author.
E-mail address: jarnawi@upi.edu (Dahlan, J. A.).

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Introduction

During the 21st century, the study of high-order thinking skills (HOTs) received significant interest from researchers (Dima et al., 2021). The extensive research on students' high-level thinking skills is evident from the large number of publications available. For instance, a search on the Education Resources Information Center (ERIC) resulted in 1,119 articles, accessed on 7 May 2024 with the keyword *"high order thinking skills"*. In addition, a search on Google Scholar was conducted with the same keyword on ERIC with a time span of 2000–2023, resulting in 38,200 articles accessed on May 7, 2024. The information about these publications was obtained by using the Vos Viewer application generating Figure 1 below that provides an overview of articles on high-order thinking skills. The analysis included filters of 1000 publications and was not limited to the year of publication.

Figure 1 illustrates the extensive research conducted on high-order thinking skills (HOTs). The complex structure of the network visualization of these images represents extensive research on HOTs. Regarding to the year of publication, it is evident that researchers utilized the word "mathematical thinking" more frequently in 2012, however in 2020, the term "HOTs" was more prevalent among researchers. The extensive research on high-order thinking skills has resulted in the establishment of seven study clusters: mathematical thinking, higher-order thinking skills, mathematical thinking skills, mathematical reasoning ability, creative thinking, students' high-order thinking skills, and mathematical critical thinking skills.

The extensive study on high-order thinking skills has led to the recommendation that these skills are crucial for 21st-century learning (Hobri et al., 2018; Schulz & Patrick, 2016). Hence, the latest educational reform in Indonesia, emphasizes the development of high-order thinking skills (Dima et al., 2021; Kemdikbud, 2016). Furthermore, the importance of enhancing students' high-order thinking skills in mathematics education has been emphasized (Sa'dijah et al., 2021). Therefore, developing students' aptitude for high-order thinking skills is essential in mathematics education.

There are various definitions for high-order thinking skills (Schulz & FitzPatrick, 2016). The formulation of the definitions can be interpreted from the perspectives of philosophy and psychology, involving the exploration of thinking processes at both basic and advanced levels. This includes examining the interplay between critical thinking and problem-solving (Lewis & Smith, 2009), as well as the application of these thinking processes to complex situations with multiple variables (Arif, 2019). Considering the dimensions of thinking skills, high-order thinking skills are linked to transfer, critical thinking, reasoning, reflective thinking, science process skills, and problem-solving skills. From a cognitive perspective, high-order thinking skill encompasses the processes of analysis, evaluation, and creation (Brookhart, 2010; Dima et al., 2021; Pratama & Retnawati, 2018). Regarding the level of knowledge, high-order thinking skills are associated with conceptual, procedural, and metacognitive knowledge (Anderson & Krathwohl, 2021; Pratama & Retnawati, 2018). Therefore, research on high-order thinking skills usually encompasses a broad and complex meaning.

The integration of higher-order thinking skills in the mathematics curriculum at schools (Rubin & Rajakaruna, 2014) leads to modifications in educational standards. The majority of states in the United States have implemented new requirements for teachers to prioritize

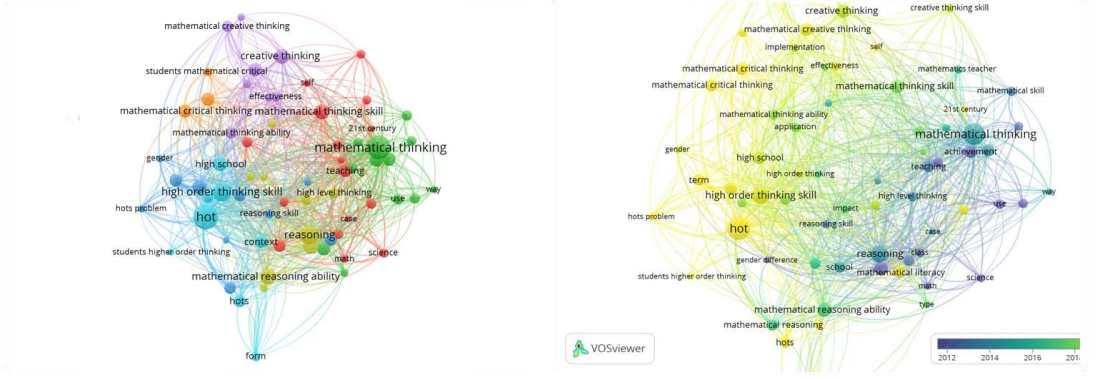


Figure 1 Publication of high-order thinking skills research articles

the teaching of higher-order thinking abilities (Common Core State Standards Initiative, 2015). Extensive research has been conducted to promote the development of high-order thinking skills, which has become a subsequent reference for policymaking, such as in the case of Japanese Mathematics Education. Adopting an open-ended approach to studying mathematics helps to enhance students' high-order thinking skills, particularly in the context of mathematics education (Nohda, 2000), where the open-ended assignments serve as examples of completing high-order thinking processes (Baker, 1993).

Experimental study has shown that the open-ended method improves high-order thinking. Previous studies have revealed a wide range of contribution values, or have yet to pinpoint the precise influence. This research aims to measure the influence's size and direction (Ellis, 2010). Therefore, measurements are needed to compare groups or define the link between two factors, such as an open-ended approach and students' high-order thinking skills. The measurement is effect size (Ellis, 2010). Cohen (1988) defines effect size to quantify a treatment's effects. It is essential for interpreting study findings. Therefore, the effect size of the open-ended method on high-level mathematical thinking skills is important.

Experimental research on students' high-order mathematical thinking skills using an open-ended approach can be analyzed from various viewpoints. According to Erdem and Akyol (2024), the quality of the learning process affects students' academic abilities at various levels of education which has been increasingly emphasized in recent years. Therefore, it is important to analyze evaluations of open-ended research findings that need to be studied based on educational level, mathematics learning material, and class size.

Piaget and Bruner's theories explain how students' thinking capacities improve with instruction. Despite Piaget and Bruner's distinct approaches to thinking growth, their stages bear similarities (Huda & Sudarwono, 2023). Student traits vary by age and cognitive stage. Last-year primary school kids can categorize items but not abstract problems. Students in grades 7 and 8 can learn deductive problem-solving. Analyzing observational patterns helps them draw conclusions (Marinda, 2020). High school pupils are more open, affable, and extraverted (Basti et al., 2022). These distinctions will affect how teachers develop learning environments and how students construct understanding. It emphasizes students' views of classroom learning (Wilson, 2006). The open-ended approach to mathematics teaching may vary, but it can improve pupils' high-order thinking skills.

Competency measurement in mathematics education research is linked to the study of mathematical content and high-order thinking skills. This measurement aims to assess high-level mathematical thinking skills (Sumarmo et al., 2019). Consequently, the development of this measurement is a fundamental aspect of learning mathematics (Sa'dijah et al., 2021). The National Council of Teacher Mathematics (NCTM) categorizes school mathematics into distinct groups, including numbers and operations, algebra, geometry, measurement, and data analysis and probability (NCTM, 2000). Therefore, it is imperative to investigate the impact of the open-ended approach on the development of high-order mathematical thinking skills using a specific group of school mathematics materials.

Researchers usually use school courses for experimental mathematics education research. Indonesian Minister of Education Regulation Number 17 of 2017 governs classroom size. According to this regulation, elementary, junior, and senior high schools have varying minimum enrollments. Researchers have not consistently linked class size to student learning. Grace and Oluwatoyin (2016) found a high association between class size and student learning results, with both being unsatisfactory. In contrast, Olurotimi and Nike (2021) claim that large classes harm students' attitudes and academic understanding. They reduce teacher-student interaction, motivation, learning achievement, and student commitment (Ayanwoye, 2023). Wang and Calvano (2022) discovered that large courses inhibit interaction and diminish student happiness. Teachers also prefer smaller classes over larger ones. In larger classes, assessments are more challenging (Yelkpieri et al., 2012). In contrast, smaller classes encourage student participation. These conflicting findings suggest that meta-analysis research should examine students' high-order thinking skills in an open-ended manner. According to Ellis (2010), this method is better for evaluating study results' generality, a key comparative step. The study benefits education policymakers and practitioners (Regional Educational Laboratory West, 2021).

Meta-analysis is a methodical process of reviewing research studies that examine specific effects. It involves combining the results of independent studies to estimate the overall impact on a population (Ellis, 2010). Consequently, it generates comprehensive knowledge by minimizing the distorting effects of primary studies (Juandi & Tamur, 2020). The research methodology employed for quantitative meta-analysis is meta-aggregation and synthesis. This approach enables the summarization of prior research results to address research inquiries (Lewin, 2008). The results of this meta-

analysis provide confirmation of the contribution of the open-ended approach in improving high-level thinking skills in mathematics lessons, so that practitioners, especially teachers, have confidence in implementing it. At what level of education is this open-ended approach appropriate to be applied in mathematics learning?

Methodology

This study examines how open-ended learning affects students' reasoning, problem-solving, communication, connection, creativity, and critical thinking. The control group and pre- and post-test experiments produced secondary data. Theses, dissertations, and national and international journals also publish research findings. We heavily advise and test theses and dissertations. We also provide guidance on potential scientific publications. Journal managers rigorously scrutinize publications. This data source meets scientific technique standards. Data came from Google Search, Google Scholar, ERIC, Garuda, Find Free PDFs of Scientific Articles, EBSCO, and ResearchGate. Researchers set exclusion criteria to find a primary study with experimental research methods (such as pre-post tests and a control group), middle- to high-school students, and the full text available. Studies must be published between 2000 and 2022. The scientist stated that the primary study employs experimental research with a control group design to investigate inclusion and exclusion. Before and after the study, researchers measure average, standard deviation, and non-multivariate analysis. The inclusion-exclusion procedure involves researchers. The second researcher corroborated the first researcher's inclusion-exclusion method after reviewing search results. The third researcher used the second researcher's validation results to run a comprehensive meta-analysis (CMA) on the manuscript.

The process of identifying the papers analyzed in this research using Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) (Juandi & Tamur, 2020) involves the following steps. Figure 2's inclusion-exclusion approach yielded 36 research findings, including paper data that met criteria. The research findings were divided into four categories: elementary (1−6), middle (7−9), high (10−12), and postsecondary. Influence size depends on elementary, middle, high, and university education. Class size criteria: 30. Small sample sizes are less than 30, and large ones are over 30. It meets the central limit hypothesis (Alwi, 2012). The class size criteria are divided into two groups: $n < 30$ (small sample) and $n > 30$ (big sample). Following NCTM (2000) standards, educational mathematics encompasses numbers and operations, algebra, geometry, measurement, probability, and statistics. This study also studied the open-ended approach's impact on students' high-order mathematical thinking, scored holistically and categorized by educational level (4 groups), class size (2 groups), and mathematics subject (5 groups).

All data analysis was carried out using the Comprehensive Meta-Analysis (CMA) application, as it is widely recognized and frequently employed for conducting meta-analysis computations. According to Schmidt and Hunter (as cited in Juandi & Tamur, 2020), the effect size is classified descriptively. For values between -0.15 and 0.14, there is no significant effect size. For values between 0.15 and 0.39, the classification is Slightly Significant. For values between 0.40 and 0.74, the classification is moderate. The range between 0.75 to 1.09 is considered significant. The value between 1.10 and 1.44 is classified as very significant. While greater than 1.45 is excellent.

-0.15−0.14 : Not Significant
0.15−0.39 : Slightly Significant
0.40−0.74 : Moderately Significant
0.75−1.09 : Significant
1.10−1.44 : Very Significant
> 1.45 : Excellent

After statistical effect size testing, we used inference analysis to assess the study's overall effect size value. During the study, this analysis examined education levels, class sizes, and mathematical materials. Hypothesis testing always uses .05. In this study, we reject the hypothesis if the *p*-value falls below .05.

Results and Discussion

Based on the researchers' analysis, 36 articles have been identified that fulfill the specified criteria. Before conducting further research, all eligible papers were tested for publication bias using funnel plots and trim and fill tests. Figure 3 below displays the results of the funnel plot test for the effect size.

Figure 3 shows that while most effect sizes are around the funnel's top, several fall outside the interval estimator's range. Thus, a publication bias test with Trim and Fill is required to meet publication bias assumptions. We used Trim and Fill to calculate the results of the publication bias test on 36 papers over 5 iterations. After analysis, 30 studies met publication bias criteria. Table 1 contains this information about trim and fill publication

bias test.

The table above illustrates that the number of publications that are necessary to be discarded on the left and right sides is 0 (zero). This indicates that 30 publications have been found to meet the analysis requirement. The aforementioned computation was reinforced by applying Roshenthal's Fail-Safe *N* test to thirty publications to assess the publications' resistance to publication bias. The results of the publication bias test calculations can be seen in Figure 4 below.

From Figure 4, an *N* value of 2049 is obtained, which shows that it is necessary to publish as many as 2,049 so that the probability value of the rejection of the hypothesis is zero more than 0.000. As is also known, according to Rosenthal (1979), a meta-analysis study does not have publication bias if the Fail-Safe result N is more than 5k + 10 or can be written as, where N/(5k+10)>1, k is representative of a number of studies. Based on the formula, with $N = 2049$ and k = 30 obtained.

$$\frac{N}{(5K+10)} = \frac{2094}{(5(30)+10)} = \frac{2094}{160} = 13,0875 > 1$$

From the results of the calculation above, it can be concluded that there is no publication bias. All tests have been conducted and all of them show results that there is no publication bias in this meta-analysis study. Thus, no research is missing or needs to be added to the analysis due to publication bias.

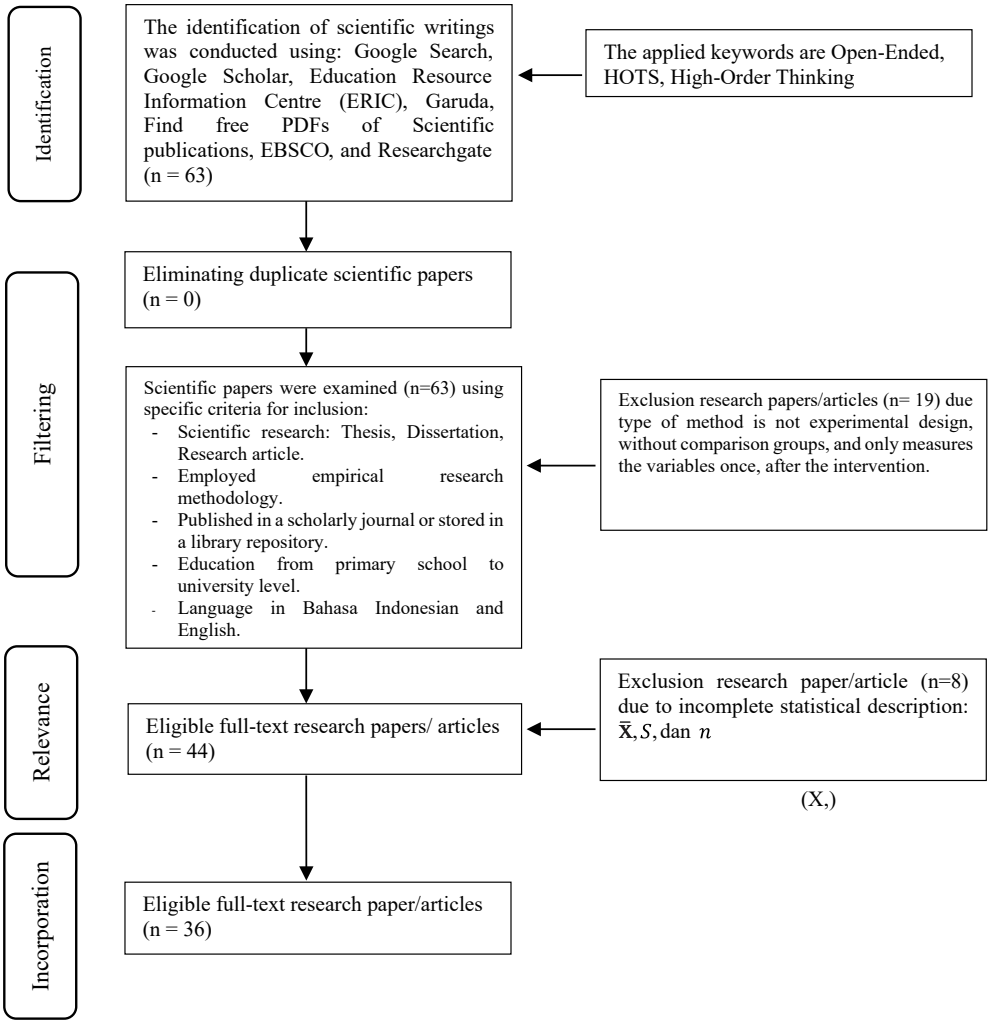


Figure 2 Sequential phases in Prisma's Publication selection process

Descriptive statistics from 30 eligible scientific publications were used for the first statistical analysis. Figure 4 displays the findings from descriptive calculations of the effect size. Based on this figure, the open-ended approach's average effect size on students' high-order mathematical thinking skills is 0.680, falling within the moderately significant criteria Schmidt and Hunter (as cited in Juandi & Tamur, 2020). The value of 1.644 was the greatest effect size and 0.110 was the smallest. Aside from that, three or four studies have an effect size with a *p* value less than .05. This indicates that the open-ended approach from the three studies does not significantly contribute to high-order thinking skills.

Figure 5 presents the average and individual effect size of each publication included in this study. As shown in Figure 5, the effect sizes vary considerably across the 30 studies, with most clustering around the mean of 0.680. A small number of studies fall below the significance threshold, suggesting inconsistency in the contribution of the open-ended approach across different research contexts.

Publication heterogeneity testing was conducted first to verify the inference drawn from the effect size found above. This test is required to identify the model—the random effect model or the fixed effect model—that is applied in the analysis. Table 2 presents the results of the heterogeneity test from the 30 publications analyzed, including the Q statistic value, degrees of freedom (df), and *p* value used to determine the appropriate estimation model.

As shown in Table 2, the Q-value of 73.151 and a *p*-value of .000 both reject the null hypothesis. The *p*-value for .000 is less than 0.05 when $\alpha = .05$ is used. This indicates that each study possessed a distinct

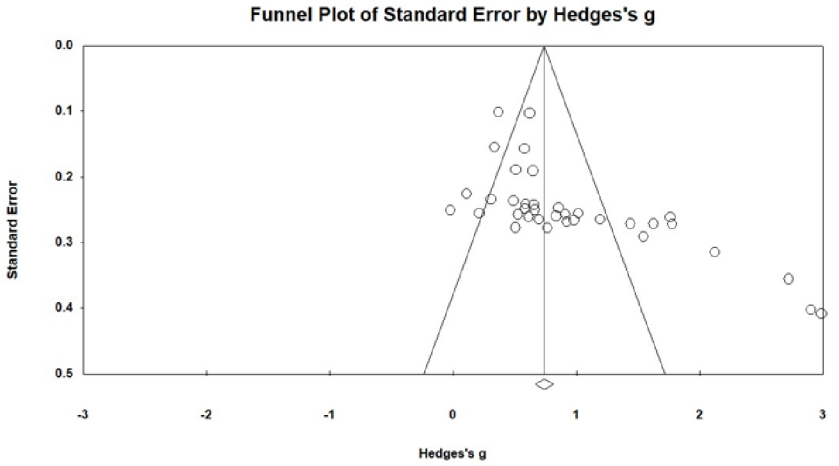


Figure 3 The distribution of effect sizes based on the funnel plot

Classic fail-safe N

Z-value for observed studies	16.48875
P-value for observed studies	0.00000
Alpha	0.05000
Tails	2.00000
Z for alpha	1.95996
Number of observed studies	30.00000
Number of missing studies that would bring p-value to > alpha	2094.00000

Edit

Figure 4 Calculation's result of fail-safe *N*

Table 1 Fifth iteration of trim and fill publication bias test (30 documents)

	Studies Trimmed		Random Effects			Q value
	Left	Right	Point Estimate	Lower Limit	Upper Limit	
Observed values	0	0	0.65992	0.58695	0.73290	108.72758
Adjusted values			0.73283	0.66311	0.80255	153.70805

Table 2 Heterogeneity Test for Publication Data

Model	Other heterogeneity statistics				
	Number Studies	Q-value	df (Q)	*p*-value	I-Squared
Fixed	30	73.151	29	.00	60.356
Random	30				

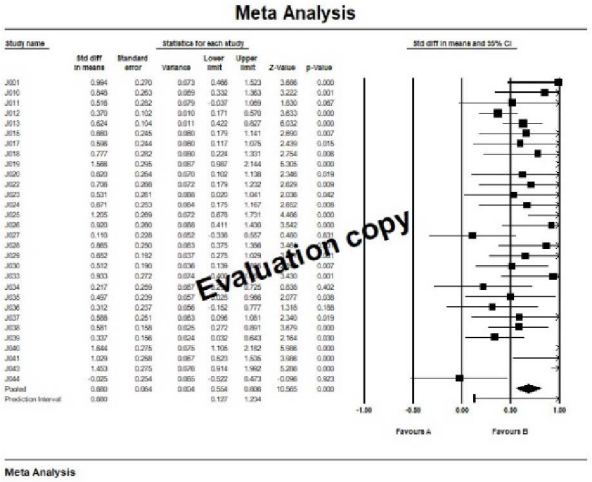


Figure 5 The average and effect size of each publication

impact size that shaped its overall influence. Due to effect size variability, a random effects model was used for estimated model analysis. This estimation approach estimates equivalent but not identical population effect sizes. Typically, the distribution of population impact size revolves around the mean and standard deviation. This study's first analysis examines the open-ended study's overall effect size on students' high-order mathematical thinking.

Table 3 presents the results of the inferential estimation of the effect size of the open approach on students' higher-order mathematical thinking skills, including the average value of the combined effect size, confidence interval, and significance value. Table 3 reveals that the computed z value is 10.56, rejecting the null hypothesis of p = .000. These findings suggest that open-ended research approaches significantly affect high-order mathematical thinking. The ensuing analysis determined the open-ended approach's effect size on students' high-level mathematical thinking based on educational level, sample size, and research materials. This analysis shows how open-ended thinking improves higher-order thinking. The table below shows the effect size of the data processing results for each category.

Based on the parameters of educational level, sample size, and research materials, the effect size of the open-ended approach on students' high-level mathematical thinking was determined in the subsequent analysis. The goal of this analysis is to highlight how the open- ended approach helps to advance higher-order thinking. Table 4 below shows the outcomes of processing the effect size data for each category.

Each educational level's effect size has a significance value below .01. Additionally, the comparison of impact sizes across levels indicates a significant level of .387. This suggests that the open-ended method has a similar impact on high-order thinking skills at elementary, junior high, high school, and university levels. All educational levels can use the open-ended approach to foster high-order mathematical thinking, according to these findings. The open-ended approach to high-order thinking skills demonstrated a significant effect size (p-value = .000) for both small and big sample sizes, according to sample size effect size analysis. However, comparing their impact sizes shows a significant difference (p-value = .037). Thus, while the open-ended approach's effect size matters in both large and small classes, the two have different consequences. We must address class size because the open-ended approach is optimal for developing high-order mathematical thinking skills.

Algebra, geometry, numbers, and unrecorded groups were the experiment's materials criterion. The descriptive analysis reveals that researchers most often choose algebra and geometry groups for investigation. The researcher usually has this option, or the study depends

Table 3 The significance test of effect size of open-ended approach

Model	*N*	z-value	*p*-value	Effect size and 95% Confidence Interval				
				Hedge's g	SE	Variant	Lower	Upper
Random	30	10.565	.000	0.673	0.064	0.004	0.554	0.806

Table 4 The effect size of study's characteristics

Study's Characteristics	Category	*N*	Hedge's	Test of null (2-Tail)		Heterogeneity		
				z-value	*p*-value	Qb	Df(Q)	*p*-value
Education Level	Elementary	2	0.590	3.230	.001	3.029	3	.387
	Middle	21	0.666	14.107	.000			
	High	4	0.847	6.160	.000			
	University	3	0.659	3.988	.000			
Sample Size	30 or less than	10	0.780	9.143	.000	4.333	1	.037
	31 or more	20	0.628	13.525	.000			
Materials	Algebra	11	0.600	11.357	.000	14.059	3	.003
	Geometry	11	0.542	6.946	.000			
	Number	1	0.982	3.686	.000			
	Unknown	7	0.934	9.243	.000			

on learning materials. All four research groups' impact sizes are extremely significant, as shown by their 0.000 *p*-values. When we compare the effect size results between materials, we find a significant difference (*p*-value = .003). These findings suggest that while all subjects can be taught open-endedly to develop high-order mathematical thinking skills, students must pay close attention to the mathematical content to benefit.

This meta-analysis' high effect size suggests that an integrated, open-ended approach encourages students to freely think about problem-solving techniques, generate multiple solutions, and evaluate their validity to improve their high-order thinking skills. Students can use HOTs in conjunction with learning strategies to enhance their creativity and achieve success (Heong et al., 2019). Students can also solve real-world problems using their unique high-order thinking talents (Payadnya, 2019; Widiartana, 2018). Open-ended problems often have numerous correct answers that lead to the same result and raise unsolved questions. Brookhart (2010) lists these high-order cognitive talents for problem-solving. Thus, learning objectives must help students identify and resolve academic and personal challenges (Brookhart, 2010). The cognitive tension in the open-ended approach to high-order mathematical thinking skills makes effect size important. Cognitive conflict during learning improves math performance (Marhami et al., 2022). We use HOTs during learning and evaluation. Unfortunately, teachers often teach and test low-order thinking skills instead of high-order (Bjorklund, 2008).

These two types of data show that open-ended mathematics instruction is effective at all levels of education, including elementary, junior high, high school, and university levels, in developing high-order mathematical thinking skills. Mental growth does not restrict thinking talents (Rajendran, 2008). High-order thinking skills in every learning process can assist students in becoming more conscious of their thoughts and improve learning and cognitive progress (Saido et al., 2015). Thus, education should emphasize high-order skills (Kurniawati, 2019). It should be incorporated into the mathematics curriculum to help students think critically (Butkowski et al., 1994) and in education policies and developments to encourage academics to study higher-order thinking skills. The results of the study on class size in open-ended learning support the findings of multiple prior studies (Grace & Oluwatoyin, 2016), which suggest that reducing large class sizes in secondary schools is the best way to mitigate the negative effects (Olurotimi & Nike, 2021). Thus, the government needs to assign more instructors, construct more educational institutions with equivalent facilities, and admit students according to the size of the rooms and other resources (Ayanwoye, 2023).

The mathematics resources have a significant impact on students' high-level mathematical reasoning. Open-ended approaches in any field can enhance high-order mathematical reasoning. Scientific methods and problem-solving assist students in the development of high-level reasoning abilities in the field of science. It can assist them in the formation of scientific knowledge, norms, hypotheses, and theories. Rajendran (2010) asserts that open-ended mathematics can facilitate students' abstracting, applying, synthesizing, validating, and making patterns. It is said that looking at context can help with analytical and evaluative thinking (Malalina et al., 2024), math content, and how Geogebra is used (Wijaya, 2017). Problems with reflective thinking in real numbers can be solved with the help of methodical and analytical assignments (Zachariades, et al., 2013).

Context and open-ended math tasks help students improve high-order thinking skills when learning varied

content (Malalina et al., 2024). Environmental context helps students build connections between formal and factual information, especially when teaching fractions (Malalina et al., 2017) and number patterns (Susanta et al., 2023). Therefore, learning must include open-ended contextual tasks (Malalina et al., 2024). More crucially, the curriculum paper must identify the subject matter's suitable thinking levels, teaching and learning activities, and assessments that should give the intended results. Rajendran (2010) asserts that the curriculum incorporates higher-order thinking, proving that thinking extends beyond high-order mental growth. Conversely, many homes and school learning activities entail thinking. This means schools should emphasize this cognitive process.

Open-ended math learning greatly impacts students' higher-level thinking. The effect size is moderate, at 0.680 (Juandi & Tamur, 2020). Several open-ended studies with small or negative effect sizes affect the effect size value: J044 (-0.0245) looks at the critical thinking of junior high school students, J027 (0.11) looks at their logical thinking, J034 (0.217) looks at their problem-solving, J036 (0.312) looks at their reasoning, and J012 (0.370) looks at how smooth they are. The open-ended approach may not have made much of a difference because teachers aren't well prepared (Beyaztaş & Senemoğlu, 2015; Irawan & Surya, 2017), students do not like math homework (Becker & Shimada, 1997), and they do not really care about answering unusual questions (Kurniawan et al., 2023) among other things. Study habits, gender, and playmates can affect pupils' ability (Jiyed et al., 2022; Owusu & Cobbold, 2020). Thus, when teachers use an open-ended approach to studying mathematics, they must grasp its properties to create learning materials. Teachers can also consider non-cognitive factors such as learning preparedness, motivation, and contextual factors at home and among peers (Lüdeke & Zúñiga, 2017).

Conclusions and Recommendation

Open-ended strategies typically improve students' higher-order mathematical reasoning, according to one study. Testing results are consistent across educational levels, class sizes, and math resources. The analysis shows a large influence (0.680). The open-ended strategy considerably affects students' mathematical reasoning, according to the study's educational level groups. All degrees of open-ended mathematics training improve students' higher-order mathematical reasoning. Comparing large and small class sizes showed that open-ended approaches promoted higher-order thinking in both cases. We found no significant differences between class sizes. School math curriculum includes algebra, geometry, and numerical operations. Another group missed cataloging experimental supplies. Our top algebra and geometry resources came from four groups. The four open-ended approach experiment materials have a large effect size, according to impact size analysis. Open-ended lessons boost higher-order thinking. The research recommendations confirm that the open-ended approach works for teaching mathematics in elementary, junior high, high school, and university. Open-ended assignments help teach and assess comprehension. The open-ended approach works in primary, secondary, and higher education. Instructional tools must include lesson plans, activities with complete solutions, and explicit criteria for various student responses.

Conflict of Interest

The authors declare no conflict of interest.

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The crucial role of peace education in the family in fostering a sustainable social harmony

YP Wahyu Gunawan[a,*], Supriyono[a,†], Endang Sri Redjeki[a], Abdul Latif Bustami[b]

[a] *Department of Non Formal Education, Faculty of Education, Universitas Negeri Malang, East Java 65145, Indonesia*
[b] *Sociology Department, Faculty of Social Science, Universitas Negeri Malang, East Java 65145, Indonesia*

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Abstract

This research investigates the dynamics of peace education in families, specifically how informal learning processes influence character-building and social harmony. Using qualitative methods and a phenomenology approach, the research involved in-depth interviews and observations in Dukuh Munggur, Kembangsari Village, Boyolali Regency, Central Java, to understand the experiences of adult family members in instilling peace values. The Thematic Analysis uncovered how daily interactions rich in traditions, religious values, and social relations intertwined with peace education, establishing peace as a social capital deeply rooted in community life. The results show that informal education within the family plays a crucial role in promoting tolerance, harmony, and peace through shared activities and intergenerational transmission of values. This research emphasizes the importance of the family's role as an 'informal educational institution' in creating a peaceful and harmonious life by prioritizing the formation of responsible character and the transmission of moral and ethical values to the younger generation. In conclusion, the family's informal learning process, which integrates peace education into daily life, is an essential foundation for developing a harmonious society. This research is crucial because it emphasizes integrating peace education into family life, fostering sustainable social harmony.

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Introduction

Indonesia is the most diverse archipelagic country in the world with the people comprised of hundreds of ethnic groups practicing multi religions. Despite the diversity, the people of Indonesia have been living peacefully and harmoniously for centuries even since before the country was formed. Peace is paramount for stitching the colorful communities into a peaceful nation. This seemed to happen in Indonesia effortlessly because,

* Corresponding author.
E-mail address: yp.wahyu.2101419@students.um.ac.id (Gunawan, YP. W.).

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fortunately, tolerance, which is an integral part of peace, has been instilled in the traditions of every ethnic group in Indonesia and is passed from one generation to the next.

A generation of people with strong, good character is needed to build harmonious relationships in society and a cohesive nation. The formation of altruistic or egoistic behavior of an individual actually takes place in the family (Manek et al., 2020). Education that instills good values and develops good character enables the subjects to understand and apply good ethical values in their life (Rondo & Mokalu, 2022). In the Javanese community, there is a practice known as "Gotong royong". Gotong royong is a Javanese term referring to a form of working together in order to complete a big task, that would be difficult for a single person to do, in the spirit of helping each other in the time of need. This can be in the context of public need such as repairing damaged road or personal need such as building a house or burying someone who just died. The participation is voluntary and the size of contribution may vary according to each capability. The contribution is usually more in kind such as physical labor but can be in the form of finance as well.

The primary role of parents as the first educators in the family is crucial in this process, while role modeling and a supportive family environment also play a pivotal role. Parents' important role in one's character education extends beyond the role of schools. Previous studies found that peace education within the family is important in developing knowledge, skills, attitude and behaviour that would help an individual or their group solve conflicts peacefully, create social condition that promote peace. Anti violence values have become the core of family peace education (Nugroho, 2022). Conversely, the absence of family peace education could create social conflicts within family relationships (Rahman & Nasrulloh, 2021). Thus, the role of the family in education, socialization, and instilling values in children is enormous (Irfadat, 2021).

In a society that practices religions, peace education covers religious values, character, democracy, tolerance, as well as kindness in children. These values affect children's spiritual development and play a crucial role in shaping their character and morals (Murharyana et al., 2023). The inculcation of such values, as taught in Christian religious education, can influence a child's spirituality (Mbo'oh, 2022). Internalizing good values through religious functions and environmental conditioning impacts children's character (Dermawan et al., 2017), and role modelling is shown to be effective in doing so (Yusutria et al., 2022). The cultivation of democratic values and tolerance in the family is also influential in shaping children's character (Aryani & Wilyanita, 2022).

Dukuh Munggur is a hamlet located at the foot of Mount Merbabu in central Java. The people of Dukuh Munggur practice different religions namely, Hinduism, Buddhism, Catholicism and Islam. For centuries the people had been living in close families and actively involved in their community. Tolerance, democracy and spirituality have been ingrained in their daily life and evidenced in their harmonious community. Today, modernization has taken place everywhere, which affects every aspect of life with a consequence that cultural traditions, where value of tolerance and peace have been embedded for many generations, are becoming thinner. If not addressed, the tolerance and peace in the society may well deteriorate. Munggur people are aware of such problems that have resulted in tolerance erosion and conflicts in other places. Thus, they take these as a lesson and put more efforts in preserving the values of peace and tolerance to continue their life as family as well as part of wider society.

This research aims to uncover how families in Dukuh Munggur, who are in the cross roads between deep tradition and modernization, actually preserve the education of tolerance and peace in their families in order to maintain a harmonious relationship in the community. The study mainly focused on adults in the family in their learning experience who eventually turned to be the educators in the family.

Methodology

This study chose a qualitative research paradigm because it fits the need to explore various dimensions of everyday life in detail and depth. We chose the phenomenology approach because it emphasizes the individual's understanding of their experiences. The research subjects were adult family members from the community of Dukuh Munggur, Kembangsari Village, Boyolali Regency, Central Java, who have lived in the area for a long time. The selection of adult research subjects was based on their ability to express life experiences and manage interpersonal and intrapersonal communication. We collected primary data through in-depth interviews and observations supplemented by voice recordings, photographs, and videos. Ten informants were selected based on the accidental aspect as described previously by Cresswell (1998). This means the researcher could meet

and interview informants promptly without any prior appointment. In this way the researcher could observe, meet and interview as many informants as possible, and then select some of them who would further open up and articulate their life experiences, their view on certain things that the researcher asks.

The Thematic Analysis method developed by Braun and Clarke (2006) was used to analyze the data. The main reason of choosing Thematic Analysis is for its flexibility on the ways of analyzing and presenting data from qualitative research. It can be used for research on a broad topic or for interrogation of one certain aspect or phenomenon deeply. The researchers may present the research findings semantically as data sets or present ideas, interpretation or assumption of a hidden or latent meaning from explicit data. The analysis process began with collecting the all data as a whole, sorting and categorizing them for common themes across informants by creating codes. The identified themes were then interpreted and then re-examined for their connection with existing theories or wider concepts.

Combining the phenomenology approach with the Thematic Analysis method allows the researcher to explore the underlying meanings of the life experiences of family members in the context of the Dukuh Munggur community. We expect the results of the study would offer a profound understanding of the community's daily dynamics. The knowledge gained may contribute to the development in the relevant field.

Result and Discussion

From the 10 informants interviewed a total of 14 audio recordings and 32 audio-video recordings were collected with each recording spanning 5 to 10 min. The information in the recordings was coded and arranged, analyzed, presented and interpreted in the following paragraphs and subtitles.

The study's results reveal how peace education in families in Dukuh Munggur is intertwined through daily interactions rich in traditions, religious values, and social relations. A religiously diverse community roots peace as social capital in every aspect of their lives, making tolerance and harmony their hallmarks. The Nyepi Day, one of Hindu 's ceremony and the Nyadran, Javanesse tradition-offerings for spirits, are concrete examples of how to implement peace education through joint activities that respect and understand differences, internalize the values of peace and harmony through daily activities, and emphasize the importance of maintaining and nurturing good relationships between individuals and between families.

Peace education in Dukuh Munggur includes many programs to reduce direct and indirect forms of violence corroborating previous study by Supriyanto and Saputra (2023), and involves acquiring values, knowledge, and skills to peacefully promote harmony and resolve conflicts (Khatun, 2023). Gandhian principles, such as nonviolence and truth, play an important role in peace education, influencing societal values and individual behavior (Bhat & Jamatia, 2022). Peace education is a preventive measure against violence, emphasizing the development of attitudes and values that promote peaceful coexistence (Rubab & Yousuf, 2022).

> *"There are two separate things, tolerance among religious communities and 'gotong-royong'. Therefore, in terms of religious business let we all worship God according to each one's belief, while at time of big efforts that require many people's contributions to arise let we cooperate and help each other. Let me share about a heritage in Munggur namely, 'kenduri' or 'kenduren, also called'slametan'. It is a prayer gathering with food offerings attended by representative of each household in the neighborhood. It can be held by one family or by the community with specific intention for example a prayer for someone's health, a prayer for a family's safety in their upcoming pilgrimage journey, a memorial prayer for someone who recently passed away, prayers for safety and prosperity of the community, etc. There were instances whereby, for the kenduri held by a Hindu family, the food offerings were prepared by Moslem or Catholic relatives or neighbors, and when it comes to the prayer it was cited in Hindu rites, or the other way around. Such unity in diversity truly promotes oneness among the community members."*

The researcher discovered that peace education comes from religious teachings and the practice of harmonious co-existence that has long grown in the community. Families in Dukuh Munggur teach children the importance of living in harmony and peace through example, tradition, and traditional speech. Religious diversity within a family is not a barrier to maintaining peace, showing that understanding and respecting other beliefs is part of peace education. In addition, the concept of peace education involves an understanding that peace is not only the absence of conflict but also the presence of justice, togetherness, and shared prosperity. This is

reflected in the community's involvement in various social activities that prioritize cooperation, tolerance, and togetherness, not limited to religious events, but also daily life, strengthening social and cultural ties.

> *"How could they live in such harmony? Based on my experience and observation on the last few generations, most people in Munggur tend to stay in the area with very few who move out. This means they grow up and get married with their neighbor, or with a relative of their neighbor whom may be of a different religion. For example, the family of Mr Mn consists of seven people who all live in Munggur, except for one, who lives in Kalimantan. And among the seven, they hold different religions, Moslem, Hindu and Christian. Munggur community is composed of such families with marriage helping to strengthen their relationship. The people have lived together since childhood and feel like a big family."*

According to the interview data, the community's tradition of marriage fortifies peace education by fostering positive neighbor relations and bolstering social and cultural networks. Through informal education, the families and communities of Dukuh Munggur instill the values of kindness, harmony, and tolerance, which become a strong foundation for peace.

> *"Tat twam asi", I am you and you are me, we are the holy spark of the Source of Life, hurting others means hurting oneself, having compassion towards each other, is my personal key. Tradition, culture, religion always go hand in hand, live in one culture and tradition. "The Munggur people actually appreciate and respect others ' beliefs and traditions. They want togetherness. For instance, the Maria Groto of Mawar has actually immersed deep in my heart since my childhood. Please the natural energy not be polluted by irresponsible people."*

By asking question, the meaning of peace for the residents of Dukuh Munggur is realized in celebrations as an existential basis. The highest meaning of peace is spiritual values, interfaith tolerance, and intense togetherness. Therefore, the people of Dukuh Munggur integrate peace education into every aspect of their lives, transforming it into a continuous learning process.

Learning peace in adults

Information provided by the subjects reveals that adult learning, particularly in the context of peace education within the family, is a dynamic process that involves changes in behavior and experience through interaction with the environment.

> *"... in Javanese culture with traditional proverbs. At times, the most important is by giving examples of how to keep things clean. For instance, during ceremonies of paying respect and prayers, we teach them how to offer our respect together, with respectful words, and things like that. We just have to be painstaking because the world has been changing. Children have been lulled by information technology, especially the mobile phone. Therefore, if we are not painstaking, they may be lost, lost of their character."*

Derived from observational findings, peace education fosters a culture of peace (Supriyanto & Saputra, 2023) , creating harmony between individuals (Khatun, 2023). This learning process is not always structured and can take place intentionally or unintentionally to develop an individual's ability to face and solve life's problems, especially those related to living peacefully in the family and society. The family plays a crucial role in this process as a source of modeling and teaching peaceful values that ultimately contribute to community harmony—skills, attitudes, and values for building and maintaining peace (Bhat & Jamatia, 2022).

> *"... indeed, we were taught to live by 'gotong royong'. Humans are social creatures, so we cannot live in solitary. We are thought from small things, for example to get involved when there was gotong royong to repair the road or cleaning public spaces in the neighborhood. Then, when there was someone who died, we are present and condole the family. That is a form of 'gotong royong, isn't it? And in many aspects, anywhere, we can live together in 'gotong royong'. And that's what we parents teach our children."*

Adults need a peace education model that focuses on cultivating personal and social responsibility, aiming to create harmonious and responsible citizens. This learning process is considered relevant to everyday problem-solving, using past experiences as the basis for strategies. The role of cognition and memory is very important in this learning process, with stages including

problem recognition, problem-solving plan development, implementation, and evaluation. Evaluating conflict and considering peaceful resolution (Rubab & Yousuf, 2022).

> *"As for myself, I teach my children following our instinct as our parents and great grandparents in the past. Things that are not good no need to be done, must be avoided. Life in this earth is short, thus, as much as possible to behave well. That's it. How to teach children is by emphasizing e.g. 'this is not good', by reminding them 'you would be better to do this.' When telling my children, I would ask them to sit down together, put them in their place, so that they would really pay attention."*

From the informant statement, peace education also involves the transmission of values, morals, and ethics to the younger generation, with adults as the primary mediators in instilling morality. Kohlberg's theory of moral development is used to understand how values and morals are taught to children and youth, emphasizing the importance of dialogue and effective communication between generations. In the context of learning, communication in adults is illustrated through Schramm's communication model, which emphasizes a two-way process and message exchange, supporting dynamic and interactive communication practices. Overall, the discussion emphasizes the importance of peace education in families and communities, with adults as the key to learning and teaching values and social problem-solving oriented towards building character responsibility and social harmony.

Peace-oriented Family Education

This education focuses on family members' attitudes, behaviors, and morals as critical indicators of safe and prosperous society. Understanding, tolerance, and cultivating skills for conflict resolution (Chowdhury, 2022; Martínez-Callejas, 2023). Marriage, tradition, and religious values or beliefs in God Almighty are essential to building a harmonious family. Dukuh Munggur people emphasize the importance of education and family life preparation courses in developing healthy interpersonal relationships and problem-solving skills.

> *"To me the most important is prayers for my children and grandchildren, for family. Family is a teaching institution, teaching from my husband and myself. How my husband and I live everyday life is the teaching, example that our children follow and practice in their life. Therefore, my husband and I would never argue or fight. Never."*

This discussion highlights the importance of peace-oriented family education as a key tool in creating a peaceful and harmonious society. Preventing conflict and emphasizing peace (Kukhianidze, 2022). The family is not only a medium or container for peace education, but also an active subject in this education by prioritizing relationships full of kindness, cooperation, and agreement between family members. The roles of men and women in the family are considered equally important in creating a happy family life that benefits others.

Family education is based on theories like General Systems Theory and Second Level Cybernetics, which emphasize communication as a complex system with interplaying variables that shape and control the character of the whole system. This suggests that effective family education can adopt these principles to help family members learn peace values and communicate them in their relationships. They educate people about peace content and values (Misra, 2020).

Peace education-oriented families play an essential role in society, setting an example and promoting decisions that involve all parties to live in peace and harmony for the survival of humanity (Alnufaishan, 2020). The concept of habitus is explained as an embodiment of considered behavior, which shows the vital role of social, cultural, economic, and symbolic capital in the social "battleground," with the family as the leading actor.

> *"As long as there is no bad influence from outside of the community, things like cohesiveness and tolerance stay strong. For example, this time is almost Christmas, so the youth without being ordered are preparing banners and decorations. Let's say Christmas falls on Monday, the banners and decorations will be put up by Sunday."*

Family peace education recognizes challenges such as parents' busy schedules, differences in views among family members, and negative outside influences as potential disruptors of family harmony. However, according to the study, families can overcome these challenges with effective communication, inculcating peace values, and contributing to a harmonious and peaceful society (Oueijan, 2018). This discussion emphasizes the importance of family education in creating an environment that supports peace by teaching the values of peaceful living, tolerance, and effective diversity through communication and interaction between

family members.

Informal Education is Integral to Peace Education in the Family

Family peace education introduces informal education as a crucial component, highlighting how daily interactions within the social and family environment facilitate lifelong learning. Apps (1979) categorizes the purpose of informal education into three main areas: (1) helping individuals fulfill basic survival needs, including education about environmental sustainability; (2) supporting responsible and harmonious social life in the family, community, and nation; (3) facilitating the search for the meaning of life, including aspects of spirituality, ethics, and aesthetics. These learning methods include religious lessons, ancestral traditions, cultural activities, and hobbies that promote goodness, truth, and beauty in human life.

> *"Children, when they are grown up, can be like friends, friends to play as well as friends to chat. While we can sit together and talk as equals, however, deep down we know our positions, who is the parent and who is the child. That way, children know how to behave with respect and not to violate the customary."*

Based on the interview data, informal education relies on everyday experiences and is unrestricted by formal curriculum structures, time constraints, or specific learning tools. Apps distinguishes between random learning not planned by the teacher or learner and planned learning that aims to change learner behavior Creating positive change (Oueijan, 2018), bringing out the value of tolerance (Abdilla et al., 2019), education starting from childhood (Singh, 2018), peace education becoming non-violent problem-solving (Yilmaz, 2018), and understanding and tolerance and conflict resolution skills (Möller & Bellmer, 2023). Peace education in the family (Khyzhna & Lendiel-Siarkevych, 2018). Type 3 informal education, for example, occurs naturally without a structured learning plan from the teacher or learner, reflecting the learning that occurs through everyday interactions, often unconsciously. Encouragement from the individual, family, or community is essential to achieving learning goals, which can bring permanent behavioral changes. Harmonizing personal life (Khyzhna & Lendiel-Siarkevych, 2018) fosters culture and cooperation (Tooley & Longfield, 2017).

> *"...for life with more togetherness, small things such as having a small chat with a small group of people by the alley is already a sign of cohesiveness, not an egoistic or individualist life style, isn't it? When my children are invited for a function in the community they also come along to attend. When I told them please attend the function, they would attend it."*

A quote from one of the informants appeared to be in agreement with Kolb's (1984) experiential learning model that emphasizes learning as a process that occurs through discovery and active participation, with experience as the key. Kolb's learning cycle includes concrete experience, reflective observation, abstract conceptualization, and active experimentation, which encourage effective learning by completing the entire cycle.

The learning styles identified by Kolb are diverse, assimilative, convergent, and accommodative, which highlight different approaches to learning based on experience and reflection, showing the importance of adaptation and interaction in the learning process.

Informal education is considered as an essential approach in family peace education (Popović et al., 2022), promoting values such as tolerance and harmony through learning that takes place throughout life and comes from everyday experiences. Informal education in the family environment is essential for child development (Rahma et al., 2019). It emphasizes the development of knowledge and behavior through natural interaction and reflection, underscoring the importance of the family as an informal educational institution in realizing peace and social harmony.

Conclusion and Recommendation

This research identifies that peace education for adults requires a learning approach that prioritizes personal and social responsibility character building, hoping to produce individuals who can contribute to societal harmony. The collective data showed that peace education in the family is indeed an informal education where learning occurs throughout life time and stems from everyday experiences. Family is the venue where dialogue on religion and culture is the way to gain understanding of diversity in community. This understanding which connects with good values, morals, and ethics is to be transmitted to the younger generation, with adults as the primary mediators. With the family as an educational medium and an active subject, this study pointed out the importance of benevolent relationships, cooperation, and agreement among family members.

With a focus on responsible character building, value transmission, effective family education, and experiential learning approaches, family truly serves as a significant catalyst in creating and maintaining a peaceful and harmonious society.

Conflict of Interest

The authors declare that there is no conflict of interest in this research.

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Need analysis on developing Using (*Osing*) teaching material as a mother tongue learning in Indonesia

Memmy Dwi Jayanti[a,*], Yumna Rasyid[b], Fathiaty Murtadho[b]

[a] *Indonesian Language and Literature Education, Faculty of Languages and Arts, Universitas Indraprasta PGRI, Jakarta 12530, Indonesia*
[b] *Applied Linguistics, Postgraduate Programs, Universitas Negeri Jakarta, Jakarta 13320, Indonesia*

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Abstract

Students in Indonesia must complete the study of regional languages as their mother tongue learning. Regional languages for students are considered difficult because of inadequate teaching materials, especially Using (*Osing*) language teaching materials for elementary school students. This study is an analysis of the need to determine the foundation to be used in the development of teaching material products in elementary school in Banyuwangi, East Java, Indonesia. This study used convergent parallel mixed method and qualitative approach to conduct surveys and interviews for data analysis. The results showed that students need teaching materials Using (*Osing*) regional languages for mother tongue learning. Analyze student needs by pointing out eight things: who the language learner is, proficiency level, intercultural competence, learning preferences, attitudes, goals and expectations, target context, and student interests. Meanwhile, four things for teachers ' needs are related to problems and identifying priorities facing teachers, identifying abilities, identifying attitudes, and solutions. These results will be the basis for the development of Using (*Osing*) language teaching materials for elementary school students in Indonesia.

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Introduction

In Indonesia, Using (*Osing*) language is used in everyday conversation by the people of Blambangan Banyuwangi, East Java, Indonesia (Asrumi, 2021). Using (*Osing*) ethnique in Banyuwangi is regarded as the heir of Blambangan Kingdom in the past. Using (*Osing*) is still considered a separate ethnic community, although it is still a matter of debate whether it is a separate ethnic group or a sub-group ethnicity of the Javanese in Indonesia. A part from the debate, there is a need for Using (*Osing*) language teaching materials for learning in elementary schools. Researches focusing on Using (*Osing*) continue to be carried out through various ways

* Corresponding author.
E-mail address: memmydj@gmail.com (Jayanti, M. D.).

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by paying attention to develop and collaboration on the traditions of a region, both language, dance, and song, so that regional culture can be known by the world (Anoegrajekti et al., 2023). The mother tongue, Using (*Osing*) language, introduced in the school curriculum shows excellent results for child language development (Van der Elst-Koeiman et al., 2022). Mother tongue proficiency begins to be implemented in elementary schools because early childhood is considered as a critical period, and they spend more time in the classroom in the early years (Brien et al., 2020). The choice of regional language learning has attracted a lot of attention from researchers, this shows that regional language learning can provide more useful instructions in local languages because students understand the material more quickly, student participation in class increases rapidly (Kafata, 2016).

There are two faces in learning local content at elementary schools, which are the innovation in teaching materials for students, a part from the lack of content in teaching materials, and the teacher's ability in using language because Using (*Osing*) language is no longer actively used as a language of communication (Tyasari et al., 2017). As a teacher, you should be able to facilitate students so that they do not experience obstacles in tribe regional languages as a means of communication (Kartashova, 2015). Quite a number of researchers have developed Using (*Osing*) language teaching materials, one of which is illustrated Using (*Osing*) language books used by elementary school students in Banyuwangi, Indonesia (Rahmat & Hasibin, 2018).

Richards (2005) stated that before developing a teaching material model, an initial needs analysis procedure must be conducted. Rofii et al. (2010), before developing research on a CTL-based academic writing learning model, began with an analysis of student and teacher needs to portray the student's writing process and identify weaknesses that occurred in learning. Similarly, Fitriani et al. (2020) conducted a needs analysis research on the English Language Education Program at STKIP Kusuma Negara Jakarta aimed at current learning conditions. Such needs analysis was conducted in order to provide suitable material for the students. Macalister and Nation (2010) also said that the needs analysis stage is a process for examining learning conditions from the student's perspective by Using (*Osing*) language instruments directly according to the information needed. So, needs analysis is the main point that needs to be considered in designing a syllabus and developing materials (Karimi & Vahdani, 2014).

Needs analysis is a tool for identifying what is a problem, what is important, and what students need. Not only with students, needs analysis is also carried out on teachers so that the model developed meets their learning needs (Graves, 2000). Similarly, McCawley (2004) needs analysis can describe the gap between what exists and what is needed, so that filling that gap can become a goal of the teaching material product. Through a needs assessment, a more complete picture of the learning experienced by teachers and students will be completed (Klusmann et al., 2022). The needs analysis approach should include the purpose of the needs of analysis, the origin of the need to whom it will be used, who the target population will be, who will collect the information, how the procedures will be applied, and how the information will be used. Needs analysis becomes a tool for capturing what is a problem for students, what is important for students and what students need (Macalister & Nation, 2010). The focus of this research is the needs of teachers and students regarding Using (*Osing*) language learning. The research uses indicators developed by Brown (1995) to capture teacher needs through questions in needs analysis regarding: problem identification, priorities, abilities, attitudes and solutions. Meanwhile, for students we use indicators developed by Graves (2000) through statements in the needs analysis regarding: who are Using (*Osing*) language learners, language proficiency, intercultural competence, learning preferences, attitudes, goals, and expectations, target context, and student interests.

The development of learning models should be conducted in stages (Dick et al., 2005). The first stage involves the identification of instructional goals. This is followed by conducting instructional analysis, analyzing learners and contexts, and writing performance objectives. The other steps include developing assessment instruments, developing instructional strategy, developing and selecting instructional materials, designing and conducting a formative evaluation of instruction, and revising instructions. The final stage is about designing and conducting a summative assessment.

Literature Reviews

Needs analysis involves the student as the research subject, in addition to some parties who are interested in the learning program such as: teachers, principals, curriculum representatives, and others who may be influenced such as the student's parents. The collection of needs analysis is then used in the development of learning media and the desired end result with the knowledge and

skills that have been owned by students (Songhori, 2008). In decision making, consideration of the results of needs analysis alone cannot be used as the main benchmark, it needs to be balanced with the results of situation analysis because the difference between the results of needs analysis and the results of situation analysis is very fundamental in decision making. Bosher and Smalkoski (2002) provide solutions in the analysis of needs focusing on learning learning problems. McCawley's (2004) student needs analysis describes the gap between what is 'and' what is needed by the students so as to fill that gap into an objective of educational products. In addition, it also explains how the learning program should meet the needs of students (Tenri et al., 2013). Jiajing (2007) shows all data information about students ' expectations or desires that need to be utilized while Barkhuizen and Wette (2008) state the benefits obtained in the needs analysis can provide an idea of the student's deficiencies in learning, the collection of information about any need with an indication of the expected language proficiency at different levels.

This pilot study analyzes the needs of students and teachers to teaching materials Using (*Osing*) as a regional language learning in Indonesia. This study aims to answer the following research questions: what are the students' needs in Using (*Osing*) teaching materials? and what are the teachers' needs in Using (*Osing*) teaching materials?

Methodology

Research subjects, time, and model: This pilot study took place at the Banyuwangi Model State Elementary School, East Java, Indonesia. The study was developed in the middle of the pandemic between October - November 2021. The sample data were drawn from 107 students 5th grade students who studied Using (*Osing*) language as a local content subject of regional language learning and 6 Using (*Osing*) teachers. The method in this study was a mixed method in research and development, which only focused on one of the stages in it, namely, needs analysis. Analysis of teaching material needs is something that must be done in research and development, not only identifying learner needs, but also those related to the language itself and determining goals and objectives. Qualitative methods were carried out to capture teacher needs with data collection techniques in the form of in-depth interviews and observations, while quantitative methods were used to capture student needs with data collection techniques in the form of questionnaires. Descriptive statistical research, qualitative analysis was used to examine data collected through focus group interviews. To describe the Likert questionnaire data supported by qualitative data can be obtained through focus group interviews (Creswell, 2008).

The research instrument is the questionnaire, which gathers information from data collection tools using interview guidelines with indicators developed by Rossett in (Macalister & Nation, 2010), through questions in needs analysis: identification of problems, priorities, abilities, attitudes and solutions. The questionnaire instrument regarding student needs was based on Graves' (2000) theory through statements in the needs analysis regarding: who are Using (*Osing*) language learners, language proficiency, intercultural competence, learning preferences, attitudes, goals and expectations, target context, and student interests, a questionnaire measuring the needs with 3 choices, namely: really need, need, don't need.

Data analysis: needs analysis in this study involved students and teachers in elementary schools Banyuwangi. The data obtained by closed questionnaires were analyzed in percentage form, while interviews and open questionnaires were qualitatively analyzed by recording techniques, and then described, classified, and interpreted qualitatively.

Results and Discussion

In Table 1 shows the results of questions regarding the analysis of students' needs to discover the background of Using (*Osing*) language learners. Needs analysis procedures were employed to identify the requirements of Grade 5th Using (*Osing*) language learners. Based on data from students from the Using (*Osing*) 47 percent and 80 percent from Non- Using (*Osing)* language, 83 percent of students do not use Using (*Osing*) language in everyday life, only 24 percent of students still can, but it is rare Using (*Osing*) language. According to Fishman (2007), if a language is not passed down to the

Table 1 Student background

Using (*Osing*) Language	Non- Using (*Osing*) Language	Using (*Osing*) Language	No Using (*Osing*) Language
47%	80%	24%	83%

next generation, the language will be extinct within three generations, starting with a language transition. Likewise, if the Using (*Osing*) language in Banyuwangi is not continuously used, it will face the threat of extinction, so the school environment is considered to have a positive influence so that the Using (*Osing*) language can be passed on to the next generation, so that the process of transitioning Using (*Osing*) language will take place. This is in line with the work of Ibrahim (2011), who states that the movement towards extinction will be faster if accompanied by a reduction in the scope and number of domains of language use in daily communication, or an increasingly widespread absence of language use in a number of domains, especially in the family domain. Hulukati et al. (2017) state that the movement towards extinction will be faster if accompanied by a reduction in the scope and number of domains of language use in daily communication, or an increasingly widespread absence of language use in a number of domains, especially in the family domain.

As illustrated in Figure 1, the background of students in relation to the use of the Using (*Osing*) language shows a significant imbalance between speakers and non-speakers. The data indicate that a considerable proportion of students originate from non-Using (*Osing)* language backgrounds, reaching approximately 80 percent, while only 47 percent of students are identified as coming from Using (*Osing*) language backgrounds. Furthermore, the findings reveal that 83 percent of students do not use the Using (*Osing*) language in their daily communication, whereas only 24 percent of students report occasional use of the language.

These findings suggest that the Using (*Osing*) language is experiencing a decline in functional use among elementary school students, particularly in everyday communication contexts. The dominance of non-Using (*Osing*) language backgrounds among students may contribute to limited exposure and reduced

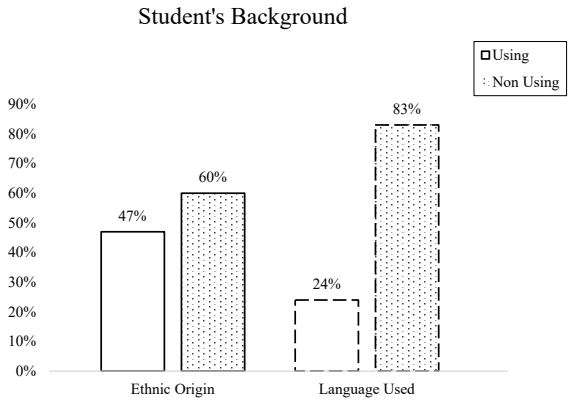


Figure 1 Background of Students' Use of The Using *(Osing)* Language

opportunities for language practice. Consequently, the school environment plays a crucial role as a formal domain for language maintenance and revitalization. Integrating Using (*Osing*) language into structured learning activities can serve as a strategic effort to support intergenerational language transmission.

In addition, the discrepancy between students' linguistic background and their actual language use highlights the urgent need for the development of effective teaching materials. Such materials should not only accommodate diverse student backgrounds but also promote active language use through communicative and context-based approaches. Therefore, the results presented in Figure 1 provide a strong empirical basis for designing Using (*Osing*) language teaching materials that are responsive to students' sociolinguistic conditions.

The second question; Table 2 focuses on the student's level of language proficiency. Based on data on Using (*Osing*) language learning in schools, it still needs to be improved, with the percentage of students' listening ability obtained at 38.3 percent, speaking ability at 43.9 percent, reading ability at 42.1 percent, and writing ability at 41.1

Table 2 Student language proficiency level

Component	Percentage	Criteria
Students are proficient at listening in Using (*Osing*) language	38.3	Really needed
Students are proficient in speaking the Using (*Osing*) language	43.9	Really Needed
Students are proficient in reading Using (*Osing*) language texts	42.1	Really Needed
Students are proficient in writing in the Using (*Osing*) language	41.1	Really Needed
Students master Using (*Osing*) language dialect	40.2	Needed
Students master the characters in BU language	41.1	Needed
Students master various vocabulary in Using (*Osing*) language	42.2	Needed
Students master Using (*Osing*) language vocabulary with correct pronunciation/dialect	42.1	Needed
Students master sound changes in writing Using (*Osing*) language	42.1	Needed

percent with needed criteria. Good. Furthermore, the ability of students to master the dialect of Using (*Osing*) language is 40.2 percent, the ability of students to master letters in Using (*Osing*) language is 41.1 percent, the ability of students to master various vocabulary in Using (*Osing*) language is 42.2 percent, the ability of students to master vocabulary in Using (*Osing*) language with dialect pronunciation is 42.1 percent, and the students' ability to master sound changes in writing Using (*Osing*) language is 42.1 percent. From these assessment points, it can be said that teaching materials that emphasize language skills will be able to help students improve their abilities in grammar, vocabulary, pronunciation and functional skills in learning Using (*Osing*) language. According to Nation (2003), mastery of vocabulary in the design of teaching materials is very necessary for mastery of the four language skills and activities of interpreting words or expressions, so that the model of teaching materials created by emphasizing communication skills meets the expectations of the user (Šulistová, 2013).

The third question; Table 3 regarding students' intercultural competence can be said to be quite good, the students' ability to understand the theme of each Banyuwangi festival as an annual agenda organized by the Banyuwangi district government with a percentage of 48.6 percent. Students' ability to master the customs or rituals typical of the Banyuwangi Using (*Osing*) language is really needed with a percentage of 45.8 percent, while one item has needed criteria with a percentage of 59.8 percent, namely, about students' experiences in participating in Using (*Osing*) language competition activities held in Banyuwangi district. So, it is expected that teaching materials with socio-cultural aspects can help students to improve their abilities and have a deep respect for Using (*Osing*) language culture in Banyuwangi. This finding is in line with Putri (2020) that local wisdom can be utilized in the development of teaching materials, which is considered important because it is close to students' lives.

The fourth question, as shown in Table 4, focuses on students' learning preferences. It can be seen that the proficiency of students in using language in learning still needs to be improved. This can be seen from the results of students' perceptions in pronouncing BU language dialect at 43.9 percent, students' ability to be able to learn correct Using (*Osing*) grammar at 49.5 percent, and students being able to tell stories Using (*Osing*) language only at 38.3 percent with the criteria needed. In line with research, Bao (2013) suggests that conversation strategies should be included in teaching materials because they are an important tool for achieving communication meaning for students.

The fifth question, as shown in Table 5, is that students' attitude categories toward Using (*Osing*) language learning is 38.3 percent, students' attitudes like Using (*Osing*) language for singing activities by

Table 3 Student intercultural competence

Component	Percentage	Criteria
Students took part in and mastered Using (*Osing*) language competition which was held in Banyuwangi	59.8	Needed
Students understand the theme of each Banyuwangi festival as an annual agenda for the Banyuwangi Regency Government	48.6	Really needed
Students understand the typical customs/rituals of the Using (*Osing*) language Banyuwangi	45.8	Really needed

Table 4 Student learning preferences

Component	Percentage	Criteria
Students can pronounce Using (*Osing*) language dialect	43.9	Needed
Students can learn the correct grammar of Using (*Osing*) language	49.5	Needed
Students can tell stories Using (*Osing)* language	38.3	Really needed

Table 5 Students' attitudes towards learning BU language

Component	Percentage	Criteria
Students enjoy Using (*Osing*) language	38.3	Needed
Students are happy to be able to sing in the Using (*Osing*) language	39.3	Needed
Students are serious about learning Using (*Osing*) language	41.1	Really needed

39.3 percent, and students are serious about learning *BU* language at school, amounting to 41.1 percent with good criteria. Through the perception of students' attitudes, there is still a belief regarding the continuity of learning Using (*Osing*) language which encourages students to learn in the way they like. Interest in studying regional languages is still below the standard. The condition of regional languages is also influenced by globalization, which has a direct impact in the form of language by redefining language boundaries more broadly so that the relationship between one language and another is more open (Hakim, 2009). This is necessary to maintain Using (*Osing*) language in Banyuwangi, Indonesia.

The sixth question, as shown in Table 6, is that the aim of students learning Using (*Osing*) language is to be able to communicate by 42.1 percent, students can learn Using (*Osing*) language as part of local content subjects in regional languages at school by 46.7 percent, and students learning Using (*Osing*) language to be able to speak, listen, write and read in Using (*Osing*) language is 50.5 percent. Using (*Osing*) language as local content provides students with an understanding of what they must have as an ethnic or regional identity. The results shows if the student perception can improve their mastery of Using (*Osing*) language both for daily needs and at school so that it can support student empowerment in carrying out further learning. Siti (2018) stated the importance of communication skills to express thoughts, ideas, knowledge or new information that is owned both in writing and orally. These skills include listening, writing and public speaking skills (NEA, 2010).

The seventh question, as shown in Table 7, is that the target context for students Using (*Osing*) language is for communication with family and friends, 43.9 percent is still said to be deficient, while what topics are really needed to be able to communicate or what content do students need to know in studying Using (*Osing*) language, such is related to customs, crafts, figures or heroes, geographical conditions, arts, folklore and natural tourism in Banyuwangi, which are 43 percent with really needed criteria. This finding is in line with Juangsih et al. (2020) who found differences in students' learning goals for studying a foreign language. The results of this needs analysis are the main points in developing Japanese language teaching materials for tourism purposes.

The eighth question, as shown in Table 8 focuses on student's interest of themes that are topics in Using (*Osing*) language learning. The topic of Using (*Osing*) language for grade 5 elementary school students related to customs has a percentage of students' perceptions of 33.6 percent with the choice of the topic 'tumpeng sewu'. For topics related to Using (*Osing*) crafts, based on students' perceptions, the percentage obtained was 69.2 percent regarding 'typical Banyuwangi batik', while the figure in Banyuwangi that was of interest to students was 'Dewi Sri Tanjung', which is one of the main figures in Banyuwangi at 47.7 percent. Then for topics related to geographical conditions, the choice of 'population' was 58.9 percent, while the arts theme with the topic 'Seblang Dances' obtained a percentage of 47.7 percent. Furthermore, for topics related to folklore for students' perceptions, the percentage obtained was 69 percent with the topic 'Origins of the city of Banyuwangi', for material that highlighted regional tourism potential, the percentage obtained was 51.4 percent with the topic about the natural tourist attraction 'Ijen Crater' in Banyuwangi. Then topics related to family, based on students' perceptions, a percentage of 64.5 percent was obtained for the topic 'Sedulor' or a typical term for kinship that still has blood relations for Using (*Osing*) community. Furthermore, the ethnic carnival which is on the agenda of the Banyuwangi regional government every year obtained a percentage of

Table 6 Student goals and expectations

Component	Percentage	Criteria
Students can learn Using (*Osing*) language to communicate	42.1	Really needed
Students can learn Using (*Osing*) language for the local language subject at school	46.7	Really needed
Students learn to be able to speak, listen, write and read in Using (*Osing*) language	50.5	Needed

Table 7 Student target context

Student target context	Percentage	Criteria
Students Using (*Osing*) language to communicate with family and friends	43.9	Really needed
Students study Using (*Osing*) language topics related to customs, crafts, figures/heroes, geographical conditions, arts, folklore and natural tourism in Banyuwangi	43.0	Really needed

Table 8 Student interests

Component	Topic	Percentage
Customs	Tumpeng sewu	33.6
Using (*Osing*) Tribal Crafts	Batik khas Banyuwangi	69.2
Figures/Heroes in Banyuwangi	Sri Tanjung	47.7
Geographical Conditions	Penduduk di Banyuwangi	58.9
Art	Tarian Seblang	47.7
Folklore	Asal usul kota Banyuwangi	76.6
Natural Tourism	Kawah ijen	51.4
Family	Sedulor/ kekerabatan	64.5
Ethnic Carnival	Kebo-keboan	27.1
History	Kerajaan Blambangan	58.9

27.1 percent of students with the topic 'kebo-keboan', while the historical material in Using (*Osing*) language teaching materials with the topic 'Blambangan Kingdom' obtained a percentage of 58.9 percent. These findings are not far from the results of research conducted by Lestari (2014) regarding the importance of asking students' opinions to investigate what topics are needed, liked and added to teaching materials.

The second research question presented in Table 9 focuses on analyzing teacher needs for the first category, namely, identifying problems faced in learning Using (*Osing*) language in the classroom. According to statistics, there is a connection between teachers' needs for the curriculum, syllabus and content of teaching materials with 83.3 percent really requiring it and 16.7 percent being in the need category. During the focus group interview, the teacher pointed out the need for teaching materials to meet Using (*Osing*) language learning outcomes that could be easily understood by both teachers and students. This is in line with Botifar et al. (2019) through research on the Rejang language in Bengkulu, the obstacles faced by teachers in elementary schools, namely, that the curriculum, syllabus and teaching materials are still not balanced. The results of the needs analysis concluded that it is necessary to develop a synergistic curriculum, syllabus or teaching materials.

In the priority category, the achievement of learning objectives in teaching materials and topics relevant to the Using (*Osing*) language curriculum is very needed by teachers at 66.7 percent of the value percentage, as is the need for teaching materials that contain character education values. Based on interviews, this is one of the efforts to achieve the goal of curriculum development in schools, namely, strengthening character education in all subjects, including Using (*Osing*) language as local language content. The need for achieving learning objectives Using (*Osing*) language teaching materials is clearly needed at 33.3 percent, and Using (*Osing*) language teaching materials that reflect awareness of Banyuwangi regional culture with a percentage of 83.3

Table 9 Problems and identification of priorities faced by teachers

Aspect	Component	Percentage	Criteria
Problem	Requirements between curriculum, syllabus and content of teaching materials	83.3	very needed
	Learning resources and media	83.3	very needed
Priority	Achievement of learning objectives in teaching materials and topics relevant to the Using (*Osing*) language curriculum	66.7	very needed
	The need for teaching materials that contain character values	66.7	very needed
	The Using (*Osing*) language teaching materials that reflect awareness of Banyuwangi regional culture	83.3	very needed
	The Using (*Osing*) language teaching materials with digital technology innovation to make it interesting	83.3	very needed

Table 10 Interview results on teacher ability towards BU learning

Indicator	Description	Comments/Suggestions
Do you understand the Using (*Osing*) language well?	Yes	Quite good capabilities
Do you use BU language in your daily communication?	No	Even though they understand the Using (*Osing*) language, they don't use it in daily communication
Do you master the Using (*Osing*) language from school?	Yes	Because of habit, it took a long time to understand the material about Using (*Osing*) language
Do you master the Using (*Osing*) language both orally and in writing?	Yes	Yes, but it's still not optimal, just general knowledge.

percent are really needed, and innovation in digital-based teaching materials is 66.7 percent. This finding is in line with Lustyantie et al. (2019) on the need to apply character education to French literary material for students majoring in French, Silanoi (2012) on the positive influence of character education in Thailand, and schools in South Kore (Kim et al., 2019). In the development of digital-based learning, education is very necessary as a language information skill for students (Iskandar et al., 2022). As designing interactive animations introducing Sundanese aims to make it easier for students to learn Sundanese, research results show that digital teaching materials such as interactive animations are very suitable for introducing Sundanese to children (Anwar et al., 2018).

As presented in table 10, the interview results indicate that teachers generally demonstrate an adequate level of competence in Using (*Osing*) language ability, although several limitations remain. All respondents reported that they understand the Using (*Osing*) language, suggesting a foundational level of linguistic competence. However, this competence is not consistently reflected in daily communication practices, as teachers admitted that they do not regularly use the language in everyday interactions. Teachers have been able to develop appropriate methods for learning Using (*Osing*) language which enable students from outside the region to learn naturally. Imroatun's research (2017) states that if teachers want to conduct a language learning that is natural, without a teacher, and without intention, called the naturalistic type, then a technology-based learning design is needed in developing regional languages that allows children to learn regional languages naturally.

As presented in Table 11, the interview findings reveal that teachers generally exhibit positive attitudes toward the Using (Osing) language and its instruction. All respondents expressed favorable perceptions of the language, including enjoyment in teaching it, willingness to use it as a medium of communication with students, and appreciation for engaging with the language through listening, reading, speaking, and writing activities. This indicates that affective factors, such as interest and motivation, are not significant barriers in the implementation of Using (Osing) language learning.

In the need for identification of teacher attitudes towards Using (*Osing*) language, it can be concluded that teachers' attitudes towards teaching Using (*Osing*) language include: feeling contented about Using (*Osing*) language, happy teaching Using (*Osing*) language, pleased to communicate using in Using (*Osing*) language to students, and excited listening, reading, speaking and writing in Using (*Osing*) language. Based on the results of identifying these attitudes, the respondents' attitudes still have positive expectations towards Using (*Osing*) language so that ability and a good attitude towards Using (*Osing*) language can improve learning Using (*Osing*) language optimally. This finding is in line with (Ali & Rahman, 2016) that the positive attitude shown by teachers in learning Malay is due to the desire for innovation in education in Indonesia. According to Fullan's (2001) view, the teacher's positive attitude will have a deep impression on the teacher's acceptance of every educational innovation. Based on the results of interviews, identify teachers' attitudes towards Using (*Osing*) language.

As shown in Table 12, the interview results highlight several challenges faced by teachers in implementing Using (*Osing*) language instruction, as well as the strategies they employ to address these challenges. Teachers reported that they attempt to use engaging and varied teaching methods, such as discussions and audiovisual media, to make learning more interactive and appealing for students. This indicates an awareness of the importance of student-centered and communicative

Table 11 Interview results for teacher attitudes towards learning BU

Indicator	Description	Comments/Suggestions
Do you like Using (*Osing*) language for everyday communication?	Yes	It would be nice if someone invited you to communicate Using (*Osing*) language
Do you like Using (*Osing*) language teaching?	Yes	Yes, apart from the obligations of the school curriculum
Do you like Using (*Osing*) language as communication for students?	Yes	It's nice if there are students communicating Using (*Osing*) language during learning, we even arrange a schedule for Mrs. Nani (the team who created *BU* language materials and as the school supervisor) to fill in the material so that students can speak Using (*Osing*) language correctly.
Do you like reading and writing in the Using (*Osing*) language?	Yes	Quite good capabilities
Do you enjoy hearing someone speak or sing in the Using (*Osing*) language?	Yes	Yes, even if you don't know the meaning but happy to listen to songs in Using (*Osing*) language.

Table 12 Interview results with teacher solutions for using tribe learning

Indicator	Description	Comments/Suggestions
Do you teach *BU* language using a fun method?	Yes	Yes, try to change methods such as discussions, showing films from Infocus so that *BU* language learning is interesting for students
Do you teach *BU* language with strategies that suit students' needs?	Yes	Yes, we adjust it to the situation in class.
Do you teach *BU* language with communicative media?	No	Lack of children's interest in learning the *BU* language
Do you teach *BU* language in accordance with the specified curriculum content?	No	Do not follow the material from the curriculum because this lesson is considered only a complement so it is just learning
Do you use other sources in teaching *BU* language to students?	No	There are not just worksheets, for this reason, on behalf of other colleagues, we hope that there will be teaching materials that are in accordance with the curriculum content along with explanations of the material so that it is easy to learn.

approaches in language teaching. In this last category, teachers were asked to find solutions to solve problems that arise in learning Using (*Osing*) language. Indicators of teachers' needs for Using (*Osing*) language learning solutions are such as: methods used, media and learning resources, and effective strategies and approaches for students. This is done to determine what actions should be taken to overcome problems in learning Using (*Osing*) language. Based on the respondents' answers to this question, it leads to efforts to improve teachers' needs regarding the need for curriculum, syllabus and Using (*Osing*) language teaching materials that support each other so that the goals of Using (*Osing*) language learning can be achieved well.

Conclusion

To sum up, there is a need to develop a new approach of Using (*Osing*) language teaching materials as mother tongue learning. Results indicate that the student needs BU teaching materials. Furthermore, Using (*Osing*) teaching materials designed based on student needs, will be very helpful for learners. Improving the ability of four language skills is important in meeting the needs of BU teaching materials, and for teachers Using (*Osing*) Teaching materials must be developed in accordance with the curriculum and syllabus.

Conflict of Interest

There is no conflict of interest.

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A causal model of exercise behaviors among undergraduate students based on the PRECEDE model

Korada Mattayakorn, Witsanu Rotsuwan*

Department of Society, Culture, and Human Development, Faculty of Liberal Arts, Prince of Songkla University, Hat Yai Campus, Songkhla 90110, Thailand

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Abstract

This research aimed to develop and examine the validity of a model of causal relationships among predisposing factors (PF), enabling factors (EF), and reinforcing factors (RF) that affected the exercise behavior (EX) of students at Prince of Songkla University. The sample was 418 undergraduate students at Prince of Songkla University, Hat Yai Campus, selected using a multistage random sampling method. The instrument used was a questionnaire. Statistical data were analyzed using frequency, mean, percentage, and standard deviation, confirmatory component analysis, and linear structural equation model analysis (path analysis). The results revealed that the causal model of exercise behavior among undergraduate students according to the PRECEDE health promotion planning concept corresponded well with the empirical data (Chi-square; χ^2 = 60.900, df = 46.00, p = .06, GFI = 0.98, AGFI = 0.96, CFI = 1.00, SRMR = 0.03, and RMSEA = 0.02). The variables in the model accounted for 71 percent of the variance in exercise behavior. The variable (PF) had a direct influence on (EF) and (EX), with effect sizes of 0.71 and 0.34, respectively, and had an indirect influence on (RF) through (EF) and (EX) with effect sizes of 0.60 and 0.40, respectively. In addition, (EF) had a direct influence on (RF) and (EX), with effect sizes of 0.85 and 0.44, respectively, while (EF) was indirectly influenced by (EX), with an effect size of 0.12. Additionally, (RF) directly influenced (EX), with an effect size of 0.14, which was statistically significant at the .01 level.

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Introduction

Physical inactivity is a critical concern and a top health promotion priority for the World Health Organization (WHO) internationally. The primary goal is to enhance global health, reducing the risks and prevalence of chronic non-communicable diseases (NCDs) such as obesity, diabetes, cardiovascular diseases, and various cancers (Department of Disease Control, 2022). Insufficient physical activity, often coupled with sedentary behavior,

* Corresponding author.
E-mail address: witsanu.r@psu.ac.th (Rotsuwan, W.).

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contributes to the onset of NCDs, potentially leading to premature mortality (World Health Organization, 2023). Currently, one in four adults and four in five adolescents worldwide do not engage in adequate physical activity. Consequently, over 5 million deaths annually are attributed to physical inactivity. Moreover, the economic burden resulting from insufficient physical activity exceeds 68 billion US dollars each year (Guthold et al., 2018). A WHO survey reported that physical inactivity accounts for 3.2 million deaths globally each year (World Health Organization, 2023). This problem not only causes health detriments but also significantly affects economic and social development.

In Thailand, the COVID-19 outbreak in 2020 significantly impacted all aspects of human life, including the health behaviors related to physical activity of Thai people, whether in work, travel, or exercise. Consequently, the average daily sedentary time for Thai individuals increased to 14 hours and 32 minutes, exceeding the usual duration. It is noted that the average sedentary behavior duration among Thais rose to 15 hours (Wongpipit, 2022). Concurrently, chronic non-communicable diseases (NCDs) accounted for up to 71 percent of all deaths in the Thai population, with one contributing factor being inadequate physical activity among one in three Thais nationwide (Hfocus, 2019). Data from the 2019–2020 physical activity survey indicated a decline in adequate physical activity levels among Thais from 74.6 percent in 2019 to just 55.5 percent, a decrease of 19.1 percent (Katewongsa, 2021). Additionally, 30.9 percent of Thais aged 15 and over engaged in insufficient physical activity (28.9 % of men and 32.7 % of women). This represents an increase from the 2014 survey figures (18.4 % of men and 20.0 % of women) (Aekplakorn, 2021). The National Health Examination Survey (NHES) data from 2008–2009, 2014–2015, and 2019–2020 for Thais aged 15 years and older revealed an upward trend in individuals not meeting physical activity recommendations, with an increasing prevalence of abnormal body mass index (BMI $\geq$ 25 kg/m^2) and abdominal obesity (waist circumference $\geq$ 90 cm for men and $\geq$ 80 cm for women), reflecting an imbalance between exercise and food intake (Department of Disease Control, 2022). This trend may contribute to a rising incidence of NCDs in Thailand.

However, education alone is insufficient to effectuate the desired changes in health behavior because such behaviors are influenced by a variety of factors, both intrinsic and extrinsic to the individual (Crosby & Noar, 2011). Key determinants include cultural background, beliefs, values, social factors, and physical factors that impact the quality of life (Laprattanathong et al., 2022). Moreover, there are numerous theories on behavior change, each with distinct principles. This article examines the application of the PRECEDE-PROCEED model (Green & Kreuter, 2005), utilizing the PRECEDE framework as a diagnostic tool for identifying behavioral causes (Salinero-Fort et al., 2011). We employed it as a conceptual framework for analyzing situations and problems and identifying factors related to the exercise behaviors of undergraduate students at Prince of Songkla University, encompassing a comprehensive range of multifactorial influences. These include predisposing factors that motivate behavior such as knowledge and attitudes, which are associated with physical activity behavior (Keawvilai, 2009; Kengganpanich, 2003; Siangsai & SuKonthasab, 2015; Sukonthasab, 2002; Sutthajunya, 2006). Enabling factors facilitate individuals' ability to act on their desires as a result of predisposing factors; these may include physical facilities and policies that support individual behavior (Keawvilai, 2009; Leemingsawat et al., 2007; Siangsai & Sukonthasab, 2015; Sutthajunya, 2006). Additionally, reinforcing factors are benefits or reinforcements that students receive or expect from others as a result of their actions (Powwattana et al., 2012). Previous studies have indicated that reinforcing factors are positively correlated with physical activity behavior and that social support for health promotion is associated with health-promoting behaviors (Aunprommee, 2009; Siangsai & Sukonthasab, 2015; Sutthajunya, 2006).

From the discussion above, it is evident that exercise and physical activity practices are correlated with health status and are considered fundamental to life. Consequently, higher education institutions must play a pivotal role in health promotion for students by creating and enhancing the physical and social environments to facilitate healthful behaviors, encourage productive use of free time, and foster continuous and sustainable living (Office of the Higher Education Commission, 2011). This ensures that students maintain good health, are prepared for a happy societal life, and can adapt effectively to changing circumstances. For these reasons, the researchers are interested in developing a model of causal relationships among factors affecting exercise behavior among undergraduate students at Prince of Songkla University, based on the PRECEDE model of health promotion planning. The aim is to validate the model with empirical data and use the study's findings as a guideline for planning and developing health promotion initiatives to support Prince of Songkla University students in achieving optimal health, as they are vital for

the country's future development.

Theoretical Framework

Based on the literature review, we hypothesized that the PRECEDE model of health promotion planning could explain the causal relationships among factors influencing the exercise behavior of undergraduate students at Prince of Songkla University. Consequently, this model was employed to establish the conceptual framework and research hypotheses. The details are illustrated in Figure 1.

Materials and Methods

This research aimed to explain the causal relationship model of factors affecting the exercise behavior of undergraduate students at Prince of Songkla University, based on the PRECEDE model for health promotion planning, supported by empirical data. Consequently, the researchers emphasized the significance of internal validity in this study, as it involved the investigation and determination of cause-and-effect relationships between the variables examined. The following steps and methods have been established for conducting the research:

Participants

The study population comprised undergraduate students enrolled at Prince of Songkla University, Hat Yai Campus, as of 23 August 2022. According to data from the Student Registration and Statistics Office, there was a total population of 16,438 students (Registration and Processing Department, 2022). The researchers selected a sample size of 418 students, calculated using the proportional sampling formula at a 99 percent confidence level according to Jaeger, with an error margin (e) set at 0.05 (Chamonman, 1994). This consideration also aligned with the preliminary consensus on determining sample size for causal model analysis, which recommends at least 20 participants per observed variable. With a total of 13 variables in this study (Hair et al., 2010), this equates to 260 students. To ensure data completeness following structural equation modeling analysis principles, a sample size of 418 students was collected. A multistage random sampling method was employed with the following steps: 1) Categorize the population by subject field groups in descending order based on student population size. 2) Divide the population into stratified groups according to student population size using stratified random sampling. 3) Perform random sampling within each group by drawing lots to select representatives from two faculties per group, resulting in six faculties: Faculty of Engineering, Faculty of Agro-Industry, Faculty of Nursing, Faculty of Veterinary Science, Faculty of Law, and Faculty of Liberal Arts. 4) Determine the sample size for each group proportionally based on the number of students from each randomly selected faculty.

Ethics

The research was carried out upon the prior consent

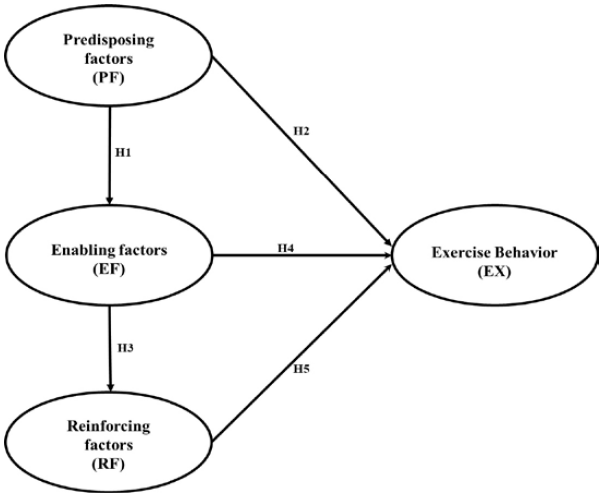


Figure 1 Conceptual framework and hypotheses for the causal relationship model of factors influencing exercise behavior among undergraduate students at Prince of Songkla University, based on the PRECEDE health promotion planning concept

of the Ethical Committee of the Center for Social and Behavioral Sciences Institutional Review Board, Prince of Songkla University (No. PSU IRB 2023-LL-Libarts-014 (Internal)). The participants were informed of the objectives of the study and that they had the right to withdraw from the research study at any time without any penalty or consequences. In addition, they were informed that the information they provided would be kept strictly confidential and reported as overall results.

Instruments and Procedure

The tool used in this research was a questionnaire developed by the researchers from a literature review and related research on the PRECEDE model of health promotion planning, and principles of exercise for health. It was divided into 5 parts as follows:

1. General Information: This section included gender, academic year, field of study, sports or exercise experience, and places for exercise—a total of 5 items presented as a checklist.

2. Exercise Behavior: Measurement adapted from Mattayakorn et al. (2016), Comprising 4 components: frequency, intensity, duration, and type of exercise, totaling 26 items. This section utilized a 5-point rating scale allowing respondents to select only one answer.

3. Predisposing Factors related to exercise behavior, comprising 4 components: knowledge, attitude, values, and beliefs—15 questions in total. The questions were formatted as a Likert 5-point rating scale allowing respondents to select only one answer.

4. Enabling Factors facilitating exercise behavior, comprising 3 components: available resources, access to resources, and skills—10 items in total. The format was a 5-point Likert scale allowing respondents to select only one answer.

5. Reinforcing Factors related to exercise behavior, comprising 2 components: individual opinions, and 7 rules/items. The question format was a 5-point Likert scale allowing respondents to select only one answer.

Parts 2 to 5 had valid Index of Item Objective Congruence (IOC) values between 0.67 - 1.00 (Rovinelli & Hambleton, 1977), and reliability was tested using Cronbach's alpha coefficient for predisposing factors, enabling factors, reinforcing factors, and exercise behavior. The coefficient values for these four factors were 0.80, 0.82, 0.79, and 0.75 respectively.

The researchers prepared a memorandum requesting permission for data collection and attached an invitation for students to participate in the research project questionnaire, along with a QR Code and a link to the online questionnaire. This was disseminated through six faculties randomly selected to represent Prince of Songkla University's Hat Yai Campus. Data collection utilized online questionnaires that did not require respondents to provide identifiable information. Since the data collection was conducted online, volunteers could not physically sign a consent form; instead, they could click a button to either consent to or opt out of participating in the online questionnaire. Only fully completed questionnaires were selected for data analysis using statistical methods.

Statistical Analysis

The basic information of the respondents was analyzed using descriptive statistics, which included frequency, mean, percentage, and standard deviation. The relationships between the observed variables were examined by calculating Pearson's product-moment correlation coefficient to determine the interrelations among the model's variables. The consistency of the measurement model for each of the four components was tested using confirmatory factor analysis. The causal relationships between predisposing factors, enabling factors, reinforcing factors, and exercise behavior were analyzed using a linear structural equation model with path analysis. Additionally, the validity of the hypothesized model was evaluated against empirical data by considering goodness-of-fit measures and analyzing residuals or discrepancies (Fitted Residuals Matrix) (Schumacker & Lomax, 2010).

Results

The basic data analysis of the respondents revealed that the majority of the sample was female, with 215 individuals (51.40 %), followed by males at 193 individuals (46.20 %), 8 LGBTQ individuals (1.90 %), and 2 persons of unspecified gender (0.50 %). The breakdown by academic year was as follows: 241 first-year students (57.70 %), 48 second-year students (11.50 %), 81 third-year students (19.40 %), 47 fourth-year students (11.20 %), and 1 individual above fourth-year (0.20 %). The majority of the sample studied in the field of science and technology, totaling 1,612 individuals (38.50 %), followed by health sciences at 151 individuals (36.10 %), and humanities and social sciences at 106 individuals (25.40 %). Additionally, a significant portion of the sample, 361 participants (86.40 %), had experience in exercising, while 57 participants (13.60 %) did not. Most of the sample group, 285 participants (68.20

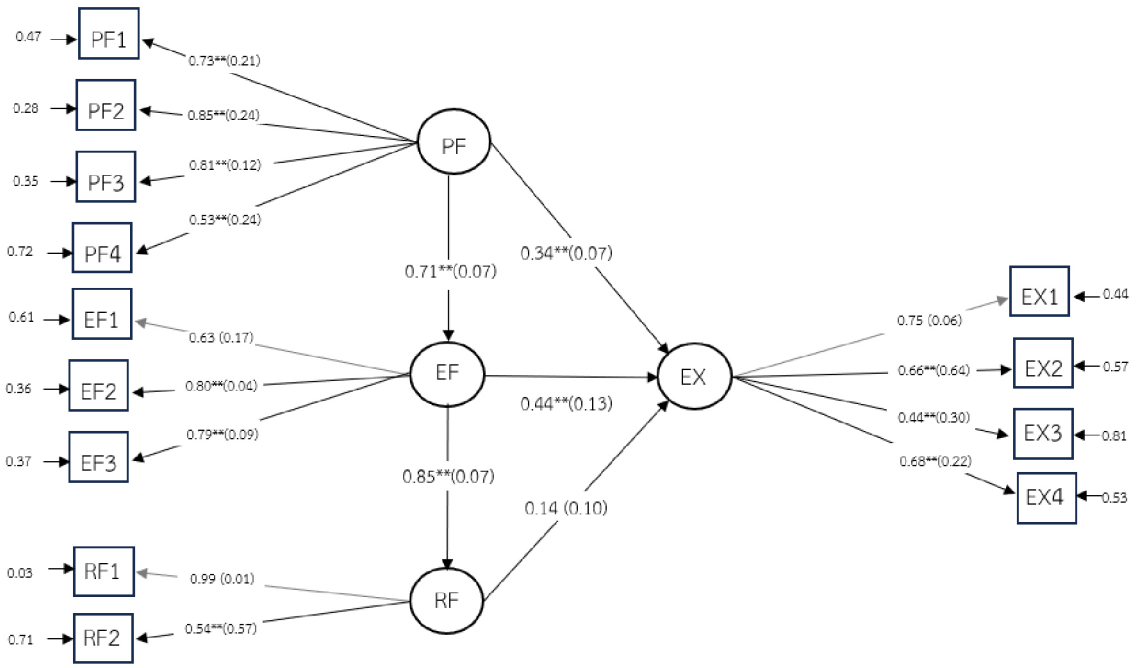
%), exercised within Prince of Songkla University, whereas 133 participants (31.81 %) exercised outside the university.

The analysis revealed that the correlation coefficient analysis of the observed variables indicated causal relationships among factors influencing undergraduate students' exercise behavior at Prince of Songkla University, in line with the health promotion planning principles of the PRECEDE model. The analysis is suitable for further model evaluation since each variable significantly correlates with others at the .01 level, with coefficients ranging from 0.147 to 0.674. To avoid multicollinearity or an overspecified model, it is essential that no pair of variables has a correlation coefficient exceeding .90 (Wiratchai, 1999).

The consistency testing of the measurement model, which examines causal relationships among factors affecting the exercise behavior of undergraduate students at Prince of Songkla University based on the PRECEDE model for health promotion planning, indicated that all four variables had appropriate mean levels, averaging 0.863, with standard deviations ranging from 0.54 to 0.68. The coefficient of variation (CV) for each latent variable showed minimal distribution differences, ranging from 12.45 to 16.14 percent. Regarding the observed variables' distribution, the skewness (Sk) values ranged from -0.127 to 1.254, and the kurtosis (Ku) values ranged from 0.112 to 1.213, aligning with the normality criteria that skewness should not exceed 3.00 and kurtosis should not exceed 10.00 (Rex, 2011). This suggests that the variable data were neither skewed nor excessively peaked, making them suitable for further analysis.

The analysis of the causal relationships among predisposing factors, enabling factors, and reinforcing factors affecting the exercise behavior of Prince of Songkla University students revealed that the adjusted model was consistent with the empirical data. The fit indices were as follows: (χ^2 = 60.900), *df* = 46, *p* = .069, χ^2/df = 1.324, RMSEA = 0.028, GFI = 0.980, AGFI = 0.960, CFI = 1.000, SRMR = 0.030). See Figure 2.

When considering the path coefficients, direct influence, indirect influence, and total influence from external latent variables affecting internal latent variables, as well as the influence from internal latent variables affecting each other, it was found that all variables in the model could explain 71 percent of the variance in exercise behavior among students at Prince of Songkla University. The direct and indirect influences affecting the variable (EF) were found to be directly influenced by the variable (PF) with an effect size of 0.71, and the variable (EX) was directly influenced by (PF), (EF), and (RF) with effect sizes of 0.34, 0.44, and 0.14 respectively.



Fit indices: χ2 = 60.900, df = 46, *p* = .069, RMSEA = 0.028

Figure 2 Comprehensive causal model of exercise behavior among undergraduate students, based on the adjusted PRECEDE model for health promotion planning

Additionally, the variable (EX) was indirectly influenced by (PF) through (EF) and (RF) with an effect size of 0.40, and (EX) was indirectly influenced by (EF) through (RF) with an effect size of 0.12. Furthermore, the variable (RF) was directly influenced by (EF) with an effect size of 0.85, and (RF) was indirectly influenced by (PF) through (EF) with an effect size of 0.60, which is a statistically significant influence at the .01 level as shown in Table 1.

The analysis of the direct and indirect influence of latent variables affecting the exercise behavior of students at Prince of Songkla University revealed that predisposing factors directly affect enabling factors and exercise behavior. Moreover, predisposing factors indirectly affect exercise behavior through enabling factors and reinforcing factors. It can be said that predisposing factors form the basis for motivating students to show their exercise behavior, such as perceiving the benefits of exercising, perceiving barriers to exercise, and knowledge about exercise that students can practice, obtained from accumulating learning experiences from the past to the present. Additionally, some students have registered for physical education courses in the general education group of courses, which helps support health-related behaviors.

Table 1 Path coefficients of direct effects (DE), indirect effects (IE), and total effects (TE)

Causal Variables	Effect Variables								
	EF			RF			EX		
	DE	IE	TE	DE	IE	TE	DE	IE	TE
PF	0.71** (SE=0.07) (t=10.93)	-	0.71** (SE=0.07) (t=10.93)	-	0.60** (SE=0.04) (t=13.50)	0.60** (SE=0.04) (t=13.50)	0.34** (SE=0.07) (t=5.04)	0.40** (SE=0.06) (t=7.11)	0.74** (SE=0.06) (t=12.38)
EF	-	-	-	0.85** (SE=0.07) (t=12.30)	-	0.85** (SE=0.07) (t=12.30)	0.34** (SE=0.07) (t=5.04)	0.40** (SE=0.06) (t=7.11)	0.74** (SE=0.06) (t=12.38)
RF	-	-	-	-	-	-	0.14 (SE=0.10) (t=1.45)	-	0.14 (SE=0.10) (t=1.45)
R-Square	.51			.72			.71		

** $p < .01$ (Chi-square = 60.900, df = 46, $p = 0.069$, RMSEA = 0.028, GFI = 0.980, AGFI = 0.960)

** $p < .01$, * $p < .05$

Note: Predisposing factors (PF), Enabling factors (EF), Reinforcing factors (RF), and Exercise Behavior (EX)

Discussion

The causal relationship model of factors affecting the exercise behavior of undergraduate students at Prince of Songkla University, which was developed based on the PRECEDE health promotion planning model (Green & Kreuter, 2005), is consistent with empirical data and falls within the good range. This is considered by the Chi-square value, which is not significantly different from zero statistically, indicating that the main hypothesis that the model is consistent with empirical data is accepted. The indices measuring the level of consistency, such as Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI), are close to 1. Root Mean Square Residual (RMR) and Root Mean Square Error of Approximation (RMSEA) are close to 0, and Critical N (CN) is greater than 200, all of which meet the specified criteria for model fit verification (Schumacker & Lomax, 2010). The latent variables within the model can explain 71 percent of the variance in exercise behavior among students at Prince of Songkla University, which meets the criterion of explaining at least a minimum of 50 percent variance of the specified variables (Hair et al., 2010). The explanation can be described as follows.

The results of this study are consistent with the study by Boonsem et al. (2021), which examined the causal relationships of various factors and exercise behavior affecting the physical fitness of university students based on the PRECEDE model framework. It was found that predisposing factors, enabling factors, and reinforcing factors have a positive effect on exercise behavior. The results of the study can be used as guidelines to continuously promote exercise behavior among university students, leading to improvements in physical fitness in all aspects. This is in line with Kakai and Suksombat (2021), who found that knowledge factors leading to exercise have been accumulated from education starting from primary, secondary, and university levels, and knowledge about exercise through various media has a direct effect on factors that facilitate exercise behavior. Additionally, Palitnonkert et al. (2018) found that students have a high level of exercise behavior because

they learn about body movement in practice during class hours, giving them both theoretical and practical knowledge. Kumyoung et al. (2021) discovered that students at Loei Rajabhat University engage in exercise and daily activities with a focus on health, leading to consistent exercise to maintain body balance. Moreover, exercising also provides opportunities to meet friends and build relationships, making it enjoyable to exchange ideas with others. Furthermore, predisposing factors related to knowledge and understanding of exercise are associated with enabling factors for exercising. Additionally, predisposing factors indirectly affect exercise behavior because students receive information from various online sources. In today's era of rapid technological development, health-related information is easily accessible, which results in stimulation to make decisions that lead to exercise behavior (Khirathan et al., 2022). This corresponds with the study by Sripoka et al. (2020), which found that students have a moderate overall level of knowledge about exercise for health, with a frequency of exercising 1–2 times per week and a more positive attitude than those who exercise more than 5 times per week. This may be due to specific cognitive factors related to behavioral expression, which is an important issue for students to adapt and change their exercise behavior appropriately. Tanchaisak and Wattanapanit (2020) studied the attitudes of working-age citizens, aged 21 and over, toward exercise and the type of services that working-age citizens expect or want to receive from fitness centers in Bangkok. It was found that the sample group had a positive attitude towards exercising and had similar expectations regarding the services of fitness facilities. Most of the demands focused on location and equipment that must be convenient for members, and staff should be polite, providing good advice and service, which will help stimulate the sample group to increase their exercise behavior.

Enabling factors directly influence reinforcing factors and exercise behavior. Moreover, enabling factors also indirectly affect exercise behavior through reinforcing factors. It can be said that arranging the environment of dormitory areas, and public spaces within Prince of Songkla University to be easily accessible for students, by organizing health gardens, and exercise activity areas, and ensuring that exercise equipment is in good condition and ready to use, as well as having service points for borrowing and returning sports equipment both during and outside office hours, supports and encourages students to increase their exercise behavior. This is in line with Kakai and Suksombat (2021), who found that environmental support factors, including locations, various sports equipment, and facilities for exercising in many places, along with a security system and easy access to services both outside and inside the university, will motivate students to exhibit more behaviors that promote their health. In the study by Boonsem et al. (2021) on the relationship between various factors and exercise behavior affecting the physical fitness of university students within the PRECEDE model framework, it was found that enabling factors support the occurrence of exercise behavior. Environmental conditions and support from family members and friends have a direct effect on exercise behavior. This corresponds with the research findings of Yao et al. (2024), which indicated that environmental enabling factors are crucial in exercising because they motivate students to engage in physical activities. The availability of a variety of facilities and adequate equipment in good working conditions plays a positive role in encouraging students to increase their exercise and sports behavior. Furthermore, Lin et al. (2012) studied the work environment and psychosocial factors affecting the physical activity of working-age people in Taiwan. They discovered that specific confidence in performing sports skills is positively related to physical activity and is the most influential factor in exercising. Additionally, arranging the work environment has a positive correlation with exercising, and physical movement or exercise during the day helps significantly reduce work-related stress statistically.

Reinforcing factors have a direct effect on exercise behavior. This study suggests that students receiving information, news, and knowledge about sports and health-promoting physical activities from announcements, media, or various publications are stimulated to increase their exercise behavior. Support from friends, family, and relatives, as well as the organization of health-promoting sports activities at the university, also contribute to this effect. This research result is consistent with Zhang et al. (2024), who found that following news helps motivate exercise and leads to health beliefs, including setting goals to take care of one's own health. Information and knowledge about sports or physical activities are linked to interest in supporting exercise and also serve as a stimulus for the desire to participate directly. Similarly, the study by Li et al. (2024), found that social reinforcing factors affect students' self-worth and directly determine habits related to exercise behavior. Furthermore, reinforcing factors in educational institutions, fitness facilities, and environmental conditions such as family and friends have a direct effect on exercise behavior and lead to higher levels of student exercise behavior (Kholifah et al., 2017; Thøgersen-Ntoumani & Ntoumanis, 2006; Yao et al.,

2024). Additionally, health fitness facilities should adjust and expand their opening hours to suit students' needs and clearly announce rules, regulations, etiquette, and instructions for using equipment along with the benefits of each type of exercise for the convenience of student use.

Conclusion

The findings from this research can be summarized as follows: The causal relationship model of factors affecting the exercise behavior of undergraduate students at Prince of Songkla University, developed according to the PRECEDE model health promotion planning concept, was structurally valid. Enabling factors had a direct positive influence on students' exercise behavior. Therefore, Prince of Songkla University and related units can use the research results as guidelines for formulating policies to promote student health by focusing on arranging the environment of dormitories and public areas within the university to be easily accessible for students. This includes setting up health gardens, exercise activity areas, and well-maintained exercise equipment, and providing sports equipment borrowing-return points during and outside office hours. Additionally, the research found that predisposing factors directly affected enabling factors and exercise behavior, and also indirectly influenced exercise behavior through enabling and reinforcing factors. The study suggests that university health promotion units should create informational media on health, sports, and exercise activities for health, disseminating it through the university's electronic media to build correct health awareness and understanding, enabling students to choose sports and exercise activities suited to their preferences, thereby encouraging continuous exercise behavior among students.

Conflict of Interest

The author declares that there is no conflict of interest.

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Andragogy in the story of Musa ‘Alaihissalam with his people (Study of Surah Al-Baqarah 67–74 in Tafsir Al-Azhar Buya Hamka and Tafsir at Tanwir Muhammadiyah)

Syamsul Hidayat[a,*], Siti Sholihah[a], Lukman Affandi[b]

[a] *Islamic Studies, Department of Islamic Studies, Faculty of Islamic Studies, Muhammadiyah University of Surakarta, Jawa Tengah, Surakarta 57162, Indonesia*
[b] *Islamic religious education, Department of Islamic religious education, Faculty of Islamic religious education, Indonesian Education University, Bandung, Jawa Barat 57162, Indonesia*

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Abstract

This research tries to explore the andragogy content in Surah al -Baqarah verses 67–74 according to Tafsir Al-Azhar and Tafsir Al-Tanwir and its relevance to adult education today. The research data were collected using documentation techniques, analyzed using this analysis method (content analysis) using the theory and character of andragogy according to Malcolm. S. Knowles, namely, self concept, experience, orientation Study, readiness Study, motivation, the form of his awareness as a servant of Allah, recognizing Allah’s knowledge, being patient, forgiving, thinking about the safety of his people, communicating impersonally, respecting his people. The self-concept of the Mosaic people was negative, with an attitude of not recognizing God’s power, despising God’s messengers, being arrogant, too rational, and hard-hearted. The learning motivation that is instilled is motivation as a servant of God who is obedient and fearful of God, not just fulfilling Maslow’s hierarchy of needs. Different from andragogy theory, the learning orientation reflected in these verses is inseparable from human awareness of the importance of seeking knowledge as part of fulfilling Allah’s commands. The integration of digital technologies into both face-to-face and online learning environments, require existing application Quranic andragogy theory, which is built on the foundation of faith and noble morals, with interactive, communicative methods, mutual respect and openness. Quranic andragogy will position humans as obedient servants of Allah and caliphs who are able to realize a good life and obtain mercy and forgivenes from Allah.

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* Corresponding author.
E-mail address: sh282@ums.ac.id (Hidayat, S.).

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Introduction

The goals of education today are more inclined towards efforts for economic and social mobility as a result of materialism, hedonism, secularism thereby shifting away from the fundamental objective of education, namely, producing individuals who are monotheistic and have noble character. As a result of this error of purpose, various deviations emerged in the world of education and society (Nata, 1998); leaks of national exams, buying and selling of grades, carried out systematically between schools and local officials, education and stakeholders, so many children are stressed when going to exams; money politics in elections and other public positions, which all boil down to economic and social factors.

Theoretically, educational goals are divided into two streams. The first school is more society-oriented, namely, considering education as an important tool for creating a good society. This occurs in democratic, oligarchic and monarchical government systems. The second theoretical stream is individual-oriented with a priority on resilience, needs and needs interest students. The second theoretical perspective can be divided into two approaches. The first argues that the primary goal of education is to achieve maximum individual well-being through success in social and economic life, enabling learners to attain a higher level of achievement than their parents. In essence, education is the ladder of social and economic mobility in society. Next is a stream that focuses on students through increasing intellectual, material possessions and mental balance. Students have various unique qualities that are different from other students.

Materialism and secularism have gripped the world of education throughout the world, both the Western world and the Muslim world. If we look at education in Indonesia, the disease of diplomacy is becoming more prevalent day by day. Education becomes a practical goal to achieve a better socio -economic level. Not surprisingly, this wrong goal has implications for the process of seeking knowledge. Methods that are not in accordance with the Muslim way of life are commonplace for people involved in the world of education. Cases of cheating such as leaking national exam keys, inflating grades, bribing with money or position, are carried out by officials in the educational environment as well as by school principals and teachers, and stake holders simply to obtain high academic grades (pragmatic achievement) and improve their economic and social status.

Furthermore, the widespread stress experienced by students before examinations reflects weaknesses in education related to *adab* (ethical conduct) and *tawhid* (monotheism). Many students lack a strong spiritual foundation, leaving them uncertain about where to seek guidance and inner strength during times of academic pressure. This situation arises because educational objectives have shifted away from their fundamental purpose, with the cultivation of *adab* and moral character no longer regarded as the ultimate goal of education. Observing the cases mentioned above, which are fundamental problems in education, it is time for us to develop an education system that originates from our fundamental teachings, namely, the Qur'an and the Sunnah. The aim of education according to the Qur'an is very clear, namely, upholding the value of monotheism in all aspects of human life. Through education, individuals will be formed who are monotheistic, civilized and able to contribute to the life of society or country. Increase the quality of man in a spiritual and material way so that Humans are aware of their responsibilities to God, to themselves and to each other and always strive to improve every aspect of themselves towards perfection as civilized humans, which is the goal of education that we want. The perfect human (al insan al kulliy) who should be the mecca of Islamic education is Rasulullah Muhammad Saw. The Islamic education system should reflect perfect humans like this.

It Haedar (2017), defines education as an effort to make humans capable of operating their task as caliph fi al - ardh. Man in a way, individual and collective, functions as a historical agent of change to prosper in life and build a major civilization which distinguishes human beings from other creations of Allah (Adriani 2019). Education is culture strategy to make humans aware of the function of their lives as noble human beings and distance themselves from humiliation so that their lives become enlightened and they are able to achieve happiness and salvation in the world of the hereafter (Yayuli, 2017).

Hasbullah (2009) defines education as a conscious effort to humanize humans, shape and develop all good potential, through a process of guidance or assistance carried out by adults so that a person becomes an adult or achieves a level of life or livelihood which is taller (Bakry, 1986). At least there are 3 terms which used to mention the meaning of education, namely, tarbiyah, ta'lim and ta'dib. Tarbiyah comes from the words rabba-yurabbi - tarbiyyatan, Ta'lim from the words allama-yu'allimu-ta'liiman, and ta'dib comes from the words addaba - yuaddibu-ta'diiban. Experts differ in their opinions about which term is most appropriate to define education from the three terms.

Al-Attas (1991) prefers ta'dib arguing that ta'dib includes elements of knowledge (ilm), instruction (ta'lim), and good coaching (tarbiyah). Ta'dib means educating and places more emphasis on developing morals and character. Ta'dib said as the equivalent of the word education includes values that are based on correct knowledge ('ilm) and sincere and appropriate actions (amal) and being actively involved in the intellectual discourse of the Sunnah of the Prophet Muhammad. Tarbiyah only touches on the physical and emotional aspects of the growth and development of animals and humans. Currently doing ta'lim is only limited to teaching and cognitive education. Al-Farabi defines ta'dib as an activity aimed at producing a character that originates from a moral attitude.

On the basis of this explanation, an in-depth study of educational concepts or values originating from the Qur'an and As- Sunnah is needed to overcome these problems. Some educational problems include unclear orientation, direction and goals, dichotomous educational practices, and learning models that do not use interactive, communicative methods. This is where the importance of this research is, so that it is hoped that it can achieve the right goals, a learning process that is interactive, communicative, respectful of each other, using reason and heart. To understand the Qur'an, interpretation is needed, and this research uses Tafsir At-Tanwir, which is a joint work of Muhammadiyah (Muhammad, 2001), scholars that is suitable for culture and environment so it is easy to understand.

Methodology

This paradigm study includes qualitative study, using a library research approach. Data primary form Verses 67-74 Al-Baqarah, Tafsir Al-Azhar and Tafsir At-Tanwir, and Malcolm's theory of andragogy, S. Knowles in the book "The Adult Learner: The Definitive Classic in Adult Education and Human Resources Development. Secondary data are in the form of verses from the Qur'an Apart from verses 67-74 Al-Baqarah, which have relevance to verses 67-74 Al-Baqarah, books and journals related to education, andragogy, psychology, stories, etc. Data were collected using documentation techniques, analyzed using the content method analysis. Content analysis, includes efforts to clarify the signs used in communication using certain analytical techniques to make predictions. The research will look at the relevance of andragogical content in Musa Alaihissalam's kisan with education with adult education now.

The research questions are as follows: (a) How is andragogy reflected in the story of Musa (AS) and his people in Surah Al-Baqarah verses 67–74 according to *Tafsir Al-Azhar* and *Tafsir At-Tanwir*? (b) What is the relevance of the andragogical principles reflected in the story of Musa (AS) and his people in Surah Al-Baqarah verses 67–74 to contemporary Islamic adult education? (Shihab, 1997).

Result

The Story of Musa As and His People in the Qur'an

Musa (AS), also known as Moses, was the son of Imran, a descendant of Ya'qub (Jacob), Ishaq (Isaac), and Ibrahim (Abraham). Musa was raised by Fir'aun and his biological mother since he was a baby so that he received what he needed for the child's growth and development so that a positive self-concept was formed, and lots of experience which varies. After a teenager, he interacted a lot with his people and shared in the suffering as slaves experienced by his people, growing an attitude of respect, and empathy, even accidentally killing an Egyptian because he was defending his people. The experience broadened when Moses fled from Egypt, arrived in Madyan, married, and was appointed as God's messenger and then returned to Egypt to call on the most arrogant person in the world, namely, the Pharaoh, and save his people (MTT PPM Drafting Team, 2022).

The people of Musa were descendants of Ya'qub (Israil) bin Ishaq bin Ibrahim so they are called the children of Israel. This clan started to enter Egypt in the era of prophet Yusuf (AS), one of the sons of Ya'qub. They grew so rapidly that the king and the native Egyptians worried that they would crowd in and expel the native people from Egypt. So, a policy was taken to prevent it. To curb the population growth of the Children of Israel, Pharaoh enslaved them and ordered the killing of every newborn male child while sparing the female infants. The terms often used to refer to the people of Musa as the Israelites, Jews and Hebrews.

In relation to this, Ibn Khaldun emphasized that an educator should have broad knowledge and insight, as well as have a good personality, because the goodness of knowledge depends on the personality of a good educator, and the methods used to teach that knowledge. An educator should also be a role model for his students, because as explained by Ibnu Khaldun, it is easier for students to grasp knowledge through the example of an educator and "imitate" everything they hear and witness,

when compared to advice and orders alone without example (Rahman, 1982).

As for a draft by Ibn Khaldun about participant educating, that participant is someone who is not yet mature and has potential that can be developed. Therefore, students as human beings need the help of other people (adult human beings) so that they can be guided towards the process of self -maturation to develop their potential in a better direction with the potential that already exists, and they should also be taught to have a burden or calling in life to become part of solving various problems facing the nation and the world (Ilyas, 2006).

Buya Hamka and Tafsir Al-Azhar

Buya Haji Abdul Malik Karim Amrullah (Hamka) is the son of H. Abdul Karim Amrullah bin Muhammad Amrullah bin Abdullah Saleh. Born 17 November 1908M/14 Muharram 1326 AH in Sungai Batang Maninjau, West Sumatra and died 24 July 1981 AD in Jakarta, aged 73 years (Ilyas, 2014).

It Hamka (2018) has a lineage of great scholars so he inherited knowledge, intelligence and Spirit in the field of religion specifically but also other fields. His scholarship is widely respected both within Indonesia and abroad, as demonstrated by the honorary doctorate (*Doctor Honoris Causa*) conferred upon him and his designation as a National Hero. His works cover the fields of da'wah and religion, literature and culture, as well as history and state politics. One of the monumental works in the religious field is Interpretation Al-Azhar, which is used in this study (Hamka, 2015). The Title of the book is: Interpretation Al-Azhar: Enriched with History Approach, Sociology, Sufism, Kalam Science, Literature, and Psychology. Consisting of 9 volumes, it contains the complete 30 juz of the Qur'an with writing following order of Al- Qur'an Mushaf Usmani, or using the method of Tahlili interpretation.

It is viewed from pattern interpretation including interpretation adabi al-ijtima'i i.e interpretation which explains full Al- Qur'an directly linked to people's lives accompanied by efforts to overcome diseases and problems in society based on verse instructions in language that is easy to understand (Hamka, 1982). The language is beautiful and the verses are connected to social reality, history and the Indonesian cultural system, maintaining a balance between the arguments of naql and aql. His opinion is also based on the opinion of Salaf scholars, both Middle Eastern and Indonesian, so it is called tafsir riwayah and dirayah (Hidayat & Wahidah, 2015).

Tafsir Al-Azhar explains the verses of the Qur'an with precise expressions, explains the meanings intended in the Qur'an in beautiful language and connects the verses with social reality and the existing cultural system. He also discussed historical, social and cultural problems in Indonesia to strengthen his argument, maintaining a balance between naqli arguments and aqli arguments and basing his opinions on the opinions of Salaf scholars, both from the Middle East and Indonesia, complemented by his personal experience. Thus, the interpretation of Al-Azhar can also be included in the interpretation of the riwayah and dirayah, a combination of naql and aql (Sonya, 2021).

Muhamadiyah and Tafsir at Tanwir

Tafsir At Tanwir, compiled by the Tarjih and Tajdid Council Preparation Team of Muhammadiyah Central Leadership (PP), even though it is only Juz 1, has emerged as one of the riches of interpretation of the Koran in Indonesia, complementing the tafsir of the Koran that has been circulating so far among Muslims. This tafsir can be called a jama'i tafsir because it is the result of effort (ijtihad) of a team of interpreters formed by the Tarjih and Tajdid Council of Central Leadership Muhammadiyah, not tafsir compiled by individuals (tafsir fardi). Tafsir At Tanwir will certainly provide a wealth of Islamic insight into understanding, and understanding the interpretation of the Koran complements the interpretations compiled by previous Indonesian scholars, both in the nature of Jama'i interpretation as well as fardi interpretations (Hidayat & Haq, 2024).

Muhammadiyah as an Islamic missionary movement of amar makruf nahi munkar and tajdid which is based on the Koran and as- Sunnah, of course feels the need and it is indeed required to be able to provide an understanding of the Koran through interpretation of it its content. This interpretive effort is important for Muhammadiyah both in its framework providing religious guidance for its citizens and in order to carry out missionary missions. Islam as a whole also contributes to the development of civilization and guidance character of the progressive Indonesian nation (Suciati, 2018).

One of the efforts made in the conceptual realm is exploring thoughts and concepts for resolving humanitarian and national problems extracted from books. The holy Koran is the main guideline for Muslims. That is what the next interpretation of the Koran is for This so-called At-Tanwir interpretation being born. It is hoped that the presence of this Tafsir can complement the efforts exploring the meanings of the Koran which has

been attempted by scholars in Indonesia, However, most of them have only been carried out by individuals, or individual interpretations (tafsir fardi). So, interpretation that is prepared together with the support of various scientific disciplines (tafsir jama'i), which in Indonesia was started by the Ministry of Religion, with the birth of the book Al-Quran and its Tafsir, and Thematic Tafsir Al-Quran (al -Tafsir al-Mawdhu'i), is needed.

The preparation of Tafsir At-Tanwir has several objectives, namely, (1) providing one reading tafsir al -Quran within the framework of Muhammadiyah's mission and duties as a da'wah movement of Islam amar makruf nahi munkar and tajdid; (2) fulfill the aspirations of Muhammadiyah citizens wanting to read tafsir al -Quran compiled collectively (tafsir jama'i) by ulama, intellectuals and Muhammadiyah figures, (3) utilizing the symbolic capital of Muslims which can be extracted from the guidance of the Holy Koran in order to awaken the ethos of the people and building Islamic civilization within the framework of a progressive Indonesia.

With Tafsir At-Tanwir Tarjih Council and Tajdid PP Muhammadiyah, according to its needs as a provider of enlightenment (tanwir) for Muslims, especially members of Muhammadiyah, as well as in order to enrich the scientific treasures in the interpretation of the Koran, this form of interpretation used is bi interpretation al-ra'yi, namely, interpreting the Qur'an using the ability to ijtihad or think without abandoning the interpretation of the Qur'an with the Qur'an or with hadith and also without completely abandoning the interpretation of the companions and tabi'in. This form develops interpretation with the help of various sciences such as the science of Arabic, the science of qiraah, the sciences of the Qur'an, the science of hadith, ushul fiqh, science history, and so on, named with at -tafsir bi - ar-ra'yi because what is dominant is the mufasir's own reasoning or ijtihad.

The method of interpretation used by Tafsir At-Tanwir is the tahlily method, which attempts to explain the content of the verses of the Qur'an from various aspects, starting from the language aspect, asbab an nuzul, munasabah and other possible aspects according to interests and self-interpreting tendencies (Danial & Reynolds, 2008). Interpretation is carried out using the systematics of the manuscripts of Al -Qur'an, in order from beginning to end verse by verse. Tafsir At-Tanwir tries to do analysis both conventionally, such as exploring asbabun Nuzul, language, munasabah. However, according to developments over time, the analysis presented in this interpretation is... taking contemporary scientific analyses, such as those carried out by Harun Yahya, Ismail R Faruqi and so on.

Tafsir Al-Azhar and Tafsir At Tanwir Concerning Verses 67–74 of Surah Al-Baqarah

It Hamka pointed out that al -Baqarah verses 67–74 explain the interaction of Musa as with his people, which is known as the incident of slaughtering a female cow. The story opens with verse 67 which orders Moses to tell his people that Allah ordered the slaughter of a female cow. However, his people accused Moses of playing with them, because they asked for a solution to the problem regarding who killed one of the children of Israel, but Moses' answer was far from what they wanted. They considered Musa's response to be illogical because it did not directly address their question about the identity of the murderer. Musa (AS) replied that he would never mock his people, especially when conveying Allah's commands. His people then asked him to clarify the characteristics of the cow that Allah had commanded them to slaughter. Musa (AS) explained that it should be neither too old nor too young, but of middle age. He urged them to carry out Allah's command promptly and avoid asking unnecessary questions that would only make the task more difficult.

This reflects Musa's (AS) compassion and sincere concern for the well-being of his people. However, his people did not understand, were unable to feel what Musa As felt, they even asked further questions. They told Moses to ask the God of Moses about the color of the cow. In this dialogue, it is seen that his people deny the existence and power of Allah. They do not want to say our God, but your God.

In line with Hamka's view, At Tanwir shows that the verses above describe the hard-heartedness of the Children of Israel as the people of the Prophet Musa As, which also shows the shallowness of their knowledge about the meaning of religion and what the correct attitude should be towards Allah and his Prophets.

Allah explains the criteria for cows in more detail, namely, that they are golden yellow, shiny and pleasing to anyone who sees them. But once again they were reluctant to immediately implement the order of Allah, and ordered Moses ask to God of Moses so to explain in more detail as if they were the experts. Had they not said, *"In shaa' Allah"* ("If Allah wills"), they would not have found a cow that matched the specified criteria. Allah explained that the cow was not used for scaffolding for rice fields, it had no defects, no stripes. They answered: "Now you have come to bring truth". Tafsir At Tanwir adds that Allah chose cows to answer the problems faced by the Children of Israel as well as an education in monotheism by eliminating traces of their cult of cows which they once worshiped as gods, as explained in al-

Baqarah: 51.

This is a form of speech that demeans Musa As, the messenger of Allah. They accused Musa of being late in conveying the criteria for the cows they had to slaughter. The cow's criteria are so difficult, they are almost not capable of following the order except with great difficulty and considerable sacrifice. After being slaughtered, Allah ordered the corpse to be beaten with one part of the cow. The corpse was brought back to life, identified the murderer, and then died again. Thus, Allah revealed his power, revealing what was hidden by them. This is the essence of this story, namely, revealing who the murderer was and Allah's blessings on the children of Israel for delaying His command. God showed this event so that the people of Moses would use their minds to think. Hamka emphasized that this should not be done in religion to make things difficult for yourself.

Tafsir Al-Azhar explains, Allah's command through His Apostle is already clear, bright, concise, so do not ask a lot, which will make things difficult for yourself. The people of Moses should have immediately realized, used their minds to think about the sign of God's power, namely, the power to bring back people from the dead. They should quickly believe Allah, His Apostle and believe that one day an apocalypse will happen That is easy for Allah; Allah's certainty will reveal all their deeds are either hidden or revealed. However, once again they denied it.

His heart was hard as a stone, even harder, unable to emit any goodness from it at all. Even though very hard stones can still be softened and can radiate benefit, they also submit afraid of Allah. The hearts of the people of Musa (AS) became hardened, even harder than stone, making them unable to receive guidance or express the compassion that Allah has instilled in human nature. His heart cannot be touched by small or large warnings. So, every human being must pay attention to the condition of the heart, so that he can always receive goodness and warning**.**

At Tanwir shows that the story of the cow in Al-Baqarah: 67-74 contains very valuable lessons for the religion of every servant of Allah, especially the people of Prophet Musa As.

Firstly, being harsh, too strict and excessive in religion, so that it makes things difficult for oneself is a disgraceful attitude. This includes asking too many questions about something that is not followed up. Indeed, asking questions is the key to knowledge, but these questions must be based on good motives and the right goals.

Second, Allah's command to the Children of Israel was to slaughter cows and not other animals, because cows were animals that they once worshiped as gods, so that they would no longer glorify them.

Third, their (the Children of Israel's) mockery of the commands and guidance of their Prophet made it difficult for them to practice their religion, worthy of punishment and humiliation.

Fourth, bringing the dead to life by slaughtering (killing) living creatures shows God's power to create and bring something into existence from two opposite things, namely, giving life and death.

Fifth, the Koran strongly rejects the killing of innocent people. A person who kills an innocent human being in the view of the Koran is the same as killing all humans.

Sixth, the hardness of the hearts of the Children of Israel in rejecting the truth from Allah is likened to the hardness of a rock. Despite the hardness of the stone, it can still provide benefits because the stone can still release water, which is beneficial for life. Even the hard rock still bows and obeys God's commands. The hearts of the Children of Israel were hard because they were arrogant and felt they were the most knowledgeable, they felt that their hearts were full of knowledge and wisdom.

Andragogy in Surah Al-Baqarah Verses 67–74

In this section, we study the analysis of adult education (AA) in verses 67-74 of Surah al -Baqarah, with reference to Malcolm S. Knowles' andragogy theory, namely, self-concept (KD), experience (P), readiness to learn (KB), learning orientation (OB), motivation (M), and experience needs (KP). It is hoped that this analysis will be able to describe the andragogy of the Islamic perspective in the story above.

Table 1 shows the self-concept (SC) dimension reflected in the interaction between Musa (AS) and his people in verses 67–74.

The self-concept is seen in Musa As as a facilitator and the Musa As people as students. Musa has a positive self-concept which is shown by his attitude of recognizing Allah as the owner of knowledge, obeying his commands as a servant of Allah, admitting his weaknesses before Allah, being firm, stating that he is not a fool who likes to make fun of others, respecting students, forgiving a lot of mistakes of his people, patient, and always wanting the best for his people.

All of these were God's gifts that were bestowed upon him, by sending his parents and people around him who loved him and gave him the best education since childhood. The Mosaic people had a negative self-concept which was shown by their attitude of denying

Table 1 Self Concept (SC)

No	Verses	AA	Information
1	67	SC	Musa As had a positive self-concept, which was shown by being able to position himself correctly before Allah. He acknowledges that knowledge comes from Allah, and he is commanded to seek Allah's knowledge. He also firmly stated that he was not an ignorant person who likes to make fun of people. The people of Musa As had a negative self-concept , namely, not being able to correctly position who they were before Allah and His Messenger. They looked down on and held prejudice against Moses because they thought that what Moses commanded was very irrational when related to the purpose they came for.
2	68–71		Musa As was forgiving towards his people, very concerned about their safety, served his people patiently, dialogued while still respecting his people. The people of Moses did not want to acknowledge Allah as their Lord by saying to Moses: ask your Lord, not Our Lord. Prioritizing ratios by asking for cow criteria in detail, without being accompanied by faith. Insulting Musa As by saying: why are you only now explaining the criteria clearly?
3	72		The Moses people liked to spread accusations and hide the truth
4	74		The people of Moses remained arrogant, hard-hearted, unwilling to use reason to understand God's power.

Source: Prepared by the author (2024)

the existence of Allah and demeaning His messengers. Feeling like they are God's chosen nation, they are arrogant in front of people, even in front of God, hard-hearted and unable to accept advice, unable to evaluate their mistakes, and unwilling to apologize.

Table 2 shows how the experience (Ex) dimension in verses 67–74 illustrates the contrasting use of prior experiences between Musa (AS) and his people.

Table 2 Experience

No	Verses	AA	Information
1	67	Ex	God made the experience of the people of Moses as a stepping stone for gaining new experiences. Moses' people once had the experience of worshiping a calf statue. Allah ordered them to slaughter cows so that in their souls the glorification of cows would disappear and turn to glorification of Allah alone.
2	68–71		Musa had a lot of experience interacting with his people so he could be patient and treat his people well. The Mosaic people had a lot of experience interacting with the Prophets and Apostles but were unable to use their experience as a source of learning, and as a result, there was an attitude of opposition, humiliation, and even murder towards God's messengers.
3	74		Musa As and his people had experiences related to hard stones that could emit springs of water when hit with Musa As's stick. Allah makes this experience a stepping stone to gain new experiences, namely, making their hearts soft, able to receive guidance, fear Allah, and radiate goodness and benefits to others, also, so that they use their reasoning to reflect on the signs of Allah's power.

Source: Prepared by the author (2024)

Musa has extensive, varied experiences, both happy and difficult, and is able to use his experiences as a learning resource to gain new experiences. The people of Moses also had extraordinary experiences, including experiences as slaves who were full of suffering for hundreds of years, and the experience of witnessing directly God's various help through several miracles granted to Musa (AS). However, the people of Musa (AS) were unable to use their experiences as a source of learning.

Table 3 shows the readiness to study (RS) dimension reflected in verses 67–74, particularly in relation to the learning process, dialogue, social conflict, and the implementation of knowledge.

The Musa As people's readiness to learn emerged because they faced problems that resulted in social conflict due to murder cases. The atmosphere in society was very serious; there was almost bloodshed. According to Malcolm, who borrowed Maslow's theory, their readiness to learn was motivated by the need for security and self-esteem (respect) as the noblest nation, which could not possibly commit such heinous acts (Nur, 2019).

Moses' readiness to carry out God's commands to guide his people to know God, worship Him and obey His command even though the command seems unreasonable, as well as own glorious morals that are honest and not like another accused person. Readiness Study must be based on a straight intention, namely, lillah to seek knowledge, not just because of worldly impulses. In the process of seeking knowledge, learning procedures must be used that are dialogical, communicative, and mutually respectful so that the goal is achieved.

Table 3 Readiness Study (RS)

No	Verses	AA	Information
1	67	RS	The people of Musa As were not ready to learn because they thought that what they were going to do had nothing to do with the problems they faced. There is a learning contract before learning begins, including reminding yourself of the learning objectives, learning orientation because of Allah, introducing yourself as the facilitator, and using interactive methods.
2	68–71		The learning process is through interactive dialogue between Musa and his people. The people of Moses asked things that they felt were unclear.
3	72		There is a social conflict that gives rise to the desire to solve the problem. The Mosaic people were ready to learn in order to solve the murder mystery, bringing a sense of security and self-esteem.
4	73		The people of Moses were commanded to put into practice the knowledge they had acquired so that their goals were truly achieved.
5	74		After the learning process takes place, the learning objectives should be achieved, namely, that participants are able to use their minds and be soft-hearted and fear Allah.

Source: Prepared by the author (2024)

Table 4 shows the learning orientation (LO) dimension reflected in verses 67–74, particularly in relation to problem-solving, implementation of knowledge, and the ultimate goal of developing piety and accountability before Allah.

Learning orientation is centered on solving the problem being faced so that it can be applied directly. The people of Moses considered that solving who the murderer was, was a problem that had to be solved immediately, while Moses was of the view that there was a problem that was more important and needed to be resolved quickly, namely, the condition of his people who did not want to worship Allah sincerely, underestimated the call of the Apostles, and had morals of mazmumah, such as ascribing partners to Allah, killing, telling lies and swearing falsely (Calhoun & Acocella, 1978).

Learning orientation is directly related to learning objectives so the objectives must be stated clearly and understood by facilitators and participant educated with good. The end objective of andragogy is a change in knowledge, attitudes and behavior. This story illustrates that the goal is that students are able to use their minds to think in the learning process and use heart conscience to weigh matters of which is good or bad as well as submit and fear of Allah, the source of all knowledge namely, Allah. Awareness arises from one's duties and functions as a knowledgeable and grateful human being, believing that whatever humans do, they will be held accountable. There is an attitude of respect and fairness towards all humans. From a physical aspect, educated participant should be trained with hard work in a physical way, which is depicted with the process of searching for cows (HR Al-Bukhari no. 2654, 5976, 6273, 6274, 6919. Muslim no 87).

Table 5 shows the motivation (M) dimension reflected in verses 67 and 72–74, highlighting the differing motivational orientations between Musa (AS) and his people.

Table 4 Learning Orientation (LO)

No	Verses	AA	Information
1	67–71	LO	Adult learning orientation is always oriented towards solving the problems faced and can be applied directly. This is related to position and function as well as social role in society. Musa As was seen as a messenger of Allah and had a high position in the eyes of his people (although not all of them acknowledged this) so he was used as a place to solve problems. Musa's people felt they were God's chosen people, so they developed an arrogant and "critical" attitude towards all solutions that came from Musa As.
2	72		Learning orientation should be due to the desire to carry out God's commands, namely, seeking knowledge.
3	73		After the learning process and gaining knowledge, Allah commanded that this knowledge be implemented. By implementing knowledge, the goal of seeking knowledge will be achieved, namely, understanding the signs of Allah's power using reason.
4	74		The ultimate goal of learning is to grow in fear of Allah, provide benefits for life, and the belief that Allah sees everything that is done and will hold you accountable.
5	67–74		This verse seeks to direct students to avoid major sins, namely, ascribing partners to Allah and killing souls, which Allah has forbidden, as well as telling lies and swearing falsely.

Source: Prepared by the author (2024)

Table 5 Motivation (M)

No	Verses	AA	Information
1	67	M	The Musa people, with their own encouragement, were moved to meet Musa As in order to find a solution to the problem of murder. Moses offers a solution to the problem that is suitable for adults, namely, explaining the command briefly, concisely, clearly (slaughtering a cow). Cow slaughter is a learning method that uses students' experiences as a learning resource, while also containing the ultimate goal of learning, namely, the establishment of monotheism.
2	67, 72–74		There was a difference in motivation between Musa As and his people. Musa As was motivated to guide his people to true monotheism , belief in the last day, belief that Allah is all-seeing of what is hidden and visible, Allah is all- powerful to do things beyond the limits of human understanding, Allah raises the dead. Moses' people were motivated to learn to find out who killed the man, to create a sense of security and self-respect as God's chosen nation.

Source: Prepared by the author (2024)

The motivation of the Musa people was driven from within themselves, namely, the desire to find the murderer so that they could regain a sense of security and be respected as dignified people. Meanwhile, Musa As was motivated to make his people aware of how to be grateful for Allah's blessings by notifying Him, respecting His messenger, and believing in the day of resurrection and accountability, able to use his mind and heart to see the power of Allah and motivated to carry out his duties, functioning as a servant of Allah and His caliph.

Table 6 shows the knowledge needs (KN) dimension reflected in verses 67–74, particularly in relation to meaningful learning objectives, the use of experience as a learning resource, and the lifelong need for knowledge.

Adults need knowledge to be able to carry out their duties and functions as humans. Firstly, knowledge about who must be worshipped and obeyed absolutely without shirk. The people of Moses defamed Allah by worshiping statues of cows, so Allah ordered them to slaughter cattle as a form of insult to what they worshiped besides Allah. Second, human beings have a responsibility to promote security and peace in society by preventing major sins such as murder, lying, and false accusations. Third, knowledge should always be updated based on the experience it has so that it will be more relevant and meaningful. Fourth, there is an obligation for knowledgeable people to apply their knowledge as a form of accountability to Allah. Fifth, whatever knowledge is sought must be based on a belief that knowledge belongs to Allah, will be given to people who obey Him and must rely on Allah.

Table 6 Knowledge Needs (KN)

No	Verses	AA	Information
1	67–74	KN	This verse shows the principles of andragogy, namely, the importance of explaining what will be done, being oriented towards meaningful goals, using experience as a source of learning, and learning to be done independently. First: explain why cows must be slaughtered, why not other animals. It turns out that the selection of cows is based on the valuable experience that students have. Even though at first glance there is no connection between this command and learning objectives, it turns out to be very closely related and rational. Through the experiences they have, participants are invited to move towards the ultimate goal of learning, namely, only worshiping Allah (tawhid) by insulting deities other than Allah. Second: related to a meaningful task, namely, creating social stability in a society that is threatened with division due to mutual accusations (the spread of hoaxes without being able to be controlled). Third: turn participants' experiences into a learning resource. In this case, the experience of worshiping a cow and the experience of witnessing the splitting of a rock that can emit water after being hit by a stick by Musa As. Fourth: Learning is carried out independently through an interactive dialogue process between Musa As and his people.
2	67–74		Apart from position and social duties/functions, there is a need for knowledge that every person needs regarding their position as a servant of Allah and caliph on earth. So, humans need knowledge throughout their life learning.

Source: Prepared by the author (2024)

Discussion

The Relevance of Andragogy in the Story of Musa As and His People in Surah Al-Baqarah verses 67-74 with Islamic Education Today

Today's Islamic education cannot be separated from the influences brought about by changed lifestyle, and the method of thinking Good in communication, Work, or other activity as a consequence of globalization. The most obvious impact is the integration of cyber technology , both physical and non-physical, in learning, so that learning becomes very open and easy, more individual but still collaborative with others, free to decide what to learn, lots of project-based learning, changing roles and teacher assignments, applying theoretical knowledge into numbers and drawing conclusions based on logic and trends from the given data set, changing assessment platforms, participants can provide input for curriculum development.

This condition is suitable for andragogical learning which develops learning awareness from the perspective of actors who have initiative, formulate learning goals, choose materials, regulate learning rhythms, choose learning resources, choose learning tools and choose the methods that will be used in the learning process. Study can take place throughout life because problems happen throughout life. The use of the internet in learning causes a tremendous leap in information available to the point that the censorship authority to differentiate between true and false news is lost. As a result, fake news spreads rapidly, public debates on social media become more polarized, citizen journalism expands, black campaigns become more prevalent, and ideas that diminish the role of religion and local wisdom gain wider acceptance (Knowles et al., 1998).

During the pandemic and beyond, more learning will be done online. Online learning requires good knowledge of andragogy, where the andragogy theory focuses more on individuals as learners who are able to direct themselves, using their own experiences to direct their learning. Apart from that, a deep understanding of the learning type of the participants will be very helpful in achieving learning goals. There are several types of learning such as visual learners, aural learners, read/write learners, kinesthetic learners. Current situations and conditions like this, not only require andragogy in general, but it would be more appropriate to apply andragogy from an Islamic perspective, namely, andragogy which is based on the concepts contained in the Qur'an and Al-Hadith (Wan Mohd Noor Wan Daud, 1998).

Education must be built on the basis of strong faith (tauhid) and the formation of noble morals through interactive, communicative communication methods between facilitators and participants (qaulan sadida, qaulan Karima, Qaulan layyina, qaulan ma'rufa, qaulan saqila, qaulan baliga, qaulan azima, qaulan maysura), honoring each other, in an atmosphere of openness. Learning motivation should be grounded in the intention to obey and submit to Allah's commands. The learning orientation is because Allah is to be able to carry out the tasks and functions that He has assigned to humans so that they seek knowledge as a means of getting closer to Allah, solving life's problems according to the instructions of Allah and His Messenger, using the latest technology. Islamic perspective andragogy will position humans as obedient servants of Allah and caliphs who are able to realize a good life and obtain Allah's grace and forgiveness.

Significant Contributions to the Development of Qur'anic Tafsir-based Islamic Education Studies

The research outlined in the document highlights significant contributions to the development of Qur'anic tafsir-based Islamic education studies in several key ways:

1. Integration of Andragogy with Qur'anic Teachings: By applying Malcolm S. Knowles' theory of andragogy to the narrative of Musa (peace be upon him) and his people in Surah Al-Baqarah, the study establishes a framework that links adult learning theories with Islamic teachings. This integration underscores the relevance of Qur'anic narratives in contemporary educational settings, particularly for adult learners.
2. Interactive and Communicative Learning Models: The research advocates for learning methods that are interactive and communicative, aligning with modern educational practices. By emphasizing respect, openness, and mutual engagement, it contributes to developing an Islamic education model that can adapt to contemporary societal needs while remaining rooted in Qur'anic principles.
3. Contextualization of Tafsir: The use of Tafsir Al-Azhar and Tafsir At-Tanwir in the study illustrates how traditional interpretations of the Qur'an can be contextualized to address current educational and societal challenges. This reflects a dynamic approach to Islamic education that values the insights of both historical scholars and contemporary thinkers.
4. Focus on Moral and Ethical Development: The

research emphasizes the need for moral and ethical education derived from Qur'anic teachings, framing it as vital for the development of not only individual learners but also communities. This perspective reinforces the role of Islamic education in cultivating a more ethical and just society.

5. Addressing Modern Challenges: By discussing the implications of globalization and the need for updated educational methodologies, the study addresses the challenges faced by Islamic education in the modern world. It encourages the infusion of technology while maintaining a focus on faith-based moral guidance, which is crucial for student engagement and learning effectiveness.

Overall, the research contributes to the evolution of Qur'anic tafsir-based Islamic education by proposing a harmonious blend of tradition and modernity, thereby enhancing the relevance and applicability of Islamic teachings in contemporary education.

Conclusion

Conclusions from this research: first, the story of Musa As and his people in Surah al -Baqarah verses 67-74 contains andragogic characteristics in terms of Malcolm S. Knowles' andragogic theory, namely, self-concept, experience, readiness to learn, learning orientation, motivation and knowledge needs. Musa As demonstrated a positive self-concept, showed with his consciousness as a servant of Allah, confessing knowledge belongs to Allah, is patient, forgiving, thinks about the safety of his people, communicates impersonally, and respects his people. The self-concept of the people of Musa As is negative, shown by their attitude of not recognizing God's power, despising God's messenger, being arrogant, too rational, and hard-hearted. The experiences of Moses and his people were equally broad and varied, but Moses was able to use his experiences as a source of learning while his people were not. Musa's learning orientation is to invite students to obey God's commands, use reason and heart in learning and aims to produce people whose hearts fear God, whereas his people sought knowledge primarily to identify the murderer. Their learning motivation was driven by the need for security and self-esteem. Accordingly, the readiness of Musa's people to learn emerged from the need to resolve a serious problem that required an immediate solution because of facing serious problems and requiring immediate resolution. Musa was ready to learn because he was aware of his duties as an apostle and servant of God. Moses' motivation to learn came from within him and he was responsible for carrying out God's commands, while the Mosaic people's motivation was to gain security and self-respect. Musa believed in the need to always seek knowledge as an implementation of God's commands, while his people only wanted to learn if there was worldly gain or according to their desires. There is a difference with the theory of Malcolm on orientation study and motivation. Second, changes in education resulting from globalization require the development of an Islamic perspective on andragogy based on the Qur'an and the Hadith, so that education has clear objectives and uses methods that are appropriate to current developments.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Ethnomathematics-Integrated process learning exploration to build math connections

Buhaerah Mappanyompa[a,*], Abdullah Bin Ibrahim[b], Ketuat Suastika[c], Nurjanna[d]

[a] *Mathematics Education, Faculty of Education, Institut Agama Islam Negeri Parepare, South Sulawesi 91131, Indonesia*
[b] *Department of Education, Fakulti Pengajian Umum dan Pendidikan Lanjutan, Universiti Sultan Zainal Abidin (UniSZA), Terengganu 21300, Malaysia*
[c] *Mathematics Education, Faculty of Science, Universitas Kanjuruhan Malang, East Java 65148, Indonesia*
[d] *Mathematics Education, Sekolah Tinggi Keguruan dan Ilmu Pendidikan DDI Pinrang, South Sulawesi 91213, Indonesia*

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Abstract

This research examines how integrating ethnomathematics strengthens real-world mathematical connections. Linking math to local culture helps students understand and apply concepts in daily life. This study used qualitative and quantitative methods to examine the impact of ethnomathematics integration on students' mathematical connections. With a One-Group Pretest-Posttest design, this study involved seventh-grade junior high school students in South Sulawesi. The pretest measured initial skills, while the posttest assessed improvements after ethnomathematics-based learning. The research instruments included tests, observations, and questionnaires. The test evaluated mathematical connection skills before and after the intervention, observations ensured the appropriateness of the learning, and the questionnaire captured students' responses. Teachers connected mathematical concepts with local culture in the learning process, such as weaving patterns and traditional measurements. Students explored these relationships through exercises and problem-solving and reflected on their applications. The pretest and posttest results were compared to assess the effectiveness of the learning, supported by observation and questionnaire analysis. The research findings show that students' understanding of mathematical concepts and skills is still not optimal when applied in real situations. This indicates a gap between conceptual knowledge and practical application in everyday life. To bridge this gap, a deeper integration of ethnomathematics is recommended. By connecting abstract mathematical concepts with local culture and students' everyday experiences, this approach increases the relevance of learning and strengthens the connection between mathematical theory and practice.

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* Corresponding author.
E-mail address: buhaerah@iainpare.ac.id (Mappanyompaa, B.).

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Introduction

Ethnomathematics connects mathematical concepts to local cultures, helping students understand mathematics within their cultural context. It examines mathematical practices in cultural groups and their relevance to classroom learning while addressing misconceptions about Indigenous mathematical systems (Hamidah & Kusuma, 2024; Rodríguez-Nieto & Alsina, 2022; Xu & Ball, 2024). Students' mathematical beliefs, influenced by social class, region, and school type, can impact academic performance (Malvasi & Gil-Quintana, 2022). Additionally, culture shapes how mathematicians think and solve problems (Lei et al., 2022). Research in ethnomathematics often relies on statistical analysis, such as Pearson's chi-squared test, to verify hypotheses (Buchcic, 2020; Kalay et al., 2020). The effectiveness of ethnomathematics-based learning, including the inverted classroom model, depends on its implementation and cultural context (Mohamed-Amar & Mohamed-Amar, 2024), while teachers' attitudes are influenced by social and school environments (Sweeney & Reid O'Connor, 2024). By exploring cultural elements such as weaving patterns, trade calculations, and traditional house structures, students connect mathematics to real-world applications. Contextual and project-based learning enhances their understanding, motivation, and appreciation of cultural heritage while fostering critical thinking skills.

Mathematical connections improve understanding of concepts and their real-life applications. The intersection of mathematical culture has attracted interest from mathematicians, historians, and educators (Lei et al., 2022). Ethnomathematics is being explored for its relationship with STEM education and the necessary technology for effective instruction (Rosa & Orey, 2021). Students often find mathematical concepts abstract and disconnected from their experiences, with no clear link between academic achievement and motivation (Onoshakpokaiye, 2024; Vos et al., 2024). They also struggle to connect images with reality, and learning extends beyond schools (Brisson et al., 2020; Kashina et al., 2020). Key mathematical skills include problem-solving, calculations, and data interpretation, while symbols aid in understanding cultural concepts (Buchcic, 2020; Janson & Feig, 2024; Nyman et al., 2024). Ethnomathematics helps by linking math to cultural practices like weaving and trading, making concepts more relatable. This approach enhances understanding, engagement, and meaningful learning.

Exploring ethnomathematics can bridge gaps in traditional math understanding by fostering diverse ideas through a more profound exploration of related concepts (Clancy et al., 2024). Incorporating media literacy into college education enhances students' development and critical thinking skills (Yang & Li, 2024). Ethnomathematics connects math with culture, making it more relatable and engaging for students (Espanola & Ouano, 2024). Teachers view ethnomathematics positively, as it helps students appreciate their local culture (Wiryanto et al., 2022). Feedback is essential for learning and achievement (Bjerknes et al., 2024), and integrating the arts into STEM subjects promotes engagement and creative thinking (An, 2020). Recent advancements in artificial neural networks (ANNs) have improved the accuracy of neural behavior predictions (Verhellen et al., 2024). Additionally, learning models in Western countries differ from virtue-oriented approaches (Lei et al., 2022). Our social engagement is linked to our understanding of global changes and awareness of surrounding phenomena, which knowledge enhances (Buchcic, 2020).

The effectiveness of ethnomathematics lies in connecting mathematical concepts to real-world applications. In public secondary schools, there seems to be no clear link between students' motivation and academic performance (Onoshakpokaiye, 2024). Experiments were analyzed using probability theory and statistical methods, such as Pearson's chi-squared test, to verify distribution hypotheses (Kalay et al., 2020). (Leung et al., 2024), note that learners focused solely on values change their prior strategies slowly, which does not impact decision-making. These ideas show that ethnomathematics can be both an educational tool and a research focus (Hariastuti et al., 2022). A case study explored Indonesian teachers' understanding of ethnomathematics and their practices (Mania & Alam, 2021). Additionally, societal developments and school mathematics culture influence students' views on the importance of math learning (Vos et al., 2024). While screencast feedback has improved accuracy and emotional engagement in higher education, its potential benefits in secondary schools are underexplored (Bjerknes et al., 2024). Moreover, when pre-trained model embeddings fail to capture specific term meanings, it negatively impacts applications like classification and clustering (Parker et al., 2024).

Mathematics learning that connects concepts with local culture has not yet helped students understand math in their cultural context. Many students struggle with adjusting to schoolwork at home and learning new

material independently (Komljanec & Šebalj, 2020). While negotiating education in schools, we should also consider learning outside school walls (Buchcic, 2020). This study shows that ethnomathematics aids in understanding mathematical thinking across cultures and solving everyday problems (Abidin & Usman, 2021). It promotes mathematical literacy through culture-based learning (Hariastuti et al., 2022). Rich cultures, including folk games, exist in diverse communities in highlands and coastal areas (Abay & Parola, 2024). Ethnomathematics is vital in community activities (Abidin & Usman, 2021). Collaboration among disciplines and teachers can enhance support for mathematical questions (Alatalo et al., 2024), and provide insights into the effects of flexibility on students, educators, and institutions (El Galad et al., 2024).

This study uses a framework that connects ethnomathematics with mathematical connections to strengthen students' understanding of mathematical concepts and their real-life applications. The Mathematical Connection Theory explains how relevant cultural experiences can enhance students' knowledge so that they can apply mathematics in a more contextual and meaningful way (Onoshakpokaiye, 2024; Vos et al., 2024). In addition, this study refers to the constructivist approach, which emphasizes that students build their understanding through exploration and culturally integrated learning experiences (An, 2020). This approach addresses the gap in traditional mathematics learning, which is often abstract and less related to students' daily experiences (Zuliana et al., 2023). This study also examines an ethnomathematics-based learning model, which integrates formal mathematics with local cultural practices to create a more relevant learning experience (Nuryadi et al., 2023). This approach helps students understand concepts theoretically and connects them to various aspects of real life. Therefore, this study highlights how ethnomathematics can build connections between mathematical concepts and their applications (Hortelano & Lapinid, 2024). Without a clear framework, this study would have lost a strong foothold (Hamidah & Kusuma, 2024). Therefore, the integration of mathematical connection theory, constructivism approach, and ethnomathematics-based learning model is the primary basis for exploring the role of ethnomathematics in mathematics learning.

Students must grasp mathematical concepts and skills beyond merely applying them in real situations. According to Alatalo et al. (2024), students should understand the tangible aspects of the systems they develop. A broader perspective on flexibility is essential for comprehending its role in higher education (El Galad et al., 2024). Bjerknes et al. (2024), note that students reflected on their work and solutions while learning mathematical skills. This study defines mathematics test anxiety based on students' responses during testing scenarios (Onoshakpokaiye, 2024). Although organoids likely consist of various cell types, the mathematical models in this study assume that each organoid is a homogeneous cell population (Gunnarsson et al., 2024). We also explore realistic nowcasting scenarios that account for randomly missing symptom onset dates and reporting delays (Lison et al., 2024).

A gap exists between students' traditional understanding of mathematics and its teaching in schools. The traditional house of the Using culture reflects the customs of the Banyuwangi indigenous people (Hariastuti et al., 2022). Teachers utilize various media, including Buginese and Makassar traditional foods and games, to teach math through an ethnomathematics approach, which most participants support in the curriculum (Mania & Alam, 2021). This method studies the history of mathematical concepts and terms. Math questions in Gaokao exams often provide background context (Lei et al., 2022), but students' perceptions of this feedback are poorly understood. Considering students' views on teaching practices is essential, as they are critical stakeholders in education (Bjerknes et al., 2024). Problem-based learning (PBL) encourages students to research and apply knowledge to solve problems (An, 2020), and the shift to online learning reflects fundamental changes in higher education (Kashina et al., 2020). Learning specialized math is crucial for future translators and interpreters (Kalay et al., 2020).

Integrating mathematical concepts with practical applications can enhance learning outcomes. Research shows that students better understand abstract ideas when they start with familiar, concrete concepts (Hamidah & Kusuma, 2024). Teachers should emphasize essential concepts and collaborative learning to foster student autonomy (Komljanec & Šebalj, 2020). It is essential to understand how young people adapt to online learning based on their temperament (Kashina et al., 2020). Social media such as Instagram, Facebook, Twitter, and WhatsApp support social interaction by facilitating communication, collaboration, and idea sharing. Features like discussion groups, comments, and instant messaging help build networks, broaden horizons, and increase community engagement (Abidin, 2020). Virtual classroom presentations have been adapted to encourage peer feedback and sharing (Fleischmann, 2024), but fewer studies focus on transforming existing concepts

into new ones (Clancy et al., 2024).

Despite growing evidence that ethnomathematics enhances mathematical understanding, student achievement, and creativity, gaps remain in its practical implementation and integration with contemporary educational frameworks. (Johnson et al., 2022). While previous studies have highlighted the benefits of ethnomathematical approaches, there is limited research on how these methods can be effectively incorporated into thematic and connected learning models (Hariastuti et al., 2022). Additionally, frameworks like STEAM integration offer promising directions but lack specific strategies for embedding ethnomathematics in diverse educational contexts (Lison et al., 2024). Furthermore, while some models provide insights into learning behavior, they face challenges in real-time applicability, particularly in dynamic and evolving learning environments (An, 2020). This study addresses these gaps by exploring a more structured approach to integrating ethnomathematics to enhance mathematical connections and real-world problem-solving skills (Janson & Feig, 2024).

While ethnomathematics has been recognized for bridging the gap between mathematical understanding and real-world application, its integration into formal education remains underexplored. Studies have shown that mathematical modeling effectively addresses complex problems, such as cancer development, yet similar approaches in ethnomathematics are less developed (Gunnarsson et al., 2024). Research on Indigenous communities like the Baduy highlights the existence of mathematical knowledge outside formal education (Turmuzi et al., 2023). Still, there is a limited investigation into how these insights can be systematically incorporated into curricula (Xu & Ball, 2024). Additionally, while ethnomathematics is seen as a counterbalance to the universal nature of mathematics, its role in fostering deeper student reflection and problem-solving skills requires further study (Bjerknes et al., 2024). This research addresses these gaps by examining structured ways to integrate ethnomathematics into learning environments, enhancing conceptual understanding and application.

This research aims to explore the integration of ethnomathematics to strengthen mathematical connections in real-world contexts. Specifically, the study aims to investigate how ethnomathematical approaches can enhance students' engagement and motivation, which is often driven by interest in meaningful activities rather than external rewards (Onoshakpokaiye, 2024). Additionally, the research seeks to build on previous findings that highlight the positive impact of ethnomathematics in mathematics education and its pedagogical applications in Indonesia (Mania & Alam, 2021; Runtu et al., 2023) Lastly, this study will examine the model's potential relevance beyond traditional learning approaches, particularly in real-world problem-solving and emerging fields like machine learning (Schwöbel et al., 2024).

Methodology

This study uses qualitative and quantitative methods to explore how integrating ethnomathematics enhances students' mathematical connections to real-world needs. An experimental approach allows the researcher to observe the direct impact of this integration on students' abilities. The One-Group Pretest-Posttest design involves randomly selecting one group of students without a control group. A pretest measures students' mathematical connection skills before applying the ethnomathematics treatment, followed by a posttest to assess improvements. This method enables objective evaluation of changes after the intervention. Conducted from 2023 to 2024 with Junior high school grade VII students in South Sulawesi, Indonesia, the research targets students aged 12 to 13, a critical transition period marked by significant physical, emotional, social, and cognitive development. The One-Group Pretest-Posttest design was chosen to measure changes in students' mathematical connection skills before and after ethnomathematics intervention without a control group. This method is suitable when comparisons with other groups are difficult due to time, resource, or school policy constraints. By comparing pretest and posttest results in 1 group, the study can more objectively assess the effectiveness of the intervention.

Of the 25 students, 17 had a medium category of mathematical connections, indicating a good understanding but needing improvement. Four students were in the high category, while 4 others were in the low category, suggesting difficulties linking mathematical concepts, especially in ethnomathematics. Improvement efforts are needed, especially for students in the medium and low categories. The mathematical connection and ethnomathematics approaches can help them understand the relationship of concepts in everyday life. This retrieval technique uses categorization-based retrieval to classify students' mathematical connections into low, medium, and high levels, helping to identify trends and areas for improvement. When based on established criteria, this technique aligns with criterion-referenced assessment, and when used to guide instructional strategies, it serves as a diagnostic assessment approach.

The One Group Pretest-Posttest Design was chosen because it allows researchers to assess changes in students' understanding or skills before and after the intervention. This approach effectively measures the impact of ethnomathematics integration in learning without comparing it with other groups. In addition, this design is more practical to apply in the classroom without dividing students into additional groups. However, this design has a significant limitation, namely, the absence of a control group. Without a comparison group, it is difficult to ensure that the changes are genuinely due to the intervention and not other factors such as additional learning experiences or the influence of time. This can reduce the validity of the research results.

The study uses test instruments, observation sheets, and student response questionnaires. The test measures students' mathematical connection abilities through a pretest and posttest: The pretest assesses initial skills, while the posttest evaluates improvements after ethnomathematics integration. Observation sheets gather information on implementing the ethnomathematics learning process to ensure it aligns with the planned objectives. Additionally, the questionnaire measures students' responses and perceptions regarding their experiences in developing mathematical connection skills through this integrated approach.

Three experts in Mathematics Education have reviewed the instrument to ensure content validity, with selection criteria based on experience and related publications. As presented in Table 1, the analysis using Aiken's V shows that all items have values above .75, which indicates good validity. Furthermore, in terms of reliability, it shows that Cronbach's Alpha coefficient obtained a value of .875, indicating good internal consistency. We have also conducted exploratory factor analysis, with a KMO value of .85 and a significant Bartlett's Test ($p < .05$), which supports the suitability of the data for factor analysis. Based on these results, it can be concluded that the instrument can be used to collect research data.

The question grid is presented in Table 1, which details the indicators of mathematical connection skills assessed in this study, including connections between mathematics, real-life situations, and local culture (ethnomathematics). Based on this framework, a pre-test was conducted to measure students' initial abilities. The learning process was then implemented using an ethnomathematics approach, where students actively explored the relationship between mathematical concepts and local cultural practices, such as weaving patterns and traditional measurement systems. Through observation, discussion, and reflection, students were encouraged to evaluate and apply mathematical concepts in real-life contexts critically. Following the intervention, a post-test was administered to measure improvement. The comparison of pre-test and post-test results served as the basis for evaluating the effectiveness of the learning process in enhancing students' mathematical connection abilities.

Table 1 The question grid is outlined in the following table

No	Question Indicators	Question Items
1	Students can understand the concept of cubes and their properties, express the volume of cubes in algebraic form, and determine the highest power of an algebraic form.	A sikaporo cake has the shape of a cube with each side measuring x cm. What is the volume of the sikaporo cake in cm3? Express your answer in algebraic form and identify the highest power in the expression.
2	Students understand the relationship between speed, time, and distance and can calculate distances using velocity in algebra. Students can express the distance travelled in algebraic form.	In a traditional Bugis running race tradition, a participant runs for 4 min at a speed of (x−24) m/min. Find the distance travelled by the participant in meters, then determine the algebraic form.
3	Students understand the concept of rectangular area and relate it to length and width. Using the information provided, students can use broad formulas to calculate size and simplify algebraic forms.	In making traditional Bugis lipa Sabbe woven fabric, a rectangular piece of cloth has an area of 30 cm² and a width of 5 cm. Find the length of the fabric in cm.
4	Students can understand the concept of calculating the total price of several goods, the unit price, the total purchase price, and the total price difference.	In a traditional Bugis market, there are 2 types of cakes, namely, Jompojompo for Rp. 3.000 and Ondeonde for Rp. 5.000 Aya buys 2 ondeonde and 4 jompojompo, while Sopia buys 3 ondeonde and 2 jompojompo. What is the difference in payment between Aya and Sophia?
5	Students can understand the concepts of even and odd numbers and express them in algebraic form. Students can compose the expression of numbers between even and odd numbers. Students can simplify algebraic forms to prove the properties of numbers resulting from addition. Students can conclude that the sum of even and odd numbers always results in odd numbers.	In Bugi's traditional ceremonies, even and odd numbers are used to calculate goods. It is known that even numbers can be expressed as 2m and odd numbers as $2n + 1$, and is an integer m,n Prove that the sum between even numbers 2n and odd numbers $2n + 1$, always produce odd numbers?

At the same time, data from observations and questionnaires were analyzed to dig deeper into how the integration of ethnomathematics affects students' engagement, critical thinking development, and problem-solving abilities. The questionnaire consisted of closed, open, and a Likert scale. Closed-ended questions were used to obtain quantitative data on students' attitudes and perceptions, while open-ended questions allowed further exploration of their experiences and reflections on the learning. A Likert scale was used to measure students' level of understanding and engagement in various aspects of ethnomathematics-based learning. The questionnaire data were analyzed descriptively and inferentially to identify student response patterns and how the ethnomathematics approach influenced their understanding and application of mathematical concepts. For further research, a quasi-experimental design with a control group is recommended. By comparing students who received ethnomathematics intervention and those who did not, the study's results will provide more substantial evidence of the impact of the learning on students' mathematical understanding and skills.

In problem-solving exercises with students, it is crucial to maintain ethical research protection of personal data. For example, in a study of mathematics learning strategies, students are asked to solve contextual problems while researchers collect data about their thinking. Students should be given clear information about the purpose of the study, the use of the data, and their right to withdraw at any time without consequences. Personal data, such as names and work results, should be anonymized or encrypted to keep them confidential—ethical data collection methods and overcoming challenges, such as students' reluctance to share information. In addition to improving problem-solving skills, this exercise also raises awareness of the importance of protecting the rights and privacy of research participants.

Results

This study evaluates the effectiveness of integrating ethnomathematics in building students' mathematical connections. Key indicators include implementing learning, categorized as adequate, sound, or very good; at least 60 percent of students giving positive feedback; and meeting the minimum classical completeness criteria (CCC) of 75 percent of students achieving learning mastery. The average score for ethnomathematics-integrated learning across all sessions was 3.35, indicating successful implementation of the learning model. Student response percentages to integrating ethnomathematics are detailed in the following table.

Based on classical completeness, students achieving a CCC score of 80 percent met the 75 percent criteria. The normality test results showed a significance of 0.073 for the pretest and 0.090 for the posttest, both above 0.05, indicating customarily distributed data. A paired sample *t*-test yielded a significance (2-tailed) of 0.000, below 0.05, showing a significant difference between pretest and posttest scores. The posttest average score was higher, indicating improvement after the ethnomathematics-integrated learning intervention.

The improvement in students' mathematical connection abilities through ethnomathematics integration was measured using the N-Gain test, revealing an average increase of 61.3 percent, classified as medium and effective. This indicates that ethnomathematics-integrated learning effectively enhances students' mathematical connections. The learning process includes 7 stages: Building students' knowledge by linking algebra with cultural aspects like traditional Bugis games and foods; presenting problems for student-led discovery and fostering; peer interaction and guiding group work; providing cultural examples; reflecting on knowledge gained; and assessing student activities.

For the implementation of this study, the researcher looked at the scores obtained by students who aimed to find out the mathematical connections of students who integrated ethnomathematics in the algebra material of grade VII junior high school. The following are data on students' mathematical connection abilities obtained from posttest scores classified in high, medium, and low categories using standard deviations in determining actuarial.

The percentage of students' mathematical connection ability integrating ethnomathematics in each question is presented in Table 2. The table provides an overview of students' performance across all items and highlights the variation in ability to relate mathematical concepts to ethnomathematical contexts

Based on Table 2, the results of the mathematical connection test instrument show that students' abilities varied across the five question items. The highest percentage was obtained in item 3, with 80%, indicating that most students were able to solve the division of algebraic expressions containing variables by relating them to geometric concepts. This was followed by item 4 with 79 percent and item 2 with 77 percent, showing that students were relatively capable of connecting algebraic concepts with comparative material, physics, and everyday life contexts. Item 1 obtained 75 percent, which

Table 2 Math connection test instrument grid

Question Items	Question Indicators	Indicator Mathematical Connection	f	Percentage
1	Students can group algebraic forms by associating the concept of flat-shape geometry.	Connections between mathematics and Connections between Mathematics and life	75	75
2	Students solve physics problems by relating algebraic concepts.	Mathematical connection with other fields and Mathematical connection with life	77	77
3	Students can solve the division of single-term forms that contain variables by associating geometric concepts.	Connections between mathematics and Connections between Mathematics and life	80	80
4	Students can determine the value of algebraic forms by associating comparative material.	Connections between mathematics and Connections between Mathematics and life	79	79
5	Students can explain the properties of numbers using algebraic concepts.	Connections between mathematics and Connections between Mathematics and life	60	60

also reflects a fairly good ability to group algebraic forms by associating them with flat-shape geometry. In contrast, item 5 showed the lowest percentage, at 60 percent, indicating that students still experienced difficulties in explaining number properties through algebraic concepts. Overall, these findings suggest that students tended to perform better on items involving contextual and procedural connections between mathematics, geometry, and other fields. Still, they were less successful when required to provide conceptual explanations of number properties using algebra.

The results of students' performance on mathematical connection tasks, categorized into high, medium, and low levels, are presented in Figure 1, which illustrates the distribution of students across these categories.

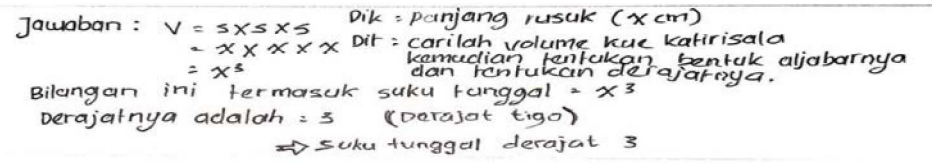


Figure 1 Students' answers to question number 1

Students' responses to the mathematical connection problem for item number 1 are presented in Figure 1. The figure shows that students were able to relate algebraic concepts to real-life situations, particularly in determining the volume of a cube-shaped cake. This finding indicates that students have begun to connect mathematical concepts with everyday experiences. However, the figure also reveals that students have not yet fully identified the algebraic form involved in the problem, whether it consists of a single term or more than one term. Although some students were able to partially complete the solution by calculating the volume of the cake, they still experienced difficulty in connecting all aspects of the problem with the relevant mathematical concepts. In particular, students had not clearly explained how the value of *xy* was obtained, which affected their ability to determine the value related to *4x* correctly. This suggests that students have not yet fully connected the given information in the problem with the mathematical concepts required to produce an accurate solution.

The results of students' responses to the mathematical connection questions for item number 2 are presented in Figure 2, showing their distribution across high, medium, and low categories.

Students' responses to the mathematical connection problem for item number 2 are presented in Figure 2. The figure shows that some students were able to determine the distance travelled by children playing by applying the distance formula from physics and expressing the solution in a simplified form. This finding indicates

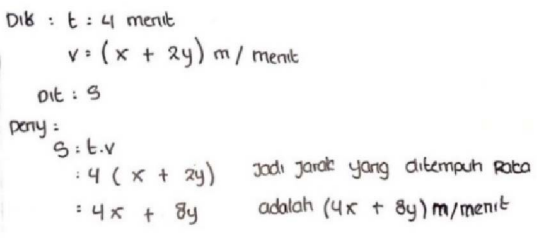


Figure 2 Students' answers to question number 2

that students have begun to demonstrate the ability to connect mathematical concepts with other disciplines, particularly physics, as well as with everyday situations. However, the figure also reveals that students still made errors in performing algebraic operations, which led to incorrect answers. This suggests that although students were able to relate algebra to physics concepts, their understanding of how to integrate mathematical concepts with other fields of knowledge remains limited. In addition, difficulties in interpreting the question caused students to be less accurate in connecting the information provided in the problem with the mathematical concepts required to solve it.

Students' responses to the mathematical connection questions for item number 3 are presented in Figure 3, showing the classification into high, medium, and low categories.

Students' responses to the mathematical connection problem for item number 3 are presented in Figure 3. The figure shows that some students were able to divide algebraic expressions involving a single variable term correctly by relating geometric concepts to real-life situations, such as determining the length of a traditional Bugis lipa' sabbe cloth and a rectangular table when the area and width were represented algebraically. This finding indicates that students were able to connect mathematical concepts with everyday contexts and identify the relevant information needed to solve the problem. However, the figure also reveals that several students still experienced difficulty in understanding the concept of a square when determining the length of the lipa' sabbe, which resulted in inaccurate answers. This suggests that although students demonstrated an initial ability to relate mathematics to real-life situations, their mathematical connection ability remains incomplete because some of them have not yet fully understood the meaning of the problem and the underlying geometric concepts.

The results of students' responses to the mathematical connection problems for item number 4 are presented in Figure 4, showing the distribution of students across high, medium, and low categories.

Students' responses to the mathematical connection problem for item number 4 are presented in Figure 4. The figure shows that students are generally able to identify the price difference problem and represent it using algebraic expressions. This indicates that they have begun to connect mathematical concepts with everyday situations, particularly in understanding the information provided in the problem and selecting relevant concepts to solve it. However, the figure also reveals that students still experience difficulties in performing accurate calculations and interpreting the question precisely. Instead of determining the difference between the amounts paid by Aya and Sofia, some students calculated each amount separately without clearly showing the process that led to the result of Rp 43,000. This finding suggests that students have not yet fully connected the information in the problem with the appropriate sequence of solution steps, resulting in incomplete or incorrect answers.

Students' responses to the mathematical connection questions for item number 5 are presented in Figure 5, showing their distribution across high, medium, and low categories.

Students' responses to the mathematical connection problem for item number 5 are presented in Figure 5. The figure shows that several students are able to use algebraic representations to explain why the sum of odd and even numbers results in an odd number. This indicates that they can relate algebraic concepts to the properties of numbers and connect mathematical ideas

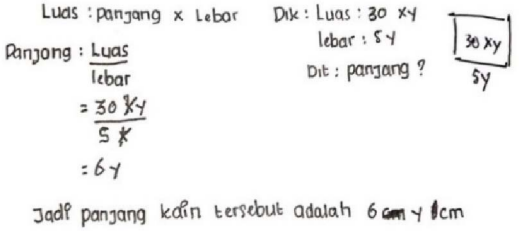


Figure 3 Students' answers to question number 3

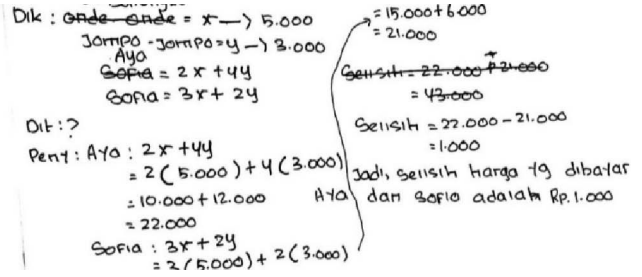


Figure 4 Students' answers to question number 4

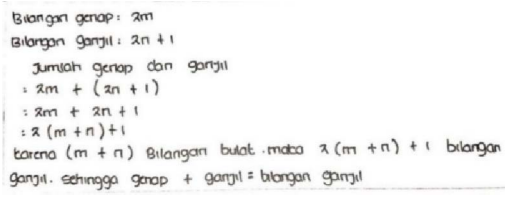


Figure 5 Students' answers to question number 5

with everyday reasoning. However, the figure also reveals that many students experience difficulties in simplifying algebraic expressions correctly, which leads to inaccurate conclusions. This suggests that students have not yet fully understood the meaning of the problem or identified the appropriate mathematical concepts required for its solution. In addition, they are not able to clearly explain the relationship between algebraic representations and the conceptual understanding of odd and even numbers.

The results of the students' work provide an overview of the differences between students with high, medium and low-category mathematical connection skills. Students who do the steps correctly can create a mathematical model based on the problem presented. Students solve problems with improper solving steps when they need to understand the problem being solved clearly. Procedural errors make the completion less precise, even though students can understand the concepts to be applied and compile mathematical models correctly. The steps to solve student problems need to be more structured because they do not include instructions and known information. Students with low abilities often only guess without logical reasons and are not careful when solving problems.

The improvement of students' mathematical connection ability in applying ethnomathematics can be measured using the N-Gain test, which analyzes the difference in pretest and posttest results. The N-Gain test is used to determine the effectiveness of learning by looking at the improvement in student understanding after a specific intervention or treatment. N-Gain values are categorized into 3 levels: Low ($g < .3$), medium ($.3 \leq g < .7$), and high ($g \geq .7$). The results of the N-Gain test in this study are presented in the following Table 3, which shows the category of N-Gain score acquisition based on students' pretest and posttest data.

The results of the N-Gain analysis are presented in Table 3, which classifies the improvement in students' mathematical connection ability into specific categories. The analysis shows that the average N-Gain score reached 61.3 percent, which falls into the moderate category, indicating that the learning approach is practically effective. This finding suggests that the integration of ethnomathematics contributes to improving students' ability to connect mathematical concepts with real-life situations. The improvement is evident from the comparison between pretest and posttest results, which demonstrate a better understanding and application of mathematical concepts after the implementation of ethnomathematics-based learning. In addition, the learning process was successfully carried out, as reflected in the average implementation score of 3.35, with 80 percent of students achieving the minimum mastery criteria of 75 percent. Positive student responses, reaching at least 60 percent, further support the effectiveness of this approach. Statistical testing also confirmed that the data were normally distributed and showed a significant increase in posttest scores ($p = .000$). The learning process was structured through several stages, including connecting algebraic concepts with Bugis cultural elements, engaging in problem-solving activities, peer interaction, contextual cultural examples, reflection, and assessment. Furthermore, the posttest results categorized students' mathematical connection abilities into high, medium, and low levels, reinforcing the conclusion that ethnomathematics-based learning is effective in enhancing students' mathematical understanding.

Table 3 N-Gain value acquisition categories.

No	N-Gain Score Interval	Category	Frequency	Percentage
1.	$g > .7$	Tall	8	32
2.	$.3 \leq g \leq .7$	Keep	16	64
3.	$g < .3$	Low	1	1
		Sum	25	100
		Average	.613	

Discussion

The collected results highlight the ongoing challenge of applying mathematical knowledge in practical contexts. Many students struggle to connect abstract mathematical concepts with real-world applications, indicating a gap in traditional instructional methods. To address this, incorporating ethnomathematics into education can enhance students' comprehension by linking mathematics to cultural practices, making learning more meaningful and relevant (El Abbadi & Alaoui, 2023; Sunarti et al., 2022). A multidisciplinary approach that integrates various competencies across subjects through thematic learning can further support this connection (Thamrin Tahir et al., 2020). Activities promoting active participation help students develop critical thinking and problem-solving skills (Rahmawati et al., 2020). Additionally, research suggests that incorporating cultural values into mathematics education strengthens reasoning and mathematical communication skills and enriches students' learning experiences (Hariastuti et al., 2022; Kalay et al., 2020; Nychkalo et al., 2020). These findings

underscore the need for innovative educational strategies to bridge the gap between mathematical theory and practical application, ensuring students gain conceptual understanding and applicable skills.

When ethnomathematics is not included in the curriculum, students may find their education less relevant and meaningful. Ethnomathematics connects math to local traditions, helping students understand concepts and feel a sense of belonging. This approach prepares students to succeed in a globalized world by interacting with people from diverse backgrounds (Hariastuti et al., 2022; Rosa & Orey, 2021). Culture-based math education, which integrates contextual learning, deserves further study (Rodríguez-Nieto & Alsina, 2022; Turmuzi et al., 2023). Avoiding stereotypes in education while promoting critical thinking and civic engagement is essential (Johnson et al., 2022; Rosa & Orey, 2021; Wiryanto et al., 2022). Strategies such as repeated exercises, group discussions, feedback, double-checking answers, and using concrete materials—like cultural elements in learning—support this goal (Hamidah & Kusuma, 2024; Hortelano & Lapinid, 2024; Zuliana et al., 2023). Without ethnomathematics, students may struggle to see math's relevance in daily life, making learning feel abstract and disconnected. Integrating ethnomathematics is vital to building meaningful mathematical connections.

Efforts to integrate math with local culture in education often fall short in helping students understand math within their cultural context. Math education at all levels should include opportunities to solve problems rooted in real-world contexts (Komljanec & Šebalj, 2020; Rodríguez-Nieto & Alsina, 2022; Yılmaz et al., 2020). Culture-based math education, which incorporates contextual learning, needs further research (Hariastuti et al., 2022; Turmuzi et al., 2023; Umbara et al., 2021). These findings add to research on mathematical understanding through cultural activities like folk games (Abay & Parola, 2024; Runtu et al., 2023). To assess how well ethnomathematics fosters math literacy, this study must explore the methods, challenges, and processes students use to apply math concepts (Runtu et al., 2023; Tesfamicael & Enge, 2024; Yang & Li, 2024). Contextual learning is more engaging for students when their cultural elements, such as local measurement units, are used in teaching math.

The gap between students' traditional math thinking and current teaching methods suggests that students struggle to link abstract math ideas with their cultural and real-world contexts. This can be improved by emphasizing connections between math concepts and local cultural practices through ethnomathematics. Teachers can better meet students' needs, increase engagement, and reach learning goals by incorporating the Tribium curriculum (Hariastuti et al., 2022; Mumpuni & Marsigit, 2022; Turmuzi et al., 2023). Using hands-on learning and guiding questions, these approaches encourage students to discover key math and science concepts actively, helping them build knowledge through experience (Hamidah & Kusuma, 2024; Rosa & Orey, 2021; Wiryanto et al., 2022). Ethnomathematics allows students to engage with real-life questions, drawing evidence-based conclusions (Rosa & Orey, 2021). Connecting math to students' lives and cultures can make math more understandable, provide context, and improve real-world problem-solving (Mumpuni & Marsigit, 2022), strengthening the link between theory and application across cultural settings.

There is a gap between theory and practice because mathematical concepts are not fully integrated into learning through practical applications. To address this, it is important to improve how ethnomathematics is incorporated into education. Active collaboration from both teachers and students is crucial for effectively applying these techniques (Hariastuti et al., 2022; Mohamed-Amar & Mohamed-Amar, 2024). Most teachers believe that involving students in the assessment process leads to better outcomes (El Galad et al., 2024; Johnson et al., 2022; Mumpuni & Marsigit, 2022). They can use mathematical concepts, methods, and models to explain why certain behaviors are unsustainable and suggest alternatives (Abay & Parola, 2024; Hariastuti et al., 2022; Runtu et al., 2023; Tesfamicael & Enge, 2024). Thus, teachers and students need to work together to connect local culture with mathematics learning. Teachers are advised to involve students in assessments so that they better understand the relationship between mathematics and culture. Ethnomathematics methods and models can help students evaluate concepts in everyday life and find solutions that are more relevant to their culture.

For instance, an intervention using read-aloud activities helps kindergarten students grasp geometry concepts like part-whole relations (Powell et al., 2024). Similarly, studies show that using Arduino tools for programming activities enhances conceptual understanding (Akış, 2024; Hamidah & Kusuma, 2024; Hariastuti et al., 2022; Mumpuni & Marsigit, 2022; Wiryanto et al., 2022). By connecting mathematical ideas with cultural norms and everyday needs, students can better understand the practical applications of math. This approach makes learning more relevant and meaningful, bridging the gap between mathematics and real-world applications.

Conclusion and Recommendation

The conclusions highlight challenges linking math learning with local culture and real-life contexts. While approaches like ethnomathematics have been introduced, they have not yet effectively helped students deeply understand math in a way that feels relevant. The gap between traditional math learning and real-world application limits students' ability to use math in daily life. Learning can feel less meaningful without an ethnomathematics-based approach, reducing student engagement and motivation. This research aims to create a more effective learning process by integrating ethnomathematics to connect math with real-world needs and bridge the gap between theory and practical application.

Further research can focus on developing and implementing more effective ethnomathematics-based learning models to address the gap between mathematical concepts and their real-life applications. This study can explore local cultural integration strategies in mathematics learning, analyze their impact on conceptual understanding, and measure students' engagement and motivation levels. In addition, research can examine how students' critical thinking and problem-solving skills develop through this approach. The role of teachers in adapting ethnomathematics methods also needs to be further studied, including the challenges faced in its implementation. Thus, this study can provide deeper insights into the effectiveness of ethnomathematics in improving the relevance and quality of mathematics learning.

Conflict of Interest

The researcher clarifies that this study is purely academic, with no financial interests that could impact its outcomes. Any involvement of schools or communities solely promotes culturally relevant math learning (ethnomathematics) and enhances students' math understanding. The researcher has no commercial ties or agreements with organizations that might benefit from the findings. All measures have been taken to ensure the research is conducted objectively and without bias. The researcher is committed to upholding the integrity of the results, aiming to advance science and education, particularly in ethnomathematics.

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Reconceptualizing community-based education (Islamic Boarding Schools) in Neoliberal context: An analysis of parental choice, social class, and market forces

Suryanef [a,*], Al Rafni[a], Ika Sandra[b], Rintia[b], Revita[b], Novran Juliandri Bhakti[b], Rama Arya Kurniawan[b], Zikri Alhadi[c,†]

[a] *Department of Civic Education, Faculty of Social Science, Universitas Negeri Padang, Padang 25132, Indonesia*
[b] *Department of Sociology, Faculty of Social Science, Universitas Negeri Padang, Padang 25132, Indonesia*
[c] *Department of Public Administration, Faculty of Social Science, Universitas Negeri Padang, Padang 25132, Indonesia*

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Abstract

This research is focused on analyzing the dynamics of market for Islamic boarding schools and the shifting parental choice within the Muslim community, which is prompting these educational institutions to reform, focusing on enhancing the quality of facilities and also diversifying programs. Consequently, the cost of education in these institutions has tended to rise, leading to a situation where access has become more exclusive and limited to specific groups. Henry Giroux stated that the phenomena of corporatization and commercialization in the education sector reflect neoliberal practices. Empirically, Islamic boarding schools seem to be tied to the logic of capital through the commercialization of education and the products offered. This research uses a qualitative method. Data were collected through in-depth interviews, observations, and document analysis, with thematic analysis employed to interpret the findings. The results indicate that the high demand for IBS generates strong market pressures, compelling institutions to implement pricing strategies, strategic location selection, and accessibility improvements while fostering conducive learning environments. Promotional efforts, including scholarships, open houses, and digital marketing, further reinforce the marketization of IBS. The findings suggest that community-based education within IBS has shifted towards a market-driven system, reflecting the internalization of neoliberal values in Islamic education.

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* Corresponding author.
E-mail address: suryanef@fis.unp.ac.id (Suryanef).
†Co-first authors.

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Introduction

Community-based education serves as a foundation of educational system in Indonesia, aiming to address the specific needs of Muslim community (Harjanto et al., 2018; Saleh & Satriawan, 2020). Community-based education used to be integrated with what was called a *pesantren*. Nowadays, *pesantren* has integrated with a concept of contemporary *madrasah*, also known as Islamic Boarding Schools (IBS) (Faizin, 2024; Pasi et al., 2020). Islamic Boarding Schools (IBS) have emerged as a prominent educational option for the quality education for Indonesian Muslim community, including in West Sumatra and Java. The development aligns with the belief that education should not only impart cognitive skills but also cultivate Islamic character (Riskiyah, 2020). In addition, Islamic education is expected to help the Muslim community internalize Islamic values and knowledge through instruction and learning (Arifin & Pramuja, 2024). Therefore, IBS has emerged as an alternative educational institution for the Muslim community, including in West Sumatra. According to data from the Central Statistics Agency (BPS), approximately 97.42 percent of the population in West Sumatra adheres to Islam, thus reflecting the factors, values, and norms within the community that are grounded in Islamic principles (BPS, 2021). Another contributing factor is the tendency among the community to view education not solely as a means of enhancing intellectual intelligence, but also as a method for character development.

However, the current changing times have led to social dynamics, including within family life. This situation is influenced by the high pressures from external social interactions and school environments, compounded by parents who are busy with work and careers. As a result, parents tend to prefer enrolling their children in boarding schools to ensure academic oversight and character education. Given the Islamic environment that these institutions provide, interest in IBS has significantly increased in Indonesia.

The growing interest in Islamic boarding schools (*pesantren*) is influenced not only by changes in parental choices but also by political factors and prominent figures (Saleh & Satriawan, 2020). This has led to a shift in community segments that are changing preferences for Islamic education (Giyarsi, 2023). As a result, *pesantren* must adapt their management to meet the demands of these communities. To understand the rapid increase in *pesantren*, a comparison is made with several Islamic boarding schools in Java, which has the highest interest in Islamic boarding schools in Indonesia (Hidayah, 2021).

The high market demand for inclusive education has made Islamic boarding schools (IBS) more pragmatic in their approach, These institutions engage in competition by offering enhanced facilities and a diverse array of extracurricular activities, frequently establishing relatively high tuition fees to cover these services. Furthermore, the autonomy conferred by government policies has facilitated the transformation of IBS into private entities. This shift in policy empowers IBS to operate in alignment with market needs, trends, and demands, thereby positioning education as a commercial commodity. Within the context of Indonesian education, the manifestations of neoliberalism are observable through the expanding role of private educational institutions, the commercialization of educational services, and the escalation of schools tuition (Salim et al., 2023). The concept of neoliberalism views education as a commodity that can be bought and sold, encouraging educational institutions to operate like competing businesses in an economically valued market (Marginson, 2016)leading towards high participation systems (HPS thus subordinating education to capital through its commercialization. Consequently, various changes have emerged in the educational landscape concerning quality, equity, and access to education (Premalatha et al., 2024). The impact of this trend has been limited accessibility to Islamic boarding schools, resulting in their becoming accessible primarily to certain social groups and consequently fostering social class segregation.

Previous research on neoliberalism in education has highlighted its various impacts on educational institutions across different contexts. Karki (2024) argues that neoliberalism drives deregulation, privatization, and market-based approaches in education, leading to its commodification and economically driven policy shifts. Similarly, Nyundu and Hosseini (2024) describe how neoliberalism introduces authoritarian corporate values in higher education, sparking social resistance movements like Fees Must Fall, which demand more democratic and inclusive education. Furthermore, Neoliberalism and the Violation of Students' Rights: The Case of English Language Education (2024) highlights how neoliberalism not only commodifies education but also shifts educational responsibility from the government to households, enforces standardized testing, and positions English as an economic asset aligned with labor market demands. Meanwhile, Esmati et al. (2024) assert that neoliberalism pushes educational institutions to align with economic interests and market-driven workforce training,

resulting in commercialization and widening social inequality. In contrast, Islamic education traditionally emphasizes normative and pedagogical approaches, focusing on moral and character development. However, as neoliberal influences grow, it is crucial to examine how these dynamics reshape Islamic educational institutions (Murdiato et al., 2020).

While previous studies have explored neoliberalism's influence on education, research on Islamic education remains largely normative and pedagogical, overlooking structural and economic transformations. As neoliberal influences grow, it is crucial to examine how these dynamics reshape Islamic boarding schools (IBS), not only in terms of policy shifts toward privatization and commercialization but also in how they redefine institutional values, accessibility, and management. This study provides empirical insights into how IBS respond to market pressures whether through adaptation, resistance, or structural transformation bridging the gap between neoliberal economic theory and the sociology of Islamic education. By moving beyond theoretical discourse, this research also offers practical implications for policymakers and IBS administrators in designing sustainable and inclusive educational models.

This study provides a novel contribution by offering empirical insights into how neoliberalism influences Islamic educational institutions an area still underexplored in existing research. By bridging the gap between neoliberal economic theory and the sociology of Islamic education, this study provides empirical evidence on how IBS respond to market pressures through adaptation strategies, resistance, or structural transformation. Ultimately, it contributes to both theoretical discussions on neoliberalism in education and practical considerations for policymakers and IBS administrators in designing sustainable and inclusive educational models.

Methodology

This research employs a qualitative approach to provide an in-depth understanding of neoliberal influences on Islamic boarding schools (IBS). Qualitative methods are particularly suited for exploring complex social phenomena as they allow for detailed narratives and contextual analysis beyond numerical data (Fadli, 2021; Jacob, 2023).

The study utilizes observations, in-depth interviews, and document analysis to examine how IBS stakeholders, administrators, teachers, parents, and students perceive and respond to market-driven educational reforms. Semi-structured interviews provide a flexible yet focused approach to gathering rich qualitative data while maintaining consistency in key themes (Patton, 2022).

To ensure systematic analysis, the study employs computer-assisted qualitative data analysis software (CAQDAS) using NVivo, facilitating efficient coding and thematic categorization (Endah et al., 2020). This approach helps mitigate researcher bias, a common limitation in qualitative studies, by ensuring a structured and replicable analytical process (Endah et al., 2020) Document analysis further strengthens the research by providing historical and policy-related insights into the transformation of IBS under neoliberal pressures.

The study applies purposive sampling, selecting participants based on their relevance to the research focus. Administrators, policymakers, and educators are included to provide institutional perspectives, while students and parents contribute insights into the lived experiences of neoliberal shifts in IBS. By integrating these qualitative techniques, the research aims to offer a comprehensive, empirically grounded understanding of how IBS navigate neoliberal transformations while balancing their religious and educational missions.

To ensure a comprehensive and systematic data collection process, this study integrates semi-structured interviews and document analysis alongside observations. Semi-structured interviews follow a guided yet flexible approach, allowing the researcher to explore key themes while accommodating open-ended discussions on relevant topics (Arbale & Mutisya, 2024; Assadpour et al., 2023; Saunders, 2004). Document analysis further enriches the study by examining official records, including national policies, regional regulations, and school curriculum documents, providing contextual depth to the findings.

The research process unfolds in four main stages: (a) initial investigation, (b) design, (c) construction, and (d) evaluation and revision. The initial investigation phase involves field observations, surveys, and team discussions to refine research focus. The design stage consists of developing interview formats, compiling key questions, and preparing structured interview guides. During construction, data are collected and classified based on research objectives for in-depth analysis. Lastly, the evaluation and revision stage ensures the validity and reliability of findings through triangulation, followed by a review and refinement of results to align with the study's objectives.

Results and Discussion

Analysis of Neoliberal Context in Islamic Boarding Schools (IBS)

As an indigenous Islamic educational institution in Indonesia (Murdiato et al., 2020), *pesantren* have served as a foundational root for the emergence of education based on Islamic principles (Giyarsi, 2023, Sadali, 2020). The current development of Islamic education demands that *pesantren* continuously innovate to be better accepted by society. Integrated with modern *madrasah*s, Islamic Boarding Schools (IBS) adapt to market needs, meeting parental expectations and competing in the educational market beyond ideological concepts. Historically, Kusnadi describes IBS an education model focused solely on religious values, often seen as "old-fashioned." And resistant to modern developments However, over time, IBS has evolved to respond to changes and advancements in learning activities and broader societal developments (Pabundu & Ramadhana, 2023). The development of IBS is significantly influenced by government policies on school autonomy. Privatization lets IBS adapt to market needs, integrating neoliberal principles into education while competing to attract parental interest.

According to Harvey, neoliberalism is a political-economic theory that asserts societal well-being can be achieved by enhancing human welfare through the provision of entrepreneurial space and skills for individuals within an institutional framework characterized by autonomy over development rights and free markets. In this context, Islamic Boarding Schools (IBS) serve as an example (Salim et al., 2023). The introduction of neoliberal concepts into the educational sphere leads to the privatization of education, a shift in government authority, and the emergence of a generation shaped by neoliberal values. Furthermore, within the educational context, various aspects become subjects of neoliberal analysis, each influenced by geographical location and cultural roles. In simple terms, neoliberalism is a cultural ideology emphasizing individualism and free markets, which has significantly impacted the development of educational systems in the era of globalization (Hidayah, 2021).

According to Mani Karki, the concept of neoliberalism can be described as plastic due to its highly flexible, multidimensional, and dynamic characteristics (Karki, 2024). Thus, the concept can be applied across various aspects, including education. However, key terms that facilitate understanding of neoliberalism are 'freedom' and 'market' (Ngametua, 2022). These two components are essential for grasping the neoliberal concept, although this perspective may be overly simplistic and reductionist in conceptualizing neoliberalism. Furthermore, within the educational context, numerous aspects warrant examination, each significantly influenced by the geographical location and cultural roles, along with the political priorities and policies guiding their implementation (Hall & Pulsford, 2019). However, in this special research edition, the focus will be on reconstructing the discourse surrounding neoliberalism within the framework of: the ideas of marketization and autonomy; parents' rights to choose the 'best school for their children'; and the market dynamics among the majority Muslim community (Sandra et al., 2023).

This research explores Islamic Boarding Schools (IBS) in West Sumatra and Java, highlighting their shared market focus on the middle-class Muslim community. The findings reveal that each IBS targets a similar market segment: the middle-class Muslim community. This is based on the assumption that the upper-middle class has a crisis of confidence in conventional schools to provide value- oriented education. Supporting this, Sandra's research indicates that Muslim parents have a strong desire to send their children to private schools with Islamic values because they think IBS are key institutions for educating the younger generation (Sandra et al., 2024). Additionally, IBS is focused on providing quality education that meets the needs and demands of today's parents. The shift in market interest from conventional schools to IBS is also influenced by the busy lifestyles of middle-class parents, leading them to rely on Islamic Boarding Schools for value-based education and character development. Survey data indicate that nearly 80 percent of parents believe the curriculum offered by IBS aligns with their expectations.

This hypothesis allows Islamic Boarding Schools (IBS) greater flexibility to explore market opportunities to design educational models that align with parental expectations (Najah, 2021). School privatization grants IBS autonomy to create diverse offerings, including inclusive curricula, superior facilities, extracurricular activities, and international collaborations, attracting middle-class families willing to pay for these services. This adaptability extends to operational aspects, such as management structures, funding strategies, and institutional policies. In the context of education, Neoliberal influences have transformed education, shifting its organization, funding, and delivery towards corporatization. Schools now engage in partnerships with private institutions, foreign schools, and government

agencies, fostering exchange programs and international curriculum adoption. For Islamic Boarding Schools (IBS), corporatization is particularly feasible because these institutions operate autonomously as private schools, meaning they are not bound by specific government regulations (Rohmah, 2022). This autonomy allows them to adapt more readily to market demands and engage in various educational collaborations

Community-Based Education Analysis

In simple terms, community-based education is centered on the role of the community, with the state's involvement being minimal in its implementation. Naturally, the community holds significant authority and responsibility in executing and evaluating this type of education to ensure it aligns with its foundational principles (Fauziddin et al., 2022). Indonesia, in fact, has an indigenous educational model that embodies community-based education, exemplified by the long-established *pesantren* (Setiawan et al., 2022). This model of educational institutions is born from, by, and for the community. This illustrates that community-based education has existed long before Indonesia's independence; with institutions established and run by the community. Furthermore, *pesantren*, as key educational institutions, help communities adapt to social engineering (Saleh & Satriawan, 2020) In practice, three dimensions characterize this form of community-based education: cultural, educational, and social dimensions. Collectively, these dimensions position *pesantren* as a distinctive model of community-based education, possessing unique strengths and characteristics (Riskiyah, 2020).

The conceptual model of community-based education at that time was primarily recognized as *pesantren* (Murdiato et al., 2020). Moreover, *pesantren* is currently regulated under the Indonesian Law No. 20 of 2003 as a form of community-based education that accommodates the various demands and needs of society (Murdiato et al., 2020). Furthermore, Zulkarnain and Zubaedi explain that community-based education fosters the democratization of education. This creates a space for community freedom, positioning it as the center for community-based education in the development of the *pesantren* model (Zulkarnain & Zubaedi, 2021).

However, the rapid advancement of education today necessitates that *pesantren* innovate and adapt to maintain their existence within the educational landscape (Setiawan et al., 2022). This development is also influenced by the orientation of Industry 5.0, which emphasizes the integration of both soft skills and hard skills into educational curricula (Rohmah, 2022). This partnership enables IBS administrators to better meet market demands, though it leads to increased decentralization and autonomy for IBS, thereby diminishing the community's traditional central role. IBS has emerged as a resilient model capable of navigating modernization and neoliberalism, with curricula that not only emphasize character and religious education but also address competencies required by Industry 5.0 (Joni Indra Wandi et al., 2022). .

Sharif Jallow further explains that the presence of Islamic Boarding Schools (IBS) in Indonesia's Muslim community plays a crucial role in the country's historical development and continues to provide education oriented toward religious and cultural values (Jallow, 2023) students study Islam, Arabic, interpretation of the Qur'an, hadith, jurisprudence, morals, and various other sciences. In this study, researchers used literature research methods. A literature research method is an approach used to collect and analyze information from published related sources, such as journals, books, reports, and other documents. The aim is to obtain an overview of the topic under study and obtain the required information. In this research, we will discuss further: Islamic values in character building, the role of Islamic boarding school education in character building, and the role of Islamic boarding school education in character building (Islamic psychology perspective. This was also directly confirmed by the administrators of several IBS (Islamic Boarding Schools) during the interview session, as it stated: "... Most parents who send their children to IBS (Islamic Boarding School) are parents from religious families who want to maintain their religious values amidst the rapidly advancing technology and information. Additionally, they are also parents who are busy with work..." (the administrators of several IBS, Interviewed on August, 2024).

As previously mentioned, Islamic boarding schools are closely associated with character education through the concept of morality. Community-based education emphasizes empowerment and autonomy, but IBS now prioritizes market demands, thereby granting the community full autonomy and responsibility in managing education according to its values and needs, making the community's role passive. Visits to six IBS reveal innovations targeting the upper middle class, including improved facilities, integrated boarding programs, academic and non-academic offerings, institutional partnerships, and international curricula, distancing IBS from traditional community-driven education. Also, various innovations implemented at Islamic Boarding

Schools (IBS) reflect the aspirations of the students' guardians, which have been systematically integrated by the IBS management. As stated during the interview: "… The facilities provided at IBS are designed to differ from those of conventional Islamic boarding school models. Specifically, the rooms are structured to limit the number of students per room, ensuring optimal comfort for the students. This consideration is particularly important as some students prefer less crowded living environments. Furthermore, each room is equipped with spacious wardrobes for individual students, allowing a single room to comfortably accommodate up to 10 students without compromising their comfort." (The Administrators of IBS, Interviewed on August, 2024).

This flexibility arises from the privatization of schools, granting IBS full authority over their structural management. Consequently, IBS can independently formulate policies regarding curriculum design, facilities, and evaluations, allowing them to respond effectively to market needs and create rational development opportunities.

The emergence of Islamic Boarding Schools (IBS) as a modern form of community-based education is tied to meeting global industry needs (Abdullah, 2020) while preserving societal values and cultural norms, which drive parents to choose IBS for their children. This aligns with Pierre Bourdieu's theory of capital, which posits that individuals possess three primary forms of capital: social capital, economic capital, and cultural capital (Jaeger, 2022). In analyzing this phenomenon, cultural capital emerges as the most relevant lens for understanding the transformation of community-based education. Simply put, the cultural capital introduced by Bourdieu refers to non-material assets held and distributed among individuals, which also serve as symbolic indicators of one's social status (Xu & Jiang, 2020). However, traditional community-based education struggles to meet global industry demands, prompting the rise of IBS as a more adaptive model. While IBS addresses these aspirations and facilitates the distribution of cultural capital, it has also shifted traditional education away from its original purpose, diminishing its essence and existence

Analysis of Parental Choice in Influencing IBS demands

According to Burns et.al, parental choice refers to the right of parents to select the school for their children based on their values, goals, and preferences (Burns et al., 2022). This choice is important for ensuring that children benefit from high-quality education (Burns et al., 2022). Also, Perwita and Widuri highlight that parents' decisions are often influenced by their interactions with colleagues, friends, and social networks when choosing their children's education (Perwita & Widuri, 2023). Besides, Shiferaw and Kenea also note that the concept of school choice gives parents more freedom to select the best school for their children (Shiferaw & Kenea, 2024). Additionally, it is essential to recognize that not all schools serve the same demographic, and different teaching methods or school designs can cater to various types of children. Parents consider various factors when choosing an Islamic Boarding School (IBS), as expressed by some parents during the interview: '...We chose IBS for our child's education because the curriculum offered is an international curriculum that is relevant to current developments and can prepare students to enter top universities. This is evident from the distribution of alumni in prestigious universities, as highlighted in the school's brochures and website. Additionally, the teachers (ustadz and ustadzah) at IBS possess capabilities not only in religious studies but also in academic and non-academic fields. This is supported by the fact that the teaching staff are graduates of reputable universities, both domestically and internationally.' (The Parents of IBS students, Interviewed on August, 2024)

Observations to some IBS reveal that IBS integrates the *Merdeka Curriculum* with the *Cambridge Curriculum* as a strategic response to the growing demand for holistic education that is globally competitive (Lundeto et al., 2021). This dual-curriculum approach not only equips students with the skills necessary to excel in a rapidly evolving global landscape but also ensures broad access for alumni to pursue higher education at prestigious universities. At the same time, IBS maintains a strong emphasis on religious values, which serves as a key distinguishing factor and a major draw for prospective families (Lundeto et al., 2021). Additionally, the availability of high-quality facilities emerged as another significant factor influencing parents' decisions to choose IBS. These insights were corroborated through interviews with multiple stakeholders: "The environment of Islamic Boarding Schools (IBS) is highly conducive to students' learning, as it offers a serene atmosphere, being situated away from urban noise, and is complemented by a green and natural setting. This creates an optimal learning environment that supports both academic and non-academic development. Furthermore, IBS provides comprehensive facilities, ensuring that students have access to all necessary resources within the school premises. As parents, we feel reassured and secure, knowing that our children do not need to leave the boarding school environment, allowing them to

focus more effectively on their education." (Multiple stakeholders, Interviewed on August, 2024).

In addition to a conducive learning environment, parents' school preferences are also influenced by the structured routines within the boarding school and the sense of security regarding their children's social interactions: "Beyond providing a safe environment, IBS fosters discipline through structured daily routines, which students internalize even outside the boarding school. At home, they independently maintain good habits, such as praying on time and encouraging family worship. As parents, we are pleased with the strong character, politeness, diligence, and responsibility our children develop, despite the higher costs compared to regular schools. For working parents, IBS offers peace of mind by ensuring a supervised and morally guided environment, with separate dormitories for boys and girls to prevent negative social influences. Additionally, a monitoring app allows parents to track their children's activities and receive real-time updates on rule compliance." (The Administrators of IBS, Interviewed on August, 2024).

Through direct observation, the author was able to experience the various facilities available at IBS, including a health clinic, minimarket, dormitories, laboratories, classrooms, sports fields, an auditorium, a library, a bookstore, a cafeteria, and other amenities. These parental statements align with those expressed by Saleh and Satriawan (2020) identifying several key factors that influence parents' decisions to enroll their children in schools, including the image of harmony, quality service, expectations, and egalitarian pride (Rahtikawati, 2021). Parents often seek high-quality schools that they believe will benefit their children. Giyarsi (2023) adds that, beyond a school's reputation and image, parents desire good service for their children (Giyarsi, 2023). Aliyah et al., (2023) define quality service as meeting or exceeding the eight national education standards: curriculum, processes, graduate competencies, educators and staff, facilities, management, funding, and assessment.

Additionally, numerous studies highlight the critical role parents play in school selection (Sandra et al., 2024). Many parents choose boarding schools to instill good values in their children, particularly when they feel unable to manage their children's education at home (Sadali, 2020). Busy work schedules often limit parents' ability to fulfill their educational roles (Rahtikawati, 2021). Research by Susilo and Wulansari indicates that boarding school management effectively achieves national educational goals while aligning with religious values (Susilo & Wulansari, 2020). Data analysis using NVivo reveals various factors influencing parental choice, as illustrated in the accompanying spider chart (Figure 1).

The concept of parental choice, often correlated with the market's principles such as freedom in education that gives opportunities for the development of education to continually respond to demand in its management (Burns et al., 2022). Consequently, schools like IBS become such as commodities that can be offered to consumers, namely parents. Findings indicate that parents choose Islamic Boarding Schools (IBS) based on their inclusive curriculum, facilities, and safe learning environment (Pabundu & Ramadhana, 2023). Qualitative data from in-depth interviews reveal that parents select IBS not only for their religious focus but also for their ability to offer a holistic education encompassing intellectual, emotional, and spiritual development. Furthermore, IBS also adopts international curricula, such as the Cambridge Curriculum, to ensure that students achieve proficient English language skills, enabling them to compete globally with their international peers. Surveys indicate 62 percent of parents view IBS as essential for modern needs, while 80 percent believe the curriculum meets expectations. This reflects the assumption that providing high-quality education is a fundamental desire of every parent to ensure a secure future for their children.

Parental decision-making in choosing an IBS is a deliberate process influenced by Bourdieu's three forms of capital, as outlined in the NVivo chart. Cultural capital plays a significant role, as parents' educational backgrounds, reading habits, and family educational culture shape their school preferences (Hadiwinata & Hudriani, 2022). Highly educated parents prioritize institutions that balance religious and academic values. IBS supports holistic development through academics and extracurricular activities, including sports, arts, and language acquisition. Social capital further reinforces these preferences through discussions with relatives, religious communities, and alumni networks. Recommendations from successful IBS graduates, who have gained admission to prestigious universities both domestically and internationally, strengthen the school's reputation and appeal to prospective parents. Additionally, economic capital plays a crucial role, as IBS is an exclusive institution that requires substantial financial resources. This financial barrier limits access to families who can afford the associated costs, reinforcing IBS's status as a selective educational institution (Kurniawan et al., 2023).

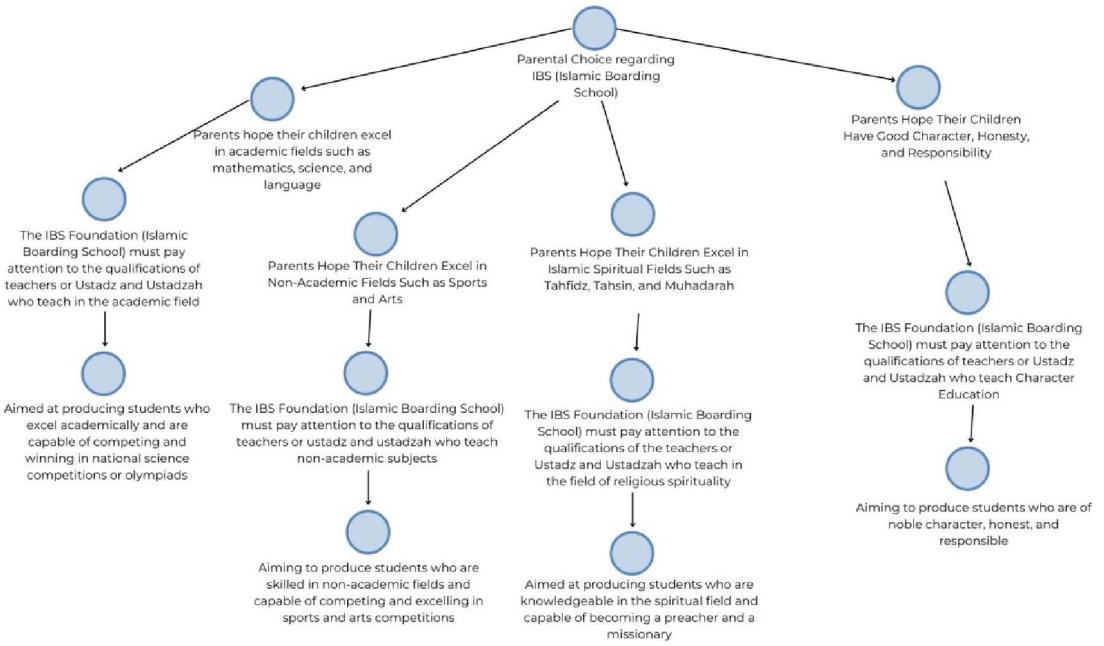


Figure 1 Parental Choice Analysis at Islamic Boarding Schools (IBS) Using NVivo Spider Chart
Adapted from by Author 2024

Analysis of Social Class as IBS Segmentation in Society

Although boarding schools are often seen as more expensive than general educational institutions due to their higher quantity and quality of education compared to conventional systems (Rahtikawati, 2021), public interest has increased, driven by Indonesia's predominantly Muslim society and its preference for faith-based education (Hidayah, 2021). As educational institutions that integrate community- based learning with academic and character development, a strong reputation is essential for gaining public trust and ensuring the sustainability of these schools. However, the growing influence of neoliberalism challenges their growth, especially in education, requiring them to reconceptualize curricula and other key aspects to remain relevant. To expand their market, Islamic Boarding Schools (IBS) implement clear segmentation strategies and offer integrated curricula. They combine religious education, such as *tahfidz* and *tahsin*, with science, technology, and practical skills. Findings from several boarding schools in Java show that some IBS combine religious education with subjects that promote technology, science, and practical skills. This holistic approach, aligned with global standards, ensures graduates can compete in the modern world while maintaining strong religious values.

One of the key concepts in Bourdieu's theory is habitus, which refers to the internalized dispositions, values, and practices shaped by one's cultural and social environment (Xu & Jiang, 2020). Within IBS, institutional routines and the shared values of parents and students reflect a strong commitment to education that upholds moral and religious principles despite higher costs (Benjamins, 2025). Parents see IBS not just as a school but as a community that aligns with their lifestyle and values, Interviews with parents highlight these considerations: "We chose a modern Islamic boarding school because of its comprehensive facilities, international curriculum, and opportunities for overseas education. The environment also aligns with our lifestyle." (The Parents of IBS students, Interviewed on August, 2024).

Another parent emphasized: "We want a balance between religious and general education. Our goal is for our child to have strong religious knowledge while also developing skills for the workforce, which is why we chose a school that integrates modern approaches without compromising Islamic values." (The Parents of IBS students, Interviewed on August, 2024).

IBS employs a multifaceted market segmentation strategy, considering demographic such as regional differences in Java and West Sumatra. Psychographics address parental priorities like academic excellence and moral development. Psychological factors also play a role, as parents value structured, faith-based education

for their children's well-being. Ultimately, the interaction between Bourdieu's capital theory and neoliberal market dynamics illustrates how IBS navigates an economically competitive yet culturally rooted educational landscape (Nugraha, 2025). While schools must adopt market-oriented strategies like segmentation and curriculum diversification, Bourdieu's framework reveals the underlying social processes that enable IBS to do so. By providing better access to educational resources, IBS maintains its relevance in an increasingly globalized world while simultaneously reinforcing existing social hierarchies.

To segment the market, boarding schools consider several factors, including demographics, psychographics, and psychological aspects, as outlined by Camilleri (Haleem et al., 2022). Market orientation in Islamic Boarding Schools (IBS) considers three key factors. (1) Demographics focus on geographical positioning, with differences in student preferences between West Sumatra and Java shaped by culture and socio-economics. (2) Psychographics highlight shared values, where parents seek both academic excellence and strong Islamic upbringing, even at high costs. (3) Psychological factors emphasize the belief that a structured religious environment benefits children's mental and emotional development. Aware of teenage challenges, parents increasingly prioritize disciplined education to ensure moral and social stability. These factors collectively influence parental decisions in choosing IBS for their children's education (Figure 2).

Market Forces of Islamic Boarding Schools

In examining contemporary educational concepts, which are characterized by the rapid influence of globalization, there is a need for traditional pedagogical approaches (Haleem et al., 2022). Interestingly, the education sector has evolved into a dynamic market force, moving away from isolated concepts. This evolution compels schools to adaptively formulate policies to reassess strategies and consider market-oriented approaches (Nisak et al., 2024). Consequently, Islamic Boarding Schools (IBS) must adapt to competitive demands to ensure high-quality education (Khambali et al., 2022). This approach is a manifestation of market-driven strategies, with the primary goal of fostering customer loyalty to encourage repeat enrolment (Siti Julaeha, 2024). From Bourdieu's perspective, globalization and market shifts have reshaped the structure of cultural capital in education. Traditionally rooted in cultural capital, Islamic boarding schools (pesantren) now face pressure to adopt new forms of capital aligned with the global economy (Xu & Jiang, 2020). pesantren have institutionalized formal standards, transforming cultural capital into economic capital. However, according to Hidayah, this strategy presents challenges for IBS, as it necessitates continuous innovation and the ability to adapt to changing market conditions and parental preferences as consumers (Hidayah, 2021). Findings highlight how market forces shape Islamic boarding schools. A pesantren leader in Java stated: "We recognize

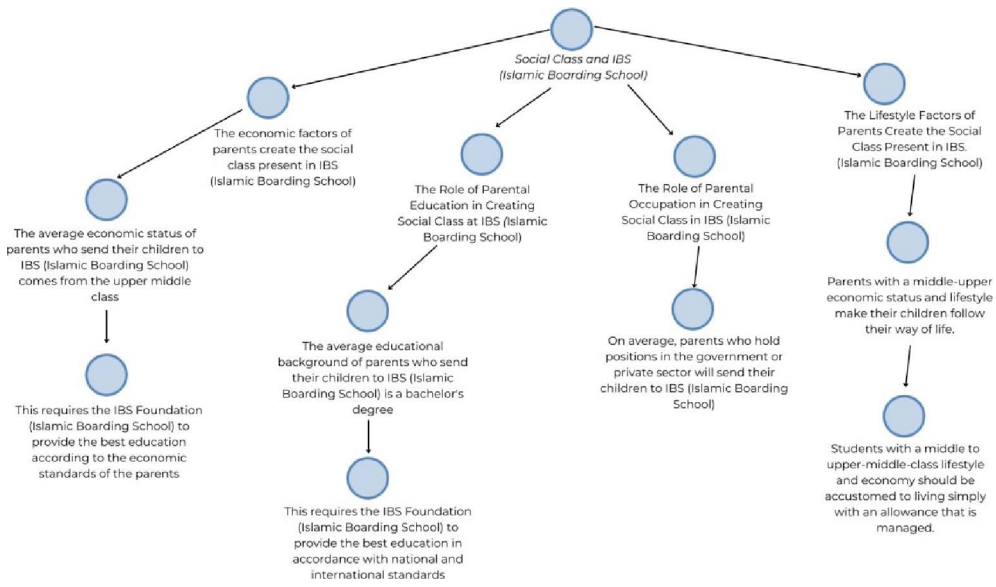


Figure 2 Social Class Analysis of IBS Using NVivo Spider Chart
Adapted from Author 2024

the need to adapt. While pesantren once focused solely on religious education, we now integrate academic programs aligned with job market demands." Another leader emphasized: "Parents and students are more selective. If our curriculum isn't market-relevant, students may lack the necessary skills for employment." (A Leaders of IBS, Interviewed on August, 2024).

This shift reflects the commodification of education, where *pesantren* must balance religious identity with market-driven expectations. In a neoliberal framework, education transitions from character formation to economic utility, fostering customer loyalty through valued cultural capital—such as academic skills and alumni networks—convertible into social and economic gains. However, this transformation also reinforces inequality, as access to quality education remains limited to those with sufficient financial capital. Parental perspectives further confirm this shift: "We want our children to receive religious education while also being prepared for the job market. That's why we chose a *pesantren* that offers strong academics, career opportunities, and university connections." (The Parents of IBS students, Interviewed on August, 2024).

Findings reveal several factors that elucidate the market forces in Islamic boarding schools, which are illustrated through the spider web analysis below (Figure 3):

Based on the research findings, achieving the objectives requires specific strategies to meet market demands across five key aspects. (1) Product: IBS offers tailored programs that align with parental expectations, integrating flagship curricula with high-quality facilities such as dormitories, laboratories, libraries, and sports amenities. (2) Price: IBS tuition fees are higher than public schools, reflecting the quality of education provided. Although 39 percent of parents acknowledge the high cost, demand remains strong, with tuition varying based on institutional offerings. (3) Location: IBS campuses in West Sumatra and Java are strategically placed for accessibility. For example, Darul Hikam in Bandung is situated in an educational district with easy public transport access, while Ar-Risalah Institution is near the city center, ensuring convenience. (4) Promotion: IBS employs digital marketing, word-of-mouth, and open house events to engage parents and students. Additionally, scholarships are offered to attract high-achieving students. (5) Person: IBS educators come from reputable domestic and international universities. Local graduates excel in Islamic studies, while international graduates contribute modern perspectives, fostering a balanced, innovative education system. These strategies position IBS as a competitive educational institution, meeting market demands while maintaining its core.

Education at IBS serves not only as a means of knowledge transmission but also as a site for the accumulation and reproduction of cultural capital within

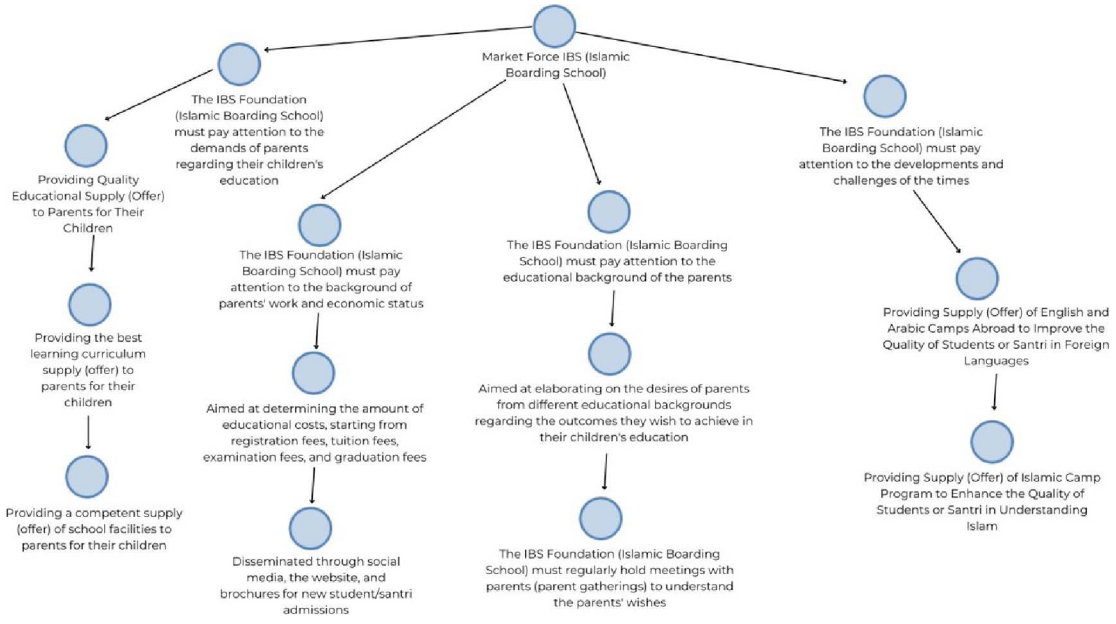


Figure 3 Market Force Analysis of IBS Using NVivo Chart Spider
Adapted from Author 2024

a neoliberal framework (Lahmar, 2020) so too have the questions on their purpose and impact in pluralistic Western societies. Amid this increasingly complex environment, questions are raised, both internally and externally, to determine the nature of Islamic educational goals, schools' knowledge and pedagogical practices. Analysis in this paper draws on multiple sources of data: classical and contemporary literature on education in Islam; the Department for Education (DfE. Research findings indicate that IBS's strategies such as enhancing its educational offerings, adjusting fees, strategic location, effective promotion, and recruiting qualified teachers can be analyzed through Bourdieu's concept of cultural capital (Xu & Jiang, 2020). The institution's elite curriculum and nationally/internationally recognized credentials represent institutionalized cultural capital, legitimizing IBS graduates in academic and professional competition. Facilities like laboratories and dormitories reflect objectified cultural capital, reinforcing social differentiation (Rohmah, 2022). The diverse teaching staff embody cultural capital, blending Islamic values with global perspectives. However, access to these resources depends on economic capital, as high tuition fees limit IBS to financially privileged groups. Thus, education at IBS is not merely a transfer of knowledge but also a battleground for cultural capital, where access to quality education operates as a mechanism of social selection, maintaining the exclusivity of certain groups.

Conclusion and Recommendation

Islamic Boarding Schools (IBS) in Indonesia have increasingly become a preferred educational option for parents, particularly among the upper-middle-class Muslim community, who seek a balanced education for their children. These schools, which span across both Sumatra and Java, represent a shift from traditional educational models by offering an integrated approach that combines religious instruction, moral development, and academic rigor. By aligning their curricula with both national and international standards. This research highlights IBS's role within market forces and social class dynamics. Government-granted autonomy and privatization enable continuous innovation, allowing IBS to respond to market demands. Education has become a market-driven commodity, positioning parents as consumers and reinforcing neoliberal values. Competition compels IBS to adapt by developing curricula, improving teacher qualifications, and expanding facilities. The increasing demand for enrollment in IBS has created powerful market dynamics that pressure schools to maintain relevance and appeal. This constant innovation not only helps IBS cater to the evolving expectations of parents but also reinforces its position as a leading educational choice. The multifaceted improvements within IBS ranging from the integration of academic and religious curricula to the enhancement of facilities demonstrate how these institutions are navigating the complexities of an education system influenced by both cultural values and neoliberal economic forces. Consequently, the continued diversification of offerings and the responsiveness to market forces are crucial for ensuring IBS remains a preferred educational institution.

Conflict of Interest

The authors declare that there is no conflict of interest.

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The process of becoming a digital labor of retail traders on the forex proprietary firms' trading platform

Teerapong Ketmanee

Office of Research Administration, Chiang Mai University, Chiang Mai 50200, Thailand

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Abstract

This research article is an academic work in the sociology of finance that studies the becoming process of digital labor among Thai retail traders on the Forex prop firms' trading platform. According to the research results, retail traders desire to change themselves into professional traders of Forex prop firms. If retail traders can pass the trading evaluation, they will get a contract signed and have the opportunity to receive up to millions of dollars in funding, including more than 90 percent of the profit share. However, the trading process of Forex prop firms is fraught with the same strict trading rules. Therefore, only a few retail traders are successful, but most retail traders fail and are unable to make a profit in the long run. For this reason, Forex prop firms' main income comes from charging fees in the trading evaluation of most failed retail traders while the secondary income of Forex prop firms comes from utilizing trading data that are generated by a few successful retail traders. Under such conditions, both successful and failed retail traders have a status of digital labor on trading platforms that were exploited by the Forex prop firms.

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Introduction

This funded trader is the real deal says Simon Massey, CEO and Managing Director of Funded Trading Plus in the video interview with Jongruck. Jungruck from Thailand earned $173,597.56 trading the US30 Dow Jones market in just 6 days, and if she continues trading like this then Simon believes she could go on to become the biggest single earner the funded prop trading industry has ever seen (Funded Trading Plus, 2022).

The above statement reflects the huge profit generation of approximately 6,000,000 baht within less than a week of one Thai retail trader who is a professional trader for a Forex proprietary firm. At present, Thai retail traders widely like to speculate in the Forex market through the trading platforms of Forex prop firms because trading Forex with a prop firm can generate income of hundreds of thousands and up to millions of baht per month without needing to use own funds, without having to graduate with a finance degree, and without needing experience

E-mail address: teerapong.katemanee@gmail.com (Ketmanee, T.).

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working in a leading financial institution. You just pay for the trading evaluation fee starting at around $50, and if retail traders pass the evaluation, they get to sign a contract and receive capital of up to millions of dollars with a profit share of 70 percent - 90 percent.

For this reason, retail traders with limited funds share the common dream of becoming Forex prop traders to achieve financial freedom. This can be seen from the number of people in the largest Facebook group in Thailand, "Forex Prop Firms Thailand," which had approximately 60,000 members in 2025 (Forex Prop Firms Thailand, 2025). Moreover, the statistics of total payouts from January to July 2023 of MyForexFund also show that Thai retail traders can make total profits as high as $7,056,131.83, which is ranked 4th in the world (MyForexFund, 2023a).

In terms of popular Forex prop firms like FTMO, Chanyanuth is Thai traders that was FTMO's highest paid trader in 2024, earning over 38 payouts within one year, which is an average of 3 payouts per month, or one almost every week (FTMO, 2024b). Another popular Forex prop firm, like The5%ers, also had the highest payout to Thai retail traders in January 2025 at $17,277 (The5ers, 2025b).

Nevertheless, passing the trading evaluation of a Forex prop firm is not easy at all because the trading conditions of each Forex prop firm are very strict and very difficult. For example, the evaluation program of FTMO has a limit on loss rates of no more than 5 percent per day and 10 percent of the total capital in the account. It sets a target for profits of up to 10 percent in the first phase and 5 percent in the second phase (FTMO, 2024a). Therefore, in fact, the average number of retail traders who pass the trading evaluation and make a profit in the long term is very low.

Although most retail traders have failed the trading evaluation countless times, or some have passed but later lost their funded accounts many times because they violated the trading rules. Most of them did not give up and continued to pay the fees to reapply for the evaluation again and again. Since they need a large amount of capital from a Forex prop firm to make a big profit and raise their own financial status, becoming a Forex prop trader is thus the common desire and ultimate ambition of these retail traders.

Based on the origin and importance of such a problem, the author has set two research objectives: (1) to study the business model of Forex prop firms through the trading evaluation process of retail traders; and (2) to study the process of becoming a digital labor among retail traders on the Forex prop firms' trading platforms.

Literature Review

Based on a review of literature about traders on trading platforms in the sociology of finance perspective, I found that sociologists try to open the "Pandora's Box" of the financial world in order to transcend their own cultural boundaries to new academic areas. This is evident from the expansion of the Social Studies of Finance (SSF) approach (Preda, 2012).

The financial sociologists focus research on three main issues. The first issue is the structure of financial markets in the digital age, because at present, the entire structure of financial markets around the world is interconnected by a computer system on a high-speed Internet network (Cetina & Preda, 2012; Preda, 2009). Therefore, the main actors that come into speculation and drive the price action in the electronic financial markets are financial institutions and professional traders. This is the second issue most financial sociologists are interested in studying (Beunza, 2019; Wansleben, 2013; Zaloom, 2010). Moreover, the main tool used by financial institutions to speculate is "algorithmic trading" (automated, computerized trading) that replaces a human trader. This is the third issue most financial sociologists focus on in their studies (Borch & Lange, 2017; MacKenzie, 2018a; MacKenzie, 2018b; MacKenzie, 2019).

But even so, there have been few studies on the lives of retail traders, as can be seen in key research by financial sociologist Preda (2017). His work argues that the ultimate goal of retail traders is to achieve "bourgeois freedom." However, most retail traders will fail in the financial markets because their trading decisions will be mind-manipulated by the "trading leaders" of the brokers. Furthermore, most retail traders' orders are never executed because brokers compete with their clients and profit from their losses. Therefore, the retail traders' trading activity is merely "an illusion of competition" on the trading screen.

However, many aspects of Preda's research are also not described, for example, the economic context in developing countries, the reproduction of speculative knowledge by Forex Gurus, the algorithmic trading of financial institutions, the subjectivity of retail traders. These points are a new argument in my PhD thesis (Ketmanee, 2022) to create the sociology of finance debate against Preda's masterpiece research.

For this reason, this research article wants to expand on the knowledge gained from my PhD thesis. This is because the finding from my PhD thesis was that retail traders who trade Forex through brokers have the status of

"digital entrepreneurs," who have full freedom in trading with their own capital. But in the case of retail Forex traders who trade with prop firms' capital, they have the status of "digital labor," controlled by the strict trading rules on the Forex prop firms' platform. Therefore, I want to apply concepts about "digital labor" to analyze how a retail trader becomes a Forex prop trader.

Methodology

This research article is an academic work in the field of sociology of finance that uses "qualitative research methods" through collecting data from articles, books, research, and online media related to retail traders and Forex prop firms. In addition, the researcher uses the method of "participate observation" by taking part in the trading evaluation to become a Forex prop trader like other retail traders, including using the "ethnographic" method by conducting face-to-face interviews with successful and failed retail traders in order to obtain in-depth and reliable data from the field research.

The researcher chose "research field" as Forex prop firms that are popular with Thai retail traders, namely, FTMO, The5%ers, Funded Next, IC Funded, Oanda Prop Trader, etc., by collecting data from the official websites of those companies. In terms of the "sample group," the researcher uses retail traders who become members of the Facebook group named "Forex Prop Firms Thailand," which has approximately 60,000 members in 2025.

The researcher selected 6 retail traders from this Facebook group for in-depth interviews as follows: (1) "SMC trader" (pseudonym, age 30) graduated from the training center of provincial police and is a police sergeant. (2) "ODB trader" (pseudonym, age 31) graduated with a higher vocational certificate in arts and is a full-time trader. (3) "SAR trader" (pseudonym, age 35) graduated with a bachelor's degree in marketing and is a sales manager. (4) "MDL trader" (pseudonym, age 25) studied for a bachelor's degree in engineering (not graduated) and is a cannabis shop owner. (5) ITD trader" (pseudonym, age 34 years old) graduated from middle school and is a restaurant manager. (6) "PST trader" (pseudonym, age 33) graduated with a bachelor's degree in tourism and is a coffee shop owner.

Results and Discussion

The research results are divided into five topics: (1) Forex Proprietary Firms for Retail Traders; (2) An Income Generation Model of Forex Proprietary Firms; (3) Becoming the Digital Labor of Retail Traders; (4) Theoretical Analysis; (5) Discussion

Forex Proprietary Firm for Retail Traders

The foreign exchange market (Forex) is an over-the-counter market in which electronic trading has grown rapidly since the early 2000s. The Forex market is currently considered the most liquid derivative instrument market in the world and has trading in derivatives types, such as FX spots, FX swaps, currency swaps, currency futures, and currency options (Bank for International Settlements, 2023). In April 2022, turnover in the Forex market averaged $7.5 trillion per day, up 14 percent from $6.6 trillion in April 2019 (Bank for International Settlements, 2022).

In general, retail traders can speculate in the Forex market through trading platforms such as MetaTrader4, MetaTrader5, cTrader etc., which can be used via computers and smartphones. Thai retail traders can trade Forex by opening an online account with an overseas Forex broker, and the number of Thai retail Forex traders was estimated at 500,000 in 2020 (Warikitphan, 2018).

However, a few years ago, a new type of Forex trading company called "Forex proprietary firms" was founded and expanded. Such is considered a form of Forex trading that is more attractive to retail traders than trading through traditional Forex brokers. This can be seen from the 10 most popular Forex prop firms in 2023, such as The5%ers (UK), The Funded Trader (USA), FTMO (Czech Republic), Funded Next (UAE), and so on (Forex Prop Reviews, 2023).

"Prop trading has rapidly grown into a popular alternative to traditional investing. Between December 2015 and April 2024, the prop trading industry expanded by 1,264 percent, far outpacing the 240 percent growth seen in traditional investing" (Prop Firms, 2025a).

From the summary of the overview information about "prop trading statistics 2025" by www.prop-firms.com, it was found that in part of trader demographics, Forex prop trading is 78 percent male-dominated; Gen Z and Millennials make up over 60 percent of traders. While the motivations for choosing Forex prop firms are mainly two factors, 79 percent of traders prioritize firms with clear trading rules, while 75 percent favor firms that offer swift and sure withdrawals (Prop Firms, 2025a).

Originally, cities like New York, London, and Hong Kong have long been regarded as the hearths of Forex prop trading; Sydney, Singapore, and Dubai have emerged in recent years as additional hubs in the financial markets

too. There are also emerging and expanding Forex prop trading markets in many developing countries, such as Brazil, South Africa, India, etc. (Prop Firm Match, 2024).

Due to the rapid growth in both revenue and the number of retail traders in the Forex prop firm industry, this condition has provoked old players in the retail Forex industry, like "brokers," to compete for a market share in this new business and establish prop firms operated by Forex brokers (broker-backed) such as "IC Funded" (by IC Market broker), "Oanda prop trader" (by Oanda broker), "Blueberry Funded" (by Blueberry broker), "ThinkCapital" (by ThinkMarkets broker), etc. (Prop Firms, 2025b). At the end of the appendix, I have created a table summarizing key information about the 5 Forex prop firms that are popular with Thai retail traders (Appendix).

In the part of Forex prop firms that have officially opened their markets in Thailand, this can be clearly seen through the case of "Oanda prop traders." Crystal Lok (head of emerging markets, Singapore) answered my question during the seminar "OANDA: Beyond Prop Trading" (January 11, 2025, Bangkok) that Oanda prop traders have positioned Thailand as the hub of emerging markets in ASEAN. At present, a Facebook group, "OANDA Prop Trader Thailand Community," also has been established and has almost one thousand members.

In general, Forex prop firms are not financial institutions and are not regulated by the SEC in their respective countries. Also, retail traders who trade for Forex prop firms are not hired to work in physical offices like traditional prop firms, but Forex prop trading will be done on the internet (Lux Trading Firm, 2023). Therefore, Forex prop traders are not regular employees and do not receive a salary. They are only informal workers who have income from profit. If they meet their target profits, they will receive a profit share of around 50 percent – 90 percent, while Forex prop firms will deduct a profit share of around 10 percent –50 percent (Lux Trading Firm, 2022).

Take for example, the "Bootcamp Program" on a $250,000 account size of The5%ers. Although the application fee is only a cheap $575, it is a very difficult exam because retail traders must pass all 3 phases, with each phase requiring them to make a 6 percent profit and not losing more than 5 percent within a year. If the above conditions are met, retail traders will receive funds in their real account and must make 5 percent profits regularly, not losing more than 4 percent, to receive a profit share of 50 percent in the first stage (The5%ers will deduct profit 50%). After that, in stages 2–12, retail traders will receive additional capital to $300,000–$4,000,000 and receive 75 percent profit share (The5%ers will deduct profit 25%) (The5ers, 2024).

If retail traders lose a little capital or more than exceeding the limits set by each prop firm, they will not earn any income and do not have to be responsible for anything (trading without risk). However, their contract will be canceled and they must go back to pay for the application fee and take the evaluation again.

But on the other hand, the business model of Forex prop firms mirrors the flexible employment that is emerging in electronic financial markets under "cognitive capitalism" (Kitirianglap, 2017). This is considered a quite unfair form of employment on the Forex trading platform because it intensively exploits the skills and time of retail traders without income security and social welfare.

An Income Generation Model of Forex Proprietary Firms

"Your Success Is Our Business," (MyForexFund, 2023b).

The above text is the slogan of the Forex prop firm from Canada, like My Forex Fund, which clearly reflects that "retail traders" (your success) are the source of income for "Forex prop firm" (our business). Hence, without retail traders, Forex prop firms would not be able to operate their businesses.

Therefore, this topic wants to explain the first research objective by analyzing the income generation patterns of Forex prop firms. This occurs through two main processes: (1) "charging trading evaluation fees from retail traders," and (2) "making profit by using trading data of retail traders."

Main source of income: Application fee from the trading evaluation

Charging trading evaluation fees from retail traders is considered to be the main source of income for Forex prop firms because before retail traders can transform themselves into a Forex prop trader, they need to undergo an evaluation of trading skills by speculating on the real-time Forex trading platforms in the demo account and must make a profit that passes the criteria set by each Forex prop firm.

But in fact, the chances that a retail trader can pass the exam and be able to make consistent profits over the long term are very low. This is because the rules for evaluating trading are quite difficult and require the same level of high skills as professional traders at traditional prop firms, or what is called "the discipline of speculators" (Zaloom, 2010).

From the statistics of My Forex Fund (MFF), in November 2021, it can be clearly seen that 5,718 retail traders had applied for a trading evaluation. However, only 10 percent (571.8 people) were able to pass the exam in phase 1. Later in phase 2, only 24 percent of the 10 percent in the first phase (137.2 people = 2.39%) were able to pass the exam and get signed a contract to become a Forex prop trader for MFF. Moreover, after receiving the funded account, retail traders who were able to withdraw their profits numbered only 3 percent of the 24 percent in phase 2 (4.1 people out of 5,718 people = 0.07%), and were able to maintain their accounts for more than 8 months and make an average profit of 4 percent – 8 percent per month (MyForexFunds, 2022).

For this reason, there are very few retail traders who can transform themselves into Forex prop traders. But on the other hand, most retail traders are stuck paying to reapply for the new evaluation again and again because they still have not passed it, or those who did pass the exam later lost their accounts since they broke the trading rules. As a result, the charge of trading evaluation fees from failed retail traders is the main income of Forex prop firms.

This can be seen in the important statistics in 2021 of the number 1 popular prop firm FTMO showing that FTMO had retail traders apply to take the trading evaluation of up to 960,000 accounts, and FTMO had payouts of profit sharing to their prop traders in a total of $29,000,000 (FTMO, 2022).

Although official statistics on FTMO's revenue and expenses have not been released, we can roughly estimate that in 2021 FTMO will have an average income from a minimum trading evaluation fee of $148,800,000 (cheapest fee: $155 x 960,000 accounts), which in fact must be higher. On the other hand, the total profit made by FTMO's prop traders is $36,250,000; prop traders receive a profit share of 80 percent ($29,000,000); and FTMO deducts a profit share of 20 percent ($7,250,000) that is considered secondary income of FTMO. Therefore, when we do some approximate calculation, it can be clearly seen that the minimum average income of FTMO from trading evaluation fees of $148,800,000 is more than the profit-sharing of $7,250,000 up to $141,550,000 ($148,800,000–$7,250,000), or nearly 20 times.

Later in 2023, even though FTMO's expenses increased by paying out $75,170,210 for the entire year to their traders over 138,000 accounts (FTMO, 2025a), when we try to subtract with the 2021 revenue of $148,800,000 (excluding the increase in revenue), FTMO still had $60,290,210 ($148,800,000–$75,170,210) more revenue than expenses. For this reason, the main income of Forex prop firms comes from charging the trading evaluation fee from the majority of failed retail traders.

Secondary source of income: The profit-making by using trading data

From the 2024 data summary of overview of Forex prop trading by "prop-firms.com," it was found that 40 percent of traders can pass evaluation, but just 7 percent achieve payouts consistently, which typically can profitably amount to only around 4 percent of the account value (Prop Firms, 2025a).

Such data thus reflect that making profit by utilizing trading data of a few successful retail traders who pass the trading evaluation is considered a secondary source of income for Forex prop firms. This process will take place through two channels: "the deduction of profit sharing" in real trading accounts and "copying trading signals" in simulated trading accounts.

In the case of Forex prop firms that provide "real trading accounts" to retail traders who pass the trading evaluation, they will "send orders" of retail traders into the Forex market through a prime Forex broker to match with other orders in the Forex market. Currently, there are only 3 reputable Forex prop firms that offer live trading accounts for retail traders: The5%ers (UK), FunderPro (Malta), and Lux Trading Firm (UK) (Forex Prop Reviews, 2024).

For example, The5%ers will send trader orders directly to the Forex market through a "tier-1 liquidity provider," (Forex Prop Reviews, 2025) so the trader's profit or loss is real, such as in a high-stakes funded account type, where The5%ers will deduct 10 percent – 20 percent of the profits share from their traders (The5ers, 2025a).

However, Forex prop firms that offer real accounts will actually lose capital if their trader loses such as on The5%ers' high-stakes funded account size of $100,000 that has a maximum loss rule of 10 percent, so the loss of The5%ers will be possible up to $10,000 per account (The5ers, 2025a). But in the case of prop firms that offer virtual accounts such as FTMO, Funded Next, OANDA prop traders, and IC Funded, etc., their trader's losses will not affect the prop firm at all because those trades were never sent to the real market.

As for the case of Forex prop firms that provide "simulated trading accounts" to retail traders that have passed trading evaluation, they will trade on real-time price charts from the real market condition, and if retail traders can make "virtual profits," that can be withdrawn as real money (FundedNext, 2025). Such as "Oanda prop traders," traders who pass the evaluation will act

as "signal providers." Oanda prop traders will use the trading data from those simulated accounts to further develop them and trade in the real market themselves (Oanda Prop Trader, 2025b).

"A signal provider is a term used to describe a trader who shares access to the data on their trading platform. In the case of our Prop Trader program, the trading data are shared with OANDA. These trading signals are used by OANDA as an input to help with decision-making in OANDA's proprietary trading," (Oanda Prop Trader, 2025a).

Furthermore, popular virtual account provider FTMO has launched a "Quantlane Trader" program that will select FTMO's top-tier traders to work as professional traders for traditional prop firms like Quantlane (acquired by FTMO in 2023). Traders who are selected to be Quantlane traders will receive a 2-year contract with a fixed salary from FTMO (FTMO, 2025b).

Hence, these reflect an important fact that a few success retail traders' data and skills are very valuable to Forex prop firms, whether it is used directly through real accounts like The5%ers or used indirectly through virtual accounts like Oanda prop traders, including hiring in companies like FTMO's Quantlane traders. For this reason, these processes are considered the secondary source of income for Forex prop firms.

Becoming the Digital Labor of Retail Traders

As explained in the previous topic, it can be seen that the main income of Forex prop firms comes from charging trading evaluation fees from most failed retail traders. Therefore, the slogan of My Forex Fund, "Your success is our business," reflects only one side of reality. A parody slogan that reflects more reality than that is "Your failure is our business too."

If we analyze the status of Forex prop traders by using "digital labor" concepts, it is clearly seen that all retail traders are digital laborers who rely on Forex trading platforms to generate income for themselves and platform owners (Forex prop firms). This work condition reflexes a blurring of lines between space and work time in the lives of digital laborers, including a lack of income security and social welfare (Scholz, 2013). Hence, the business model of Forex prop firms is consistent with what Srnicek (2016) calls "platform capitalism" because Forex prop firms rely on the trading platform as a tool for seeking "rent" (trading evaluation fee) and capturing "data" (trading skills) of digital labor (retail traders) to produce value on the platform.

Therefore, this topic wants to explain the second research objective by analyzing the digital labor attribute of retail traders on Forex prop firms' trading platforms. The author divided the digital labor status of retail traders into two types: (1) "customer labor (failed retail traders) and (2) "trader labor (success retail traders).

Customer labor

As the author explained in the last topic, it can be pointed out that paying for the trading evaluation fees of failed retail traders is the main income of Forex prop firms. They are therefore likened to "customers," who need to pay for Forex prop firms repeatedly. For this reason, I consider that most failed retail traders are "customer labor" on the Forex trading platforms.

Certainly, the strict trading rules of each Forex prop firm are designed to make it difficult for traders to pass the trading evaluation. As a result, most retail traders are concerned about strict and hidden trading rules, in particular trailing drawdowns, consistency rules, and restrictions on news trading. Such hard conditions result in 60 percent of traders failing to pass evaluation and losing their capital; most traders thus try to attempt around three evaluations and have the average evaluation spend of $4,270 per person. In general, 90 percent of traders try to engage in evaluations across 2–5 different Forex prop firms (Prop Firms, 2025a).

From interviewing a sample group of 6 retail traders, I found that all of them had failed the trading evaluation. Most of the reasons for failing are due to using too much risk (more than 1% per trade) until losing more than the prop firms set, whether it is violating the daily drawdown or overall drawdown rules rather than violating other rules. This is because they wanted to make a huge profit in a short time, which is hardly possible because it contradicts the principle of random probability.

In the case of "ITD trader" (pseudonym, age 34) and "PST trader" (pseudonym, age 33), both said that they had applied for the trading evaluation 2-3 times each, in $100,000 accounts both of FTMO and The5%ers. But at present, both of them still cannot pass the evaluation since breaking the 10 percent max drawdown rule and lose about 30,000–40,000 baht each.

However, after most retail traders fail exams or lose their trading accounts because of trading rule violations, they need to re-evaluate their trading repeatedly and must pay tens of thousands to several hundred thousand baht in application fees per person until they pass the exam, but in reality, most of them cannot. Consequently, most failed retail traders have the status of "customer labor" on trading platforms and are considered the main source of income for Forex prop firms.

From my in-depth interviews with six retail traders, I found that the reason they did not give up and kept trying to earn money to pay for the new trading evaluation was due to their "desire" to raise their economic status to wealth. Since most of them are just ordinary middle-class people who are financially fragile, the opportunity to access hundreds of thousands of dollars in capital from Forex prop firms is their only hope to change their lives.

As for the cases of "MDL trader" (pseudonym, age 25) and "SAR trader" (pseudonym, age 35), both of them said that they had failed the evaluation more than 10 times and had lost hundreds of thousands of baht in application fees. But in the present, they have been able to overcome their past failures and have been making profits of hundreds of thousands of baht per month for almost a year by designing their own "proficient trading system" to have a long-term statistical advantage (positive expectation value) and in line with the rules of each prop firm. As a result, both of them can change their status from "failed traders" (customer labor) to "successful traders" (trader labor) as they wish.

Trader labor

From my field research by attending the "OANDA: Beyond Prop Trading" seminar (January 11, 2025, Bangkok), in a Q&A session, Kelvin Wong (OANDA's senior market analyst, Singapore) shared that the general passing rate of traders in the trading evaluation is around 4 percent – 5 percent, but in the case of OANDA Prop Traders, the passing rate is as high as 31 percent. He reasoned that although OANDA Prop Traders' strict trading rules may result in most traders not liking them, they helped discipline more traders to pass the evaluation, albeit taking longer.

For example, no trading within 2 minutes before and after the announcement of important economic news, a 10 percent overall trailing drawdown rule, 2 percent profit capture in the second phase, etc. These strict trading rules therefore prevent high-risk trading and force traders to make a reasonable proportion of profits consistently. Such is because the main vision of OANDA Prop Trader is to encourage disciplined traders to receive shares of the profits in conjunction with the company as a "signal provider," Kevin said.

Such evidence from field research thus shows the efforts of Forex prop firms to select highly skilled retail traders in order to exploit their labor, both direct and indirect, by utilizing their trading data for profit-making in the Forex market both in the case of retail traders who trade in real-funded accounts (send trading orders and deduct profit share) and in simulate-funded accounts (copy and develop trading data). These processes are considered the secondary source of income for Forex prop firms. For this reason, a few successful retail traders who pass evaluation are in the status of "trader labor" on the trading platform because they must use their own labor (trading skills) to generate profit for themselves and the capital owners (Forex prop firms).

Although a minority of successful traders fall into the position of "trader labor" exploited by Forex prop firms, compared to the majority of unsuccessful retail traders (customer labor), their income and financial status are many times greater than that of customer labor.

An example of "trader labor" can be seen in the case of "ODB trader" (pseudonym, age 31); he said that before being a Forex prop trader, he had been trading Forex through a broker for over 8 years but only made enough profit to make a living because he had only tens of thousands of baht in capital. However, after turning to trading Forex with prop firms for 4 years, he was able to make more than 50 million baht in profit and was able to pay off his family's debt of 1 million baht in the first year.

Consistent with the case of "SMC trader" (pseudonym, age 30), who said that if he did not know about Forex prop firms, he would never have made tens of millions of baht in profit and would never have been able to buy a super car and a luxury house with cash like he does today. Because his salary as a police sergeant is not enough to make a living, he is very serious and has dedicated his life to trading prop firms because he is determined to be the last poor generation in his family. So, he believes that everyone can do it like him too, because a country boy who used to work as a rubber tree tapper in the South region like him has proven it by himself.

Even though making consistent profits is already very difficult for these success traders, what they do not expect is that withdrawing profits is even more difficult and full of many obstacles, especially when withdrawing large profits of more than 10 percent, as Forex prop firms that offer simulate accounts consider traders to be using gambling trading strategies and often refuse to payout or may be so severe that the contract is cancelled. Therefore, each trader's labor must struggle and adapt to survive in the Forex prop trading industry in the long term.

The worst trading experience like this happened in the case of "ODB trader (pseudonym, age 31). Although he has been able to withdraw profits more than 138 times in the 4 years of being a Forex prop trader, almost every withdrawal was very difficult because he was accused by Forex prop firms of violating trading rules and trying to refuse to pay, such as copying trades from other traders, using excessive risks, using algorithmic trading, etc. As a

result, he had to collect evidence and explain that he did not do anything wrong almost every time, until finally, he was banned from many Forex prop firms that provided simulated accounts.

Therefore, "ODB trader" (pseudonym, age 31) viewed this type of Forex prop firm as a Ponzi scheme business that took the money of most losers to pay profits for a small number of winners. When liquidity began to run out because no new people signed up, these Forex prop firms began to ban traders who made a lot of profit like him. Therefore, he adapted by trading with many Forex prop firms and rushed to make as much profit as possible. If any company banned him, he would move to trade with a new company continuously. Currently, only The5%ers (real accounts) still allow him to trade without a problem because trading orders are actually sent into the market.

In the case of "SMC trader" (pseudonym, age 30), it is the same. Although he was able to withdraw tens of millions of baht in profit, he was denied payment, had his contract canceled, and was banned from many Forex prop firms because he used more than 1 percent of his account risk and could make more than 10 percent profit per withdrawal round. As a result, he currently has to reduce risk to no more than 1 percent per trade and make a reasonable profit per withdrawal round of around 5 percent – 10 percent in order to be able to continue trading in the long term and prevent being accused by each Forex prop firm.

He believes that the way Forex prop firms make money is no different from life insurance businesses that collect monthly premiums from customers who are not yet sick (traders who fail the evaluation and pay for the re-examination) and then use it to pay insurance claims for customers who are sick (traders who pass the evaluation and make a profit). Because in fact life insurance companies do not like customers who are sick often and very sick (traders who request to withdraw profits frequently and too much), he thus chooses to act like customers of life insurance companies who are sick often but not very sick (traders who frequently request to withdraw profits but not too much) to prevent being banned by strictly following the game rule of Forex prop firm.

Theoretical Analysis

If we analyze the status of retail traders on Forex prop firms' trading platform through the concept of digital labor, it is clearly seen that most failed retail traders have the status of "customer labor," whereas few successful retail traders have the status of "trader labor".

In the case of failed retail traders (customer labor), they have a similar status to another digital labor, like a "prosumer" (producer + consumer) or a user on social media platforms such as Facebook, YouTube, etc. (excluding entrepreneurs who use such platforms for commercial purposes), who has the status of both a content producer and content consumer on social media platforms at the same time. But prosumers do not receive any income, and the content becomes the copyright of the platform owner (Rigi & Prey, 2015). This reflects the unequal production relationship on the internet between digital labor and platform owners (Fuchs, 2014; Fuchs, 2017).

If we look at this aspect, customer labor on Forex trading platforms has therefore a status of free labor, as does prosumer on social media platforms, because customer labor never receives a profit share from Forex prop firms that is worth the exam fee. But on the other hand, the status of customer labor is worse than that of prosumers because, in addition to not getting compensation, customer labor also must pay trading evaluation fees to Forex prop firms.

In the case of "trader labor" (successful retail traders) on the Forex prop firms' trading platforms. They have characteristics that are both similar and different from other types of digital labor as well. For example, trader labor is similar in working characteristics to "crowd worker," which is a digital laborer who performs subcontracted work on the internet independent of time and location, such as digital nomads (Zhong, 2022). Similarly, trader labor can generate income from anywhere, anytime, by speculating on the Forex trading platform.

In addition, trader labor also has a work style that is the same as "gig workers," since they are controlled by the algorithms of the platform owners. For example, the Uber drivers must drive strictly according to the algorithm's instructions because their driving performance will be evaluated by algorithms that will affect their future income. (Drahokoupil & Fabo, 2016). Uber drivers are considered to be "algorithmic labor," (Rosenblat and Stark, 2015). In the same way, trader labor is required to strictly follow the trading rules of Forex prop firms. Otherwise, the algorithm on the Forex trading platform will detect that they are violating trading rules, and their contracts will be canceled immediately. This process therefore reflects how power networks work in digital capitalism, which Bifo calls a "society of control" (Berardi, 2009).

But if we look at it in terms of work compensation,

trader labor has more income than other types of digital labor because in general, most digital laborers have relatively low incomes and work harder, especially digital laborers in Thailand. For example, in the case of "riders" of a food delivery app, on average they are paid approximately 20,000–30,000 baht per month but must work hard for more than 8 hours per day (Teerakowitkajorn & Tularak, 2020). Thus, riders have the least bargaining power in the platform business's ecosystem between entrepreneurs, consumers, and platform owners (Wantanasombut & Phithakthanin, 2021).

On the contrary, the income of trader labor is considered higher compared to other digital labor in Thailand because trader labor can make an average profit of hundreds of thousands to millions of baht per month. This can be seen in the case of "ODB trader" (pseudonym, 31 years old) and "SMC trader" (pseudonym, 30 years old), who both were able to make a profit of more than 50 million baht in the past 4 years, or in the case of "MDL trader" (pseudonym, 25 years old) and "SAR trader" (pseudonym, 35 years old), who both were able to make a profit of several hundred thousand baht per month.

If considering in terms of income, trader labor on the Forex trading platforms is also similar to digital labor like "tech workers," who work for digital technology companies and receive high wages, such as programmers, software engineers, etc. Nevertheless, most social scientists rarely consider tech workers as a group of digital labor since they are not financially fragile. However, the existence of tech workers reflects class differences and income inequality among digital labor (Dorschel, 2022). If we look at this perspective, "trader labor" or a few successful retail traders thus have very high income when compared with "customer labor," or the most failed retail traders that do not receive any compensation and also pay tens to hundreds of thousands of baht per person in trading evaluation fees. This research result can therefore show the disparity of income among retail traders on Forex prop firms' trading platforms, evidently.

Discussion

From the discussion of the previous 4 sections, it can be concluded that the research findings in this article are different from my PhD thesis and can expand the frontiers of knowledge in Thai financial sociology because in general, trading through Forex brokers results in retail traders having the status of "digital entrepreneurs" on the Forex trading platform. Retail traders use their own capital to trade Forex, and brokers only charge commissions for sending retail traders' orders into the Forex market. Hence, they have full freedom to trade without any trading restrictions from Forex brokers (Ketmanee, 2022).

In contrast to the case of trading Forex through prop firms, retail traders do not have the freedom to trade because they must strictly follow the trading rules of Forex prop firms. Otherwise, they will not be able to pass evaluate trading and may eventually be terminated from the contract because the capital that they use in trading comes from Forex prop firms. As a result, retail traders have the status of "digital labor," controlled on the Forex prop firms' trading platforms.

But in reality, most retail traders often trade forex in both forms at the same time to diversify channels for seeking income. Therefore, a retail trader has both the status of "free entrepreneur (on Forex broker's platforms) and "controlled labor" (on Forex prop firm's platforms) within one person, which is the overlapping subjectivities of retail Forex traders on digital platforms.

Conclusion and Recommendation

In conclusion, at present, trading with Forex prop firms is becoming hope in creating wealth among retail traders around the world as well as Thai retail traders. But in reality, all retail traders have "digital labor" status on Forex trading platforms. This is because Forex prop firms' main income comes from charging trading evaluation fees from most retail traders who fail the exam and must pay to re-apply over and over again. As a result, they have the status of "customer labor." On the other hand, the secondary income of Forex prop firms comes from the profit-making of utilizing trading data that are generated by a few successful retail traders; they thus have the status of "trader labor."

Finally, I hope that this research article will make important contributions both academically and practically because the research results can help expand the knowledge of Thai financial sociology on the issue of retail Forex traders and help point out the problem of exploitation from financial capital on Forex trading platforms through analysis by the digital labor concept, which has not been studied much in the Thai social science academic context. Moreover, the research results also reflect the struggling and adaptation strategies of successful traders; these findings are thus directly beneficial to retail traders who want to be Forex prop traders.

Conflict of Interest

The authors declare that there is no conflict of interest

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Appendix

A table summarizing key data about the 5 Forex prop firms that are popular with Thai retail.

Popular Forex Prop Firms	Broker Backed	Funded Account	Evaluation Fees	Profit Sharing	Trading Allowed	Maximum Capital
FTMO (Czech Republic)	None	Virtual Capital	10k Challenge (€89) / 200k Challenge (€1,080)	80%– 90%	Forex, Commodities, Indices, Stocks, Crypto	$2,000,000
The5%ers (United Kingdom)	None	Real Capital	5k High Stakes ($39) / 100k High Stakes ($545)	80%– 100%	Forex, Commodities, Indices, Stocks, Crypto	$3,840,000
Funded Next (United Arab Emirates)	None	Virtual Capital	5k Stellar Lite ($32) / 200k Stellar ($999)	80%– 95%	Forex, Commodities, Indices, Crypto	$4,000,000
OANDA Prop Trader (Malta)	OANDA	Virtual Capital	5K Challenge ($35) / 500K Challenge ($2,400)	80%– 90%	Forex, Commodities, Indices	$500,000
IC Funded (Saint Lucia)	IC Markets	Virtual Capital	5K Evaluation ($49) / 500K Evaluation ($2,498)	75%–80%	Forex, Commodities, Indices	$500,000

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The influence of entrepreneur orientation and digital competencies to sustainable competitive advantage of artisanal fisheries in Maluku: A case study in Kei Island, Southeast Maluku

Alexandra E. M. Tutuhatunewa[a,*], Yosef Dedy Pradipto[b]

[a] *Doctor of Research in Management, BINUS Graduate Program, BINUS Business School, BINUS University, Jakarta, Indonesia*
[b] *Psychology Department, Faculty of Humanities, BINUS University, Jakarta, Indonesia*

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Abstract

Artisanal fisheries face significant challenges in achieving competitiveness and sustainability, particularly in resource-limited regions like Maluku, Indonesia. This study examines the influence of Entrepreneurial Orientation (EO) and Digital Competencies (DC) on Sustainable Competitive Advantage (SCA), guided by the Resource-Based View (RBV) framework. EO encompasses innovation, proactiveness, and risk-taking, while DC effectively uses digital tools to enhance decision-making and operational efficiency. Data were collected from 150 artisanal fishers in Kei, Southeast Maluku, through structured surveys. The findings indicate that EO significantly impacts SCA (path coefficient = .687), highlighting its role as a primary driver of long-term competitiveness. DC also contributes positively to SCA (path coefficient = .101), although its impact is more supportive, amplifying the effects of EO. Additionally, the relationship between EO and DC (path coefficient = .248) underscores their interconnectedness, as entrepreneurial behaviors foster the adoption of digital tools. EO and DC account for 51.6 percent of the variance in SCA, demonstrating their synergistic influence. This study advances RBV by integrating modern capabilities with traditional knowledge in artisanal fisheries, addressing gaps in understanding how internal resources contribute to competitive advantage in resource-constrained contexts. Practically, the findings emphasize the importance of fostering entrepreneurial behaviors and strengthening digital skills through targeted interventions, such as training programs and infrastructure development. Collaborative efforts among policymakers, stakeholders, and technology providers are essential for artisanal fishers to build resilience, enhance sustainability, and achieve long-term competitive success.

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* Corresponding author.
E-mail address: alexandra.tutuhatunewa@binus.ac.id (Tutuhatunewa, A. E. M.).

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Introduction

Indonesia, the world's largest archipelago with approximately 17,504 islands, has 77.11 percent of its territory covered by water, making the marine sector a crucial pillar of its economy (Kementerian Koordinator Bidang Kemaritiman dan Investasi, 2021). Small-scale fisheries (SSF) contribute 40 percent of global fish catches, with 90 percent of fishermen working in this sector (Smallhorn-West et al., 2022). However, a lack of official records complicates measuring changes in SSF (Warren & Steenbergen, 2021). Seafood, particularly fish, meets up to 54 percent of Indonesia's protein needs (UNDP), and the country supplies 10 percent of the world's fisheries demand (Hartriani, 2017).

Despite their critical role, SSF face significant environmental, economic, and social challenges, exacerbated by overfishing (Hilborn et al., 2020). Fishermen often struggle with limited assets, weak market access, and technological gaps, reinforcing poverty in coastal communities (Cahaya, 2015). Maluku, with its vast marine resources, has high fishery potential yet remains Indonesia's fourth poorest province, with 17.99 percent of its population living in poverty (Hahury et al., 2022).

To optimize fisheries management, the National Fisheries Management Area (WPPNRI) was established, with Maluku spanning three key areas: WPPNRI 714 (Banda Sea), WPPNRI 715 (Seram Sea), and WPPNRI 718 (Arafura Sea), which has Indonesia's highest potential for small pelagic (836,973 tons/year) and demersal fish (876,722 tons/year) (Ministry of Marine Affairs and Fisheries, 2022). The Kei Islands, positioned between WPPNRI 714 and 718, have seen the growth of SSF (Picaulima, 2021). Most fishing in Maluku is conducted by small and medium enterprises (Batubara et al., 2017), yet the sector prioritizes profit over sustainability (Salehe et al., 2024). Of Indonesia's 800,000 fishermen, 372,101 operate boats under 10 GT, making up over 70 percent of the fleet (Barlian et al., 2021).

The Resource-Based View (RBV) explains how firms sustain competitive advantage through unique, hard-to-imitate resources (Barney, 1986; Hamel & Prahalad, 1996; Madhani, 2010). Despite its prominence in strategic management, RBV's application to SSF remains limited (Pereira & Bamel, 2021). Recent critiques argue that sustainable competitive advantage (SCA) requires leveraging strategic resources against competition (Barney, 2002; Barney & Clark, 2007; Kraaijenbrink et al., 2010; Tajeddini et al., 2023).

This study examines how entrepreneurial orientation (EO) and digital competencies (DC) contribute to SCA in Maluku's artisanal fisheries, addressing gaps in RBV application within SSF in developing nations. Prior research has focused on large-scale fisheries or examined EO and DC separately. By exploring their interplay, this study provides insights into how internal capabilities drive sustainability in small-scale fisheries.

Literature Review

Entrepreneurship Orientation

Entrepreneurial orientation (EO) is a key driver of competitive success, particularly in resource-constrained environments. It comprises 5 dimensions: innovation, proactiveness, risk-taking, competitive aggressiveness, and autonomy (Lumpkin & Dess, 1996), enabling businesses to navigate uncertainty and sustain long-term advantages (Tajeddini et al., 2023). In artisanal fisheries, EO fosters product and process innovation, enhancing fishing techniques, supply chain efficiency, and value-added products. Innovations in fish preservation and packaging can expand market reach, boosting competitiveness (Tajeddini et al., 2023). EO also helps fishers leverage traditional knowledge and community networks for resilience (Kanatli, 2024; Nkwei et al., 2023).

However, socio-economic constraints, limited financial capital, weak market access, and inadequate training hinder EO's full potential in Maluku (Kollmann et al., 2021). Addressing these barriers requires microfinance, entrepreneurial training, and stronger market linkages to connect fishers directly to buyers. EO fosters collaboration within fishing communities, enhancing collective capacity through cooperatives and associations that enable resource pooling, knowledge sharing, and stronger market negotiations (Bernoster et al., 2020; Kanatli, 2024).

Recent studies highlight EO's role in digital transformation and sustainability. EO, when integrated with digital competencies, drives innovation, providing fishers access to real-time market data, resource optimization, and alternative revenue streams like eco-tourism (Bachmann et al., 2024). Additionally, EO supports environmental sustainability by aligning business practices with conservation goals. Fishers with strong EO are more likely to adopt sustainable techniques and invest in eco-friendly technologies, ensuring long-

term viability (Dias et al., 2021).

Other studies highlight digital entrepreneurial ecosystems as a means to enhance EO's impact. Liu et al. (2023) emphasize that integrated digital platforms, supportive policies, and accessible resources amplify entrepreneurial initiatives. For artisanal fishers in Maluku, such ecosystems provide real-time market data, logistical support, and digital financial services, reducing reliance on intermediaries and increasing profit margins. Community-driven digital tools also foster knowledge sharing and collective problem-solving.

Digital transformation strengthens EO by streamlining operations and enabling strategic decision-making. Wang et al. (2023) stress the need to align organizational structures with technological investments to improve resource management, supply chains, and market connectivity. Additionally, Li and Donta (2023) highlight the role of green supply chain practices within digital ecosystems, using advanced models like SNN-stacking to optimize resource use and sustainability in artisanal fisheries.

EO effectiveness in artisanal fisheries depends on socio-economic conditions, institutional support, and infrastructure. In Maluku, challenges like limited capital, weak market linkages, and inadequate training hinder its full potential. Targeted interventions microfinance, entrepreneurial training, and market development are crucial. Miles and Morrison (2018) stress that rural entrepreneurial ecosystems thrive when systemic barriers like policy gaps and resource constraints are addressed. Aligning EO with broader policies and fostering collaboration among government, NGOs, and private stakeholders can create a more supportive entrepreneurial environment.

The synergy between EO and digital competencies (DC) enhances innovation and sustainability. Wang et al. (2023) argue that proactive EO enables better use of digital tools, allowing fishers to monitor stocks, utilize predictive analytics, and access direct-to-consumer sales. Makhloufi et al. (2022) emphasize integrating sustainability into EO strategies, ensuring long-term viability by balancing economic growth with environmental responsibility in a sustainability-conscious global market.

Digital Competencies

Digital competence (DC) refers to the skills, knowledge, and attitudes needed to effectively use digital technologies for information processing, collaboration, and communication (Janssen et al., 2013; He & Li, 2019; Wang et al., 2021). As digitalization reshapes markets, businesses must leverage DC to innovate and remain competitive (Wang et al., 2024). DC ranges from basic skills like internet navigation to advanced competencies such as data analysis and problem-solving (Oberländer et al., 2020). In artisanal fisheries, applying DC such as using fishing monitoring apps—can enhance resource management and decision-making.

Beyond operational efficiency, digital competence (DC) is crucial for entrepreneurship. ICT expands social networks, unlocking opportunities and funding. Al-Mamary and Alraja (2022) highlight how digital skills shape entrepreneurial ambitions, fostering innovation and adaptability. Digital networks enable real-time, automated data management, reshaping policy, commerce, and social interactions. Torres and Godinho (2021) emphasize that digital entrepreneurial ecosystems drive innovation and competitiveness, particularly in rural areas. Artisanal fishers can leverage such systems for real-time market insights, supply chain optimization, and expanded buyer networks. Khan et al. (2022) further link DC to sustainability, showing how digital tools enhance efficiency when integrated with green supply chain practices. Predictive analytics, such as fisheries stock tracking, contribute to achieving Sustainable Competitive Advantage (SCA).

Digital technologies transform artisanal fisheries by improving efficiency, decision-making, and market access. Tools like fisheries monitoring systems and e-marketplaces reduce reliance on intermediaries and expand business opportunities (Baiyere et al., 2020). However, barriers such as limited infrastructure, affordability, and training gaps hinder adoption. Collaborative efforts among policymakers, NGOs, and private stakeholders are essential. Community-based digital literacy programs can empower fishers, fostering both economic resilience and sustainability.

Sustainable Competitive Advantage

Sustainability underscores the need for responsible environmental, social, and economic actions to meet present needs without compromising future generations (Clark & Dickson, 2003; Kates et al., 2001; Rai et al., 2021). Sustainable Competitive Advantage (SCA) builds on this foundation by enabling organizations to maintain superior market positions through unique, hard-to-replicate assets and capabilities (Li et al., 2022). Rooted in sustainability theory (Meadows et al., 1972), SCA integrates environmental, economic, and social dimensions, ensuring long-term value creation beyond short-term gains (Secchi et al., 2024). Artisanal fisheries

can achieve SCA by leveraging traditional knowledge, adopting sustainable fishing methods, and integrating innovative technologies to enhance efficiency and market positioning.

Digital resources are critical in sustaining competitive advantages. Technologies such as data analytics, blockchain, and IoT improve decision-making, supply chain transparency, and market access. However, Cao et al. (2021) stress the equal importance of physical resources. Digital innovations must be supported by strong infrastructure, including storage and transportation, to maximize impact. In artisanal fisheries, integrating digital tools with physical assets strengthens SCA by improving efficiency and resilience.

Entrepreneurial Orientation (EO) and Digital Competencies (DC) are key drivers of SCA. EO fosters innovation, proactivity, and risk-taking, enabling fishers to adapt to market shifts and identify new opportunities. DC equips them with the skills to utilize digital tools, enhancing operational efficiency and decision-making. The synergy between EO and DC is crucial: EO provides the strategic mindset for innovation, while DC offers the technical skills to implement it. For instance, fishers with a strong EO may recognize opportunities for direct sales via online platforms, while DC allows them to navigate these platforms effectively. This integration empowers artisanal fisheries to differentiate themselves in competitive markets.

Artisanal fisheries face multiple challenges in achieving Sustainable Competitive Advantage (SCA), including competition from larger commercial fisheries, fluctuating market conditions, and limited access to capital and technology. These challenges are further compounded by external pressures such as new market entrants, substitute products, and the bargaining power of suppliers and buyers (Hermawan, 2022). However, these obstacles also create opportunities for artisanal fishers to strengthen their market position by leveraging technological advancements and data-driven strategies.

Digital tools play a crucial role in enhancing transparency, efficiency, and competitiveness. Blockchain technology can verify sustainable fishing practices, increasing market trust and appeal. Real-time analytics optimize resource use and reduce operational costs, contributing to long-term sustainability. Soluk and Kammerlander (2021) emphasize the importance of aligning technological investments with organizational capabilities to enable digital transformation. Artisanal fisheries can integrate traditional fishing methods with modern digital tools to establish a unique competitive advantage. Green supply chain practices further support SCA, particularly in environmentally sensitive industries (Khan et al., 2024). Digital innovations help artisanal fisheries meet the growing demand for eco-friendly products, enhancing their market position. Belhadi et al. (2022) highlight the role of digital entrepreneurial ecosystems—integrated platforms and supportive policies that provide critical resources and networks to sustain competitive advantages.

Achieving SCA in artisanal fisheries requires a strategic combination of Entrepreneurial Orientation (EO), Digital Competencies (DC), and sustainable practices. Addressing challenges such as resource constraints and market volatility necessitates investments in digital and physical infrastructure, alongside policies that promote innovation and sustainability. As digital transformation reshapes industries, artisanal fisheries that embrace adaptation and innovation will secure lasting competitive advantages.

Resource-Based View (RBV) as the Foundation

The Resource-Based View (RBV), a cornerstone of strategic management theory, serves as the theoretical foundation for this study. Introduced by Barney (1991), RBV asserts that an organization's internal resources and capabilities—if they are valuable, rare, inimitable, and non-substitutable (VRIN)—are fundamental to achieving and sustaining competitive advantage. These resources enable organizations to develop unique value propositions that are difficult for competitors to replicate. In the context of artisanal fisheries, RBV provides a framework for analyzing how internal assets such as traditional knowledge, entrepreneurial orientation (EO), and digital competencies (DC) contribute to long-term success. By effectively leveraging these resources, artisanal fisheries can enhance their resilience, adaptability, and competitiveness in dynamic and resource-constrained environments.

RBV has been widely applied in diverse sectors to explore how internal resources contribute to competitive advantage:

Digital Resources: Cuthbertson and Furseth (2022) demonstrated that dynamic capabilities, supported by physical and digital resources, are essential for innovation in digital service industries.

Entrepreneurial Orientation: Tajeddini et al. (2023) emphasized EO's role as a key internal resource driving innovation and adaptability, particularly in environments with limited external opportunities.

Traditional knowledge and local practices have historically served as unique resources for artisanal

fisheries. However, this study extends the Resource-Based View (RBV) framework by incorporating modern capabilities, namely, Entrepreneurial Orientation (EO) and Digital Competencies (DC) to analyze how these combined resources contribute to Sustainable Competitive Advantage (SCA). This integration underscores the evolving nature of artisanal fisheries as they balance traditional practices with digital transformation.

This study contributes to the ongoing development of RBV by examining the synergistic interaction between EO and DC. While previous research has often treated these competencies independently, this study posits that their combination generates dynamic capabilities, enabling artisanal fisheries to adapt more effectively to market and environmental challenges. Recent studies by Wang et al. (2023) and Liu et al. (2023) advocate for updating RBV to account for digital transformation, enhancing its relevance for contemporary industries.

Unlike studies that primarily focus on large-scale industries or digitally native enterprises (Li & Donta, 2023), this research situates EO and DC within the socio-economic and ecological realities of artisanal fisheries in Maluku. These fisheries, which operate at the intersection of traditional knowledge and emerging technologies, offer a distinctive case for examining the interplay between conventional and modern resources. Additionally, integrating sustainability principles into the RBV framework extends its applicability by addressing pressing challenges such as environmental conservation and social equity.

The theoretical model proposed in this study builds upon RBV, positing that EO and DC are interdependent internal resources that collectively drive SCA:

Entrepreneurial Orientation (EO): EO fosters innovation, proactiveness, and risk-taking, enabling fishers to identify opportunities, develop strategies, and respond to challenges effectively.

Digital Competencies (DC): DC provides the technical skills and tools to implement and sustain these innovative strategies, including digital marketplaces, fisheries monitoring applications, and data analytics.

This model positions EO and DC as complementary resources that amplify each other's impact, creating a competitive edge that aligns with RBV's principles. By applying this framework to artisanal fisheries, the study validates RBV and extends its application to include dynamic, evolving resources.

Methodology

Research Design

This study adopts a quantitative research design, underpinned by the philosophy of positivism, to investigate the influence of Entrepreneurial Orientation (EO) and Digital Competencies (DC) on Sustainable Competitive Advantage (SCA) in artisanal fisheries in Maluku. The research focuses on traditional fishers, primarily in Kei, Southeast Maluku, a region characterized by limited resources and infrastructural challenges.

Hypotheses Development

The hypotheses in this study are developed based on the Resource-Based View (RBV), which suggests that internal resources and capabilities contribute to sustained competitive advantage (Barney, 1991). In particular, entrepreneurial orientation (EO) and digital competencies (DC) are examined for their potential impact on sustainable competitive advantage (SCA) in artisanal fisheries. This section provides a structured discussion leading up to each hypothesis.

Entrepreneurial Orientation and Sustainable Competitive Advantage

Entrepreneurial Orientation (EO) is a key determinant of competitive advantage, particularly in resource-constrained environments. EO consists of three primary dimensions: innovation, proactiveness, and risk-taking (Lumpkin & Dess, 1996). Firms with a strong EO are more likely to innovate, anticipate market changes, and take calculated risks, leading to sustained competitive advantages (Tajeddini et al., 2023).

In the context of artisanal fisheries, EO enables fishers to adopt innovative fishing techniques, explore new markets, and develop value-added products, enhancing their long-term competitiveness. Research suggests that higher levels of EO are associated with improved business performance and resilience in dynamic environments (Kanatli, 2024). Therefore, Hypothesis 1 (H1) proposes that Entrepreneurial Orientation (EO) has a significant positive influence on Sustainable Competitive Advantage (SCA)

Digital Competencies and Sustainable Competitive Advantage

Digital Competencies (DC) refer to the ability to effectively use digital tools and technologies to optimize operations, facilitate decision-making, and improve market access (Oberländer et al., 2020). As markets become increasingly digital, possessing strong digital skills allows businesses to enhance efficiency, engage with broader consumer bases, and streamline supply chain management (Wang et al., 2024).

In artisanal fisheries, digital tools such as GPS tracking, online marketplaces, and data analytics platforms provide fishers with critical insights into resource availability, pricing trends, and consumer demand (Khan et al., 2022). While traditional fishing methods remain integral, integrating digital solutions can enhance productivity and competitiveness. Therefore, Hypothesis 2 (H2) proposes that Digital Competencies (DC) have a positive influence on Sustainable Competitive Advantage (SCA).

Entrepreneurial Orientation and Digital Competencies

Entrepreneurial Orientation fosters a mindset that encourages innovation, experimentation, and openness to new technologies. Studies indicate that firms with high EO are more likely to adopt digital tools, as they actively seek new opportunities and embrace technological advancements (Liu et al., 2023).

For artisanal fishers, an entrepreneurial mindset may drive the adoption of digital solutions to improve operational efficiency and market engagement. Proactive fishers are more inclined to use mobile applications for weather forecasting, digital payment systems, and e-commerce platforms to expand their market reach. Thus, EO is expected to play a crucial role in shaping DC development. Therefore, Hypothesis 3 (H3) proposes that Entrepreneurial Orientation (EO) positively influences the development of Digital Competencies (DC).

Data Collection

Data were collected through a structured questionnaire survey targeting artisanal fishers in Kei, Southeast Maluku. The sampling frame consisted of fishers operating small-scale traditional vessels, representing the primary unit of analysis. One hundred fifty respondents participated in the survey, ensuring adequate representation of the target population. This study examines entrepreneurship orientation, digital competency, and sustainable competitive advantage. The survey questionnaire was used to collect data from the analysis units, which consisted of groups of small-scale fishermen/artisanal fishers in Kei, Southeast Maluku.

Measurement and Scale Development

This study employed a structured questionnaire to measure Entrepreneurial Orientation (EO), Digital Competencies (DC), and Sustainable Competitive Advantage (SCA) using a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The measurement items were adapted from validated sources and tailored to the artisanal fisheries context.

Entrepreneurial Orientation (EO)

Entrepreneurial Orientation was operationalised as a multidimensional construct reflecting the strategic posture of fishers in managing and developing their business activities. Consistent with the framework proposed by Lumpkin and Dess (1996), EO comprises 5 key dimensions: innovation, proactiveness, risk taking, competitive aggressiveness, and autonomy. In this study, EO was measured using five reflective items that capture the extent to which artisanal fishers introduce new techniques, seek emerging market opportunities, take calculated financial risks, compete actively in the marketplace, and make independent business decisions. The detailed measurement items and their sources are presented in Table 1.

Table 1 Measurement items of entrepreneurial orientation (EO)

Code	Item	Source
EO1	I frequently introduce new fishing techniques or business strategies.	Lumpkin and Dess (1996)
EO2	I actively seek new market opportunities for selling my fish.	Lumpkin and Dess (1996)
EO3	I am willing to take financial risks to improve my business.	Lumpkin and Dess (1996)
EO4	I frequently engage in competitive pricing and marketing strategies.	Lumpkin and Dess (1996)
EO5	I make independent business decisions without relying on external guidance.	Lumpkin and Dess (1996)

Digital Competencies (DC)

Digital Competencies were conceptualised as the set of technical abilities and digital literacy skills that enable artisanal fishers to effectively utilise technology in their business operations. Drawing on Oberländer et al. (2020), DC encompasses technical skills, digital literacy, and practical technology usage in daily economic activities. In this study, Digital Competencies were measured using four reflective items that capture the use of mobile applications, digital financial tools, online information access, and digital marketing platforms. The detailed measurement items and their sources are presented in Table 2.

Sustainable Competitive Advantage (SCA)

Sustainable Competitive Advantage was conceptualised as the long term ability of artisanal fisheries to maintain superior market positioning, financial stability, and resource sustainability. Grounded in the resource based view (Barney, 1991; Li et al., 2022), SCA reflects the capacity of business actors to leverage valuable, rare, inimitable, and non substitutable resources in order to achieve sustained performance over time. In this study, Sustainable Competitive Advantage was measured using four reflective items capturing income stability, competitive strength, sustainable operational practices, and long term resource management. The detailed measurement items and their sources are presented in Table 3.

Second-order construct explanation

EO and DC were modeled as second-order constructs, meaning they were formed by multiple dimensions rather than being treated as a single-variable construct. This approach was justified by prior research (Wang et al., 2023), where second-order modeling allows for a more comprehensive understanding of EO and DC as multi-dimensional factors influencing SCA.

Reliability and validity

The internal consistency of the scales was verified using Cronbach's Alpha and Composite Reliability (CR), both exceeding the recommended 0.7 threshold (Hair et al., 2019). Convergent validity was confirmed with Average Variance Extracted (AVE) > .5, while discriminant validity was assessed using the Fornell-Larcker Criterion and Heterotrait-Monotrait Ratio (HTMT).

Data Analysis

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM), a robust technique suited for predictive and exploratory research. PLS-SEM was chosen for its flexibility in handling complex models with small sample sizes and non-normal data distributions. The analysis followed a structured approach:

Outer Model Evaluation: Included assessments of reliability (Cronbach's Alpha, Composite Reliability) and validity (Convergent and Discriminant Validity).

Inner Model Evaluation: Examined path coefficients, R-squared values, and effect sizes (f^2) to assess the relationships between constructs.

Hypothesis Testing: Path significance was determined using bootstrapping with 5,000 subsamples, ensuring the robustness of the results.

The evaluation of the Outer and Inner Models in PLS-SEM involves testing validity, reliability, and model fit. The Outer Model is assessed through outer loadings (≥ .60 or .70) for validity, Cronbach's Alpha and Composite Reliability (≥ .70) for reliability, and AVE (≥ .50) for

Table 2 Measurement items of digital competencies (DC)

Code	Item	Source
DC1	I use mobile applications to track fish prices.	Oberländer et al. (2020)
DC2	I am proficient in using digital tools for financial transactions.	Oberländer et al. (2020)
DC3	I access weather forecasts and fishing zone data online.	Oberländer et al. (2020)
DC4	I use social media or online platforms to market my fish.	Oberländer et al. (2020)

Table 3 Measurement items of sustainable competitive advantage (SCA)

Code	Item	Source
SCA1	My fishing business has a stable and growing income.	Li et al. (2022)
SCA2	I can compete with larger fisheries in the market.	Li et al. (2022)
SCA3	I adopt sustainable fishing practices to maintain long-term viability.	Li et al. (2022)
SCA4	My fishing techniques ensure continued resource availability.	Li et al. (2022)

convergent validity. Discriminant validity is verified using the Fornell-Larcker Criterion and HTMT (< .90). The Inner Model evaluation includes multicollinearity testing (VIF < 5), hypothesis testing (p < .05), effect sizes (f^2), and path coefficients. Model fit is determined through R^2, Q^2, SRMR (< .08), GoF Index, PLS Predict, and CVPAT to assess predictive strength.

Result

All indicators have loadings above .6, with most above .7, indicating strong relationships between the indicators and their respective constructs, as illustrated in Figure 1.

Construct reliability and validity are essential in social science research to ensure precise measurements. All constructs Digital Competencies, Entrepreneurial Orientation, and Sustainable Competitive Advantage have Cronbach's Alpha values above .7, indicating strong internal consistency. Digital Competencies shows a Composite Reliability (CR) of .980, and rho A values exceed .9, confirming excellent reliability. AVE values above .5 for all constructs demonstrate that over 50 percent of the variance is explained, ensuring convergent validity. These results, as shown in Table 4, validate the reliability and suitability of these constructs for research and measurement.

The path coefficient analysis reveals key relationships between entrepreneurial orientation (EO), digital competencies (DC), and sustainable competitive advantage (SCA) in artisanal fisheries. EO has a strong positive impact on SCA (.687), emphasizing its role in fostering innovation, proactiveness, and risk-taking for competitive advantage. DC's direct influence on SCA is weaker (.101), suggesting it is most effective when combined with entrepreneurial strategies. The moderate relationship between EO and DC (.248) indicates that an

Table 4 Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Digital Competencies	.978	.982	.980	.765
Entrepreneurship Orientation	.920	.930	.931	.530
Sustainable Competitive Advantages	.936	.946	.944	.584

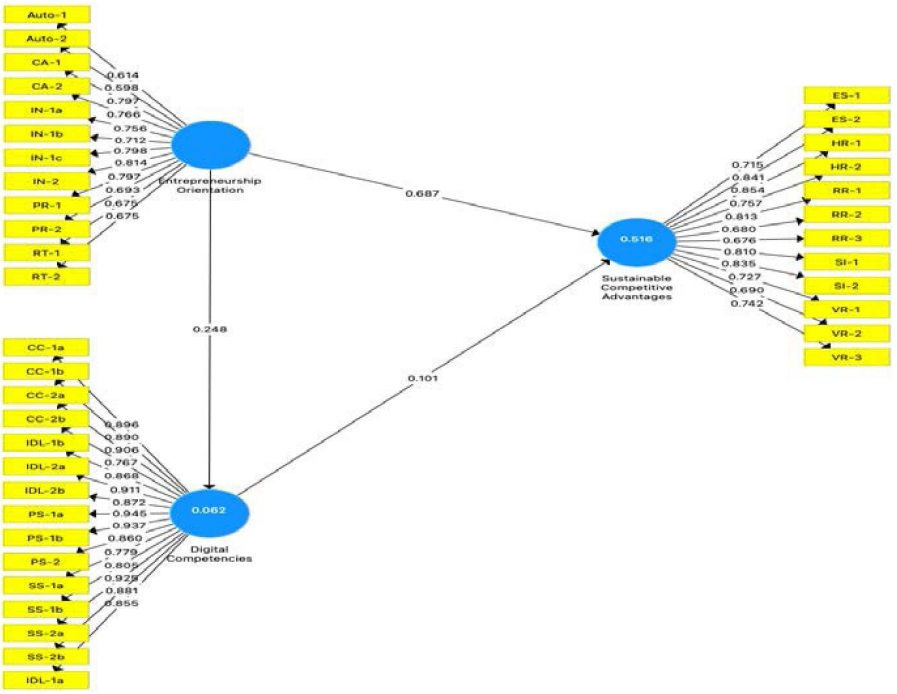


Figure 1 Loading factor

Table 5 Path coefficients

	Digital Competencies	Entrepreneurship Orientation	Sustainable Competitive Advantages
Digital Competencies			.101
Entrepreneurship Orientation	.248		.687
Sustainable Competitive Advantages			

entrepreneurial mindset encourages digital adoption. As shown in Table 5, the findings suggest that strengthening EO is crucial for enhancing SCA, with DC serving as a supportive factor.

The R-squared values presented in Table 6 indicate the explanatory power of the model for the dependent variables. Sustainable Competitive Advantage (SCA) has an R^2 of .516, meaning EO and DC together explain 51.6 percent of its variance, demonstrating moderate to strong influence. In contrast, Digital Competencies (DC) has an R^2 of .062, showing that EO accounts for only 6.2 percent of its variance, suggesting other influential factors outside this model.

Table 6 R square

	R Square	R Square Adjusted
Digital Competencies	.062	.062
Sustainable Competitive Advantages	.516	.516

Discussion

This study underscores the critical role of entrepreneurial orientation (EO) and digital competencies (DC) in shaping sustainable competitive advantage (SCA) among artisanal fisheries in Maluku. The findings highlight the importance of internal capabilities in overcoming resource constraints. EO has the strongest impact on SCA, with a path coefficient of .687, reinforcing the significance of innovation, proactiveness, and risk-taking in achieving competitiveness. This aligns with prior research (Lumpkin & Dess, 1996; Tajeddini et al., 2023) and the Resource-Based View (RBV) framework, which emphasizes internal resources as key drivers of long-term success (Barney, 1991; Pereira & Bamel, 2021). The model's R-squared value of .516 suggests that EO and DC together explain over 50 percent of the variance in SCA, supporting previous studies (Oberländer et al., 2020; Wang et al., 2024) on the synergy between technological adoption and strategic entrepreneurship.

While digital competencies (DC) positively correlate with sustainable competitive advantage (SCA), their direct impact is relatively minor compared to entrepreneurial orientation (EO), as indicated by a path coefficient of .101. This contrasts with findings in more technologically advanced contexts, where DC plays a greater role in competitive advantage (Oberländer et al., 2020). The moderate relationship between EO and DC, with a path coefficient of .248, suggests that EO supports the adoption and effective use of digital tools. This weaker impact of DC in Maluku can be attributed to socio-economic constraints, including limited technological access, inadequate infrastructure, and low digital literacy. Fishers in Maluku face unique challenges, such as resource limitations, low bargaining power, and reliance on traditional practices. EO helps mitigate these challenges by fostering an innovative mindset, enabling fishers to identify new opportunities and adapt to changing market conditions. Those with strong EO are more likely to leverage digital tools, such as fisheries monitoring applications, to optimize operations and enhance resource management.

The limited development of DC, evidenced by an R-squared value of .062, indicates that EO alone is inadequate for addressing the broader challenges associated with digital adoption. Access to affordable technology, training programs, and infrastructure are essential external factors for improving DC. The findings are consistent with Hu et al. (2023) and Probst (2020), who highlight the significance of systemic interventions for facilitating digital transformation in resource-constrained environments.

The interaction between EO and DC yields valuable insights for enhancing the competitiveness and sustainability of artisanal fisheries. Policymakers and stakeholders must prioritize initiatives promoting entrepreneurial behaviors and improving digital competencies.

- Capacity-building programs in entrepreneurial training emphasizing innovation, risk-taking, and market engagement can enable fishers to leverage emerging opportunities.
- Digital inclusion, through the provision of affordable and accessible digital tools and training for effective utilization, can enhance the impact of EO.
- Collaborative interventions involving partnerships among government agencies, NGOs, and private

stakeholders are crucial for addressing systemic barriers and fostering enabling environments for artisanal fishers.

This study offers insights into sustainable development strategies in resource-limited contexts, specifically within the artisanal fisheries sector. The findings illustrate the essential role of entrepreneurial orientation (EO) and the supportive function of digital competencies (DC) in enhancing resilience, promoting sustainability, and securing long-term competitiveness. These insights are relevant to policymakers, development practitioners, and industry stakeholders focused on fostering sustainable economic growth in analogous contexts.

Future research should examine further factors affecting the development of digital competencies, including infrastructure availability, technology accessibility, and institutional support mechanisms. Examining the influence of external networks and partnerships on digital adoption may yield a deeper insight into how small-scale fishers can efficiently utilize digital tools. Additionally, examining sector-specific challenges in adopting entrepreneurial strategies and digital technologies may provide focused interventions to improve competitive advantages in other resource-constrained industries.

This study highlights the essential role of entrepreneurial orientation (EO) in attaining competitive success and demonstrates the supportive influence of dynamic capabilities (DC). The internal resources collectively enable artisanal fisheries in Maluku to address economic challenges, enhance operational efficiency, and strengthen their market position. Addressing systemic barriers and fostering the integration of entrepreneurial and digital competencies can enable policymakers and practitioners to improve sustainable development outcomes that benefit local economies and global food systems. The findings underscore the necessity of coordinated efforts to improve the capacity of resource-limited sectors, thereby ensuring their long-term viability and success.

Conclusion and Recommendation

Focusing on artisanal fisheries in Maluku, this study emphasizes the importance of Digital Competencies (DC) and Entrepreneurial Orientation (EO) in creating Sustainable Competitive Advantage (SCA) in contexts with low resources. According to the report, traditional industries may adapt to changing market dynamics and secure long-term competitiveness by combining these aspects.

Research shows that EO is a key factor in SCA because of its positive effects on encouraging initiative, creativity, and risk-taking. Because of these qualities, small-scale fishers can face complicated problems and take advantage of new chances. The significance of combining entrepreneurial and digital skills to develop a well-rounded approach is highlighted by the fact that DC has a smaller direct impact than EO, but its supporting role strengthens EO's benefits. The fact that EO and DC work together to explain a large amount of the variation in SCA highlights how important they are.

This study offers practical recommendations for enhancing competitiveness and sustainability in traditional sectors like artisanal fisheries. Policymakers and organizations are encouraged to prioritize capacity-building initiatives to foster entrepreneurial behaviors. Small-scale fishers can better navigate market challenges and seize emerging opportunities by cultivating innovation, proactive decision-making, and adaptability. Additionally, investments in digital tools, infrastructure, and targeted training programs are essential to strengthen fishers' digital skills, enabling them to adopt and effectively utilize technology to improve operational efficiency and market access. A holistic approach that integrates entrepreneurial orientation (EO) and digital competencies (DC) within strategic management frameworks can provide organizations with a comprehensive and sustainable competitive advantage.

Furthermore, collaboration among governments, NGOs, and private stakeholders is critical. These partnerships can provide access to resources, networks, and support systems that empower fishers to overcome systemic barriers and achieve long-term success. Together, these measures can drive sustainable development and resilience in resource-constrained environments.

Various elements, such as social networks, cultural attitudes, and external market conditions, shape the dynamic link between EO and DC. This relationship could be further explored in future research. Such studies could shed light on how these factors combine to promote or impede the growth of digital and entrepreneurial skills. Longitudinal studies that follow their development over time would be very helpful in understanding the long-term impacts of these competencies and the means to maintain a competitive edge further. It is possible to confirm the framework's usefulness by extending it to other traditional areas; doing so may also reveal fresh chances to generalize its principles and improve its application.

The study emphasizes that EO is the main force causing SCA and that DC is an essential supplementary

component. Taken as a whole, these assets provide a solid foundation for flourishing in settings with limited means. Stakeholders may facilitate transformational growth, resilience, and sustainable development by overcoming current obstacles and capitalizing on the interaction between entrepreneurial and digital capabilities; this will help close the gap between conventional wisdom and cutting-edge innovation.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Debt to the public but not public debt: Seeking legal solutions to Bangkok's debt obstacles.

Tinlaphas Chupantanarakul [a,*], Monthol Uttabolyukol [b,†]

[a] *School of Law, Walailak University, Tha Sala, Nakhon Si Thammarat 80160, Thailand*
[b] *Office of the Attorney General, Bangkok 10210, Thailand*

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Abstract

Facing an unprecedented fiscal challenge stemming from the Bangkok Mass Transit System (BTS) Green Line extension and lingering effects of COVID-19, Bangkok bears a debt burden of THB 40 billion, exceeding that of any other local self-governed organization in Thailand. Despite falling outside the definition of public debt and its assets being legally immune from seizure, Bangkok remains obligated to repay this debt. However, its current financial shortcomings and existing solutions, such as acquiring additional loans, issuing bonds, seeking government intervention, negotiating with creditors, or restructuring, are either practically infeasible or untested within the Thai context, making finding a solution critically urgent.

Researchers suggest adapting principles akin to those enshrined in Chapter 9 of the US Bankruptcy Code and integrating them into the existing Thai bankruptcy statute. This approach could offer a valuable and structured framework for effectively restructuring Bangkok's debt burden while ensuring the continued provision of essential public services. Notably, the proposal includes an automatic stay provision, offering temporary relief from creditors. Furthermore, concerns that typically deter American municipalities from pursuing Chapter 9, such as adverse market reactions or population decline, are deemed less relevant within the specific context of Bangkok

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Introduction

Bangkok Metropolitan Administration is the local administrative organization as the legal entity. The primary responsibilities include providing public utility services, developing infrastructure, mitigating public disasters, and ensuring the safety and security of the population. (Bangkok Metropolis Administrative Organization Act, B.E. 2528 [1985]; Determining Plans and Process of Decentralization to Local Government

* Corresponding author.
E-mail address: tinlaphas.ja@wu.ac.th (Chupantanarakul, T.).
† Co-first authors.

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Organization Act B.E. 2542 [1999]). Bangkok has had an annual expenditure budget of at least 70 billion baht for the past five years, beginning in 2018. Figure 1 shows the annual expenditure budget from 2018 to 2022. Additionally, in certain years, supplementary expenditure budgets have been requested, particularly in regard to Bangkok's current debt issue arising from the Green Line Project (BTS: Bangkok Mass Transit System Public Company Limited). It is expected that Bangkok is going to demand an additional expenditure budget for a subsequent fiscal year to associated with the Bangkok mass transit project.

In the case of Bangkok's revenue, it is divided into two types: revenue collected directly by Bangkok itself and revenue collected on its behalf by other government agencies, which generates annual revenue of no less than 60 billion baht. However, Bangkok's revenue decreased in 2020 and 2021. The main reason that this happened was the repeal of the previous law's collection of building and land taxes, as well as local maintenance taxes, and the enactment of the Land and Building Tax Act B.E. 2562 (2019), which became effective on January 1, 2020. This also includes the impact of the COVID-19 pandemic, which prompted Bangkok to impose tax breaks to alleviate the burden on people as well as organizations. These measures have reduced Bangkok's revenue. Figure 2 summarizes Bangkok's revenue from 2017 to 2021.

Although Bangkok has significant revenue from tax collection, as well as subsidies from the government and loans from external organizations, (The Bangkok Metropolis Administrative Organization Act 1985, Section 117) at present, Bangkok has undergone rapid urbanization and development, demanding substantial infrastructure investments and public services. However, pursuing growth has also resulted in a significant rise in the city's debt. Various aspects of infrastructure development, such as transportation systems and utilities, need considerable financial resources. Bangkok has an extensive public transportation network, including the Bangkok Mass Transit System (BTS) Green Line, which is a mass transit system that connects the city center with the suburbs. The extension of the BTS Green Line, which offered free rides until April 2021 and cost THB 25.5 billion (approximately $770 million), was financed by a loan from the Japan International Cooperation Agency (JICA) (Sawasdee Thailand, 2023). The extension is expected to increase the ridership of the BTS Green Line by 60,000 passengers per day (Wancharoen, 2023). However, it also adds to the debt burden of Bangkok which owns the line and has to repay the loan to JICA. During the fiscal year of 2020, coinciding with the onset of the pandemic of disease (COVID-19), the metropolis initially anticipated revenue of THB 83 billion (around $2.55 billion) but ultimately collected only approximately

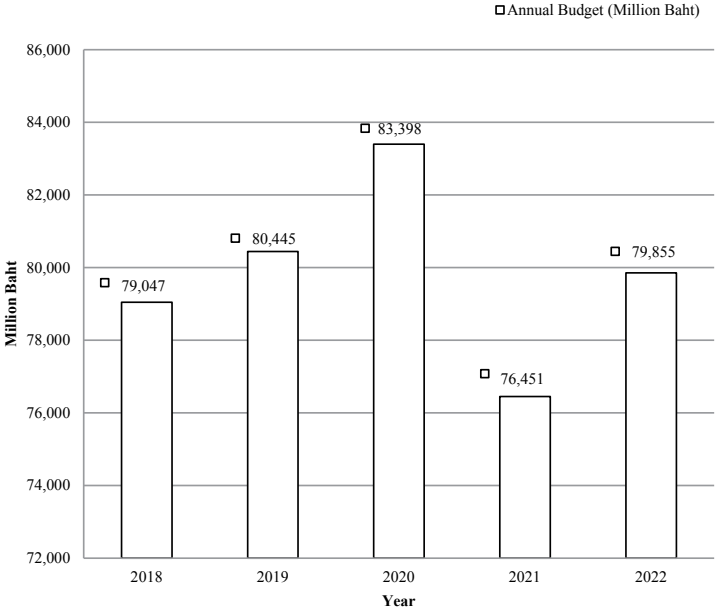


Figure 1 Annual budget
Adapted from Thairath Online (2022). Bangkok's 2022 budget of 79,855 million baht: What is it used for? https://www.thairath.co.th/news/politic/2365257

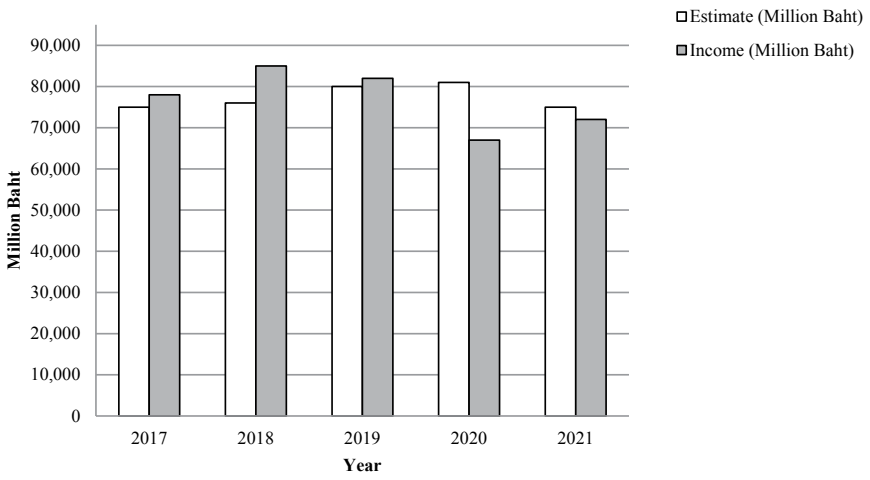


Figure 2 Summarizes Bangkok's revenue from 2017 to 2021.
Adapted from Thairath Online (2022).Bangkok's 2022 budget of 79,855 million baht: What is it used for? https://www.thairath.co.th/news/politic/2365257

THB 67 billion (translating to $2.03 billion) (Strategy and Evaluation Department, 2020). In the following fiscal year, 2021, the city recorded revenue of approximately THB 72 billion (around $2.18 billion), falling short of its target by THB 5 billion (roughly $150 million) (Isranews, 2022). However, the 2022 fiscal year saw Bangkok's total revenue rebound to approximately THB 80 billion (comparable to $2.42 billion). The massive debt of the BTS Green Line extension has ignited controversy despite Bangkok's attempts to manage its finances. Tensions have escalated as the financially strapped BTS system publicly voiced its concerns about outstanding payments from Bangkok. The threat of service disruptions looms large, with the BTS threatening to shut down operations until payments are received (Nick, 2021). In September 2021, BTS sued Bangkok, and its subsidiary, Krungthep Thanakom Co., Ltd., seeking compensation for two main issues: operating the Green Line extension (THB 12 billion, or roughly $360 million) and installing the train operating system (additional THB 20 billion or comparable to $600 million) (The Nation, 2023). In September 2022, the Central Administrative Court ruled in BTS's favor and ordered the city to pay THB 12 billion plus interest within 180 days. However, this ruling covers only a portion of the outstanding debt related to the Green Line extensions, which currently stands at approximately THB 40 billion ($1.21 billion) (Post Reporters, 2023). The case is ongoing and under review by the Supreme Administrative Court (Bangkokbiznews, 2023). While the initial surplus revenue might have suggested Bangkok could quickly settle its debt with BTS, a closer look reveals a more complex picture. The city had anticipated expenses of THB 79 billion (roughly $2.39 billion), leaving little room for discretionary spending. Over 65 percent of these expenses were non-negotiable fixed and structured costs like salaries, leaving only THB 1 billion (around $30 million) after essential expenses. Even at a zero-interest rate, settling the debt with BTS with this remaining balance would have taken Bangkok at least 40 years. This highlights the city's intricate financial situation and the critical need for strategic planning to manage both revenue and expenditure effectively. Therefore, finding viable solutions to Bangkok's debt crisis remains crucial for its continued functioning and financial stability.

Apart from the Regulations of Public Debt Policy and Supervision Committee on Loaning Money Rules for Local Administrative Organization B.E. 2561 (2018), no other legal principles are practical guidelines for local administrative organization debt management. Although Thailand has The Public Debt Management Act B.E. 2548 (2005), it does not include the debt management of the local sector. For paying debts by disbursing the annual government statement of expenditure to the creditors, it must be approved by the parliament and legislated as the annual government expenditure of that fiscal year. This approach takes many steps and is a complicated process, causing damage to the creditors if it does not receive the expenditure for paying debts, partial payment, or delayed payment. It is unfair to the creditors because justice delayed is justice denied.

Based on the comparative law, Chapter 9 of the U.S. Bankruptcy Code, 11 U.S.C. § 901 et seq., having the main objective of protecting the municipality which is

facing the financial problem, can adjust the debt structure by receiving protection from creditors' pressing the payment during the process of improving and negotiating the debt restructuring plan. Thus, Chapter 9 is one of the essential tools for the insolvent municipality.

The researcher compared the US Bankruptcy Laws, especially Chapter 9 of the U.S. Bankruptcy Code, 11 U.S.C. § 901 et seq., presenting the overall image of significant debt restructuring characteristics and results. This comparison led to the suggestions of measurement in finding solutions when Bangkok Metropolitan Administration faces the debt problem. The researcher focused on the application process in the form of comparison based on the legal theories, which is not opposed to the Thai governing structure.

Literature Review

In approaches to finding measures to solve the financial obligations of government departments as local administrative organizations, the researchers investigated academic documents, articles, and laws before analyzing and comparing them to the US Bankruptcy Code, which led to solutions when Bangkok Metropolitan Administration faced the debt problem.

Legal Framework for A State Agency's Debt Management: Overview of Relevant Laws and Regulations.

Under its own legal framework, Bangkok Metropolitan Administration operates as a separate local government organization with its own legal standing (The Bangkok Metropolis Administrative Organization Act 1985, Section 6) as an autonomous legal entity, Bangkok Metropolitan Administration possesses its very own rights and obligations. As with other legal entities, it can act as a creditor, pursuing claims and demanding performance from debtors (Thai Civil and Commercial Code, 1992, Sections 66 and 194). In exercising their rights, prosecutorial organization is typically assigned to assist state agencies in legal matters (The Organization of Prosecution and Prosecutors Act, 2010, Section 14 (3)) and is mandatorily required to represent them in court proceedings (The Regulation of the Official Prime Minister for Consideration to Adjudge the Dispute Resolution between Public Departments and Proceedings, 2018, Clause 21, Paragraph 1), including Bangkok Metropolitan Administration (The first author, in his capacity as a public prosecutor, previously represented the Bangkok Metropolitan Administration in a court proceeding.). However, beyond this essential support, the Metropolis receives no further legal assistance or advantages. Bangkok Metropolitan Administration is treated equally in court, subject to the same legal standards and procedures as other litigants. Contrary to popular belief, state-initiated legal actions, including civil cases, are subject to stricter regulations. Bangkok is endowed with distinct obligations to provide essential public services, and these obligations encompass a wide array of public services, ranging from public safety keeping, infrastructure development, slum management, environmental management initiatives, and social welfare programs (The Bangkok Metropolis Administrative Organization Act 1985, Sections 89 and 93). Bangkok is empowered to undertake various modalities to fulfill these obligations. It may, through its governor or its public servants, choose to directly administer and operate public services, forge partnerships and collaborations with other entities, establish specialized organizations dedicated to service provision or delegate certain functions to private sector entities acting on its behalf (The Bangkok Metropolis Administrative Organization Act 1985, Sections 95 and 96). Although not primarily focused on business objectives, engaging in activities such as providing public services can lead to the accumulation of debts. Again, as with any legal entity, the Bangkok Metropolitan Administration is entitled to incur debt. No legal provisions, either in the Bangkok Statute or Civil and Commercial Code, exempt Bangkok from servicing its debts. Bangkok's assets are classified as state estates, making them immune to seizure and outside the scope of debt collection through legal processes (The Supreme Court, 2010, Decision Number 7461,). This legal protection extends to preventing unauthorized acquisition using, purchasing or gaining ownership by possession (Thai Civil and Commercial Code, 1992, Sections 1305–1307). While the Constitution (The Constitution of the Kingdom of Thailand B.E. 2560, [2017], Section 250 Paragraph 4), Bangkok statute (The Bangkok Metropolis Administrative Organization Act B.E. 2528, [1985], Section 122), the law regarding State Fiscal and Financial Disciplines The State Fiscal and Financial Disciplines Act B.E. 2561 [2018], Section 64) and the law regarding Local Administration Organization Empowerment (The Local Administration Organization Empowerment Act B.E. 2542, [1999] Section 30 (5)), all guarantee that Bangkok, as a self-governing local entity, receives sufficient subsidies from the Thai government and is entitled to generate income through various channels, including local taxes and service fees. The procurement of external funds through borrowing

or loans may be considered as a viable option (The Bangkok Metropolis Administrative Organization Act B.E. 2528, [1985], Section 117). The primary legal framework governing borrowing, management, and repayment of public debt in Thailand, The Public Debt Management Act B.E. 2548 (2005), aims to address the surge in debt from recent crises and tighten control by consolidating fragmented regulations and centralizing oversight under a single agency. This comprehensive reform will ensure responsible debt management, promoting Thailand's financial health (The Public Debt Management Act B.E. 2548, 2005). As defined by the law, "Public Debt" includes government's, state-owned enterprises and public organization's debts, as well as government-guaranteed debts, but specifically excludes local government units' debt (Public Debt Management Act, B.E. 2548, [2005], Section 4). While local government organizations are treated as state agencies under budgetary procedure laws (The Budgetary Procedures Act, B.E. 2561 [2018], Section 4(6)) their debts are not classified as public debt, creating a discrepancy as their management, borrowing, and repayment fall outside the reign of the public debt management law.

Despite being excluded from the public debt management law, local government borrowing is regulated by a rule established by the "Committee Regarding the Criteria for Borrowing by Local Government Organizations," appointed under the public debt management statute. Approved by the Cabinet in 2018, this rule strictly limits loan-taking by local governments, including Bangkok Metropolitan Administration, by restricting it to specific, pre-defined purposes. The loan amount must not exceed 10 percent of the respective organization's average revenue. Any loans taken by local authorities are their sole responsibility, and the central government won't be liable in case of default. Neither will the government act as a guarantor for these loans nor allocate funds for repayment in the event of default (The Regulation of the Policy and Public Debt Management Committee Regarding the Criteria for Borrowing by Local Government Organizations B.E. 2561 [2018], Clauses 7, 11, 15, and 16).

Under Thai law, creditors can seek remedies against debtors. (The Civil and Commercial Code, 1992, Section 194 and Section 203). Alternatively, creditors are entitled to petition for their insolvent debtors' bankruptcy under certain condition, the Bankruptcy Act B.E. 2483 which comprises three bankruptcy procedures: bankruptcy (liquidation), corporate reorganization, and small and medium-enterprise reorganization.

Corporate Reorganization has been added to the existing Bankruptcy statute amidst the financial crisis added by the Bankruptcy Act (No. 5), A.D. 1998. (See the reason of the enactment of the Bankruptcy Act (No. 5) 2541). The Thai version of reorganization process shares some similarities with Chapter 11 of the U.S. Bankruptcy Code, can be conducted either voluntarily or involuntarily, viz if (1) a debtor is insolvent or unable to repay debt in due time; (2) a debtor owes at least THB 10 million to one or more creditors, and (3) there is a reasonable reason for reorganizing the debtor's business, where the debtor may be able to restructure their debt under the bankruptcy court's and official receivers' supervisions and guidance. Upon the court's acceptance of the petition, an "automatic stay" takes effect, temporarily halting all lawsuits, judgments, and other civil actions against the debtor. If the court approves a reorganization order, a plan preparer will be appointed, and they will assume the role as the debtor's executive. The debtor's executives lose their power to manage the business and property. The plan preparer's primary duty, as its name suggests, is to prepare a reorganization plan. They act in the debtors' shoes until the court approves the plan. Upon the court's approval, the reorganization plan becomes legally binding on all involved parties. Pre-debts are forgiven, except for those specifically identified in the reorganization plan. Upon successful execution of the plan, and with the court's approval, the reorganization process concludes, allowing the debtor to emerge from bankruptcy. Under the successful implementation of the plan, the law required that creditors will be guaranteed payments that are at least as advantageous as those they would receive in a bankruptcy scenario (Bankruptcy Act, B.E. 2483 [1940], Sections 90/3, 90/12, 90/20, 90/23, 90/25, 90/58(3), 90/60, 90/70).

Regarding the insolvency of local government organizations, a Supreme Court precedent established that they cannot be declared bankrupt (The Supreme Court, 2017, Decision No. 5969/2016). It also seems unlikely that local government bodies would qualify for the reorganization procedure, given their exclusion from the legal definition of eligible entities (Bankruptcy Act, B.E. 2483 [1940], Section 90/1, "debtor").

In the U.S., the Constitution empowers Congress to enact uniform laws for nationwide bankruptcy procedures (US Senate, 1787, Article 1, Section 8, Clause 4). Federal bankruptcy law reigns supreme, superseding any conflicting state laws. This national uniformity underscores its crucial role within the U.S. legal framework. The current bankruptcy law, Title 11 of the U.S. Code ("Bankruptcy Code"), outlines the legal framework for proceedings. It covers various aspects,

including types of bankruptcy. Among these, Chapters 7 (Liquidation), 11 (Reorganization), and 13 (Individual Debt Adjustment) are widely known and analyzed due to their prevalence and significance.

Chapter 9, officially titled "Adjustment of Debts of a Municipality," or "Municipal Bankruptcy," addresses financial distress faced by municipalities. To illustrate the workings of Chapter 9 procedures, let's consider Municipality A as an example (Kimhi, O. 2010). When Insolvent Municipality A files a petition for Chapter 9 protection, an automatic stay is triggered. This essentially prevents creditors from pursuing debt collection, giving the municipality breathing room to navigate its financial challenges and seek a path toward debt adjustment and reorganization. During this period, Municipality A can engage in negotiations with its creditors. If these negotiations are successful, the municipality can successfully emerge from the bankruptcy proceedings. On the other hand, it may attempt to implement a debt readjustment plan even if creditors object, commonly referred to as a "cram down." When the Bankruptcy Court approves the plan, all pre-petitioned debts, except those specifically mentioned in the plan itself, are discharged.

Article Review

Despite the complexities of decentralization in Thailand, the importance of local governance remains widely acknowledged. Siripanyo et al. (2021) pointed out that local governments play a crucial role in managing social inequality due to their proximity to citizens and understanding of their challenges. Importantly, these bodies bear responsibility for citizens' well-being throughout their lives (Siripanyo et al., 2021). While non-commercial in nature, public services can incur substantial debts, sometimes to a significant degree. Nantharath et al. (2020) linked rapid budget increases during political transitions in metropolis governments to stalled public investment at the local level. This insufficient spending also hampered growth in manufacturing, construction, and real estate, contributing to fiscal imbalances and development gaps in the Thai economy (Nantharath et al., 2020).

Many municipalities in Thailand heavily rely on government allocations while simultaneously generating limited income from service fees and local taxes, resulting in low overall fiscal capacity, particularly for larger municipalities burdened by extensive service demands.

Promsan (2013) echoed these concerns, highlighting that the government allocations might be insufficient to support growing local needs. This necessitates exploring alternative funding sources, such as external loans, to bridge the gap between revenue and expenses (Promsan, 2013). Singhasri (2015) concluded that subsidies to local governments act as hidden public debt, as they are not fully accounted for in official figures. This underestimates the actual indebtedness of local authorities, potentially impacting the country's future fiscal health (Singhasri, 2015).

Case Studies: Financial Challenges Faced by Thai State Agencies.

Nam Kam subdistrict municipality

Nam Kam Subdistrict Municipality ("Nam Kam"), formerly a Subdistrict Administrative Organization within Thailand's northeastern Nakhon Phanom province, recently gained municipality status. In late 2004, Nam Kam secured a THB 14 million loan (approximately $400,000) from Krung Thai Bank, responsibly meeting its debt obligations initially. However, in 2012, the Council of State ruled that the borrowing lacked legal authority due to missing subdistrict regulations, leaving the guarantors (including the former Chief District Officer, the former Tambol Administration Organization Permanent Secretary, and financial officer) jointly responsible for the debt. Despite this, the bank urged Nam Kam to acknowledge the debt. The newly elected Chief reluctantly complied and referred the case to the Ministry of Interior for resolution (Krueathep, 2020). The legal dispute ultimately led Krung Thai Bank to petition for Nam Kam's bankruptcy. However, the Supreme Court ruled in favor of the subdistrict, confirming the bank's lack of authority to trigger bankruptcy proceedings against a state agency (The Supreme Court, 2017, Decision No. 5969/2016). Uttabolyukol and Sophonpirom (2022) contend the Supreme Court misconstrued existing legal provisions in this case. They argue that, as independent legal entities, state agencies like Nam Kam should be eligible be subject to bankruptcy proceedings like any other entity. They suggest the Central Bankruptcy Court's rationales to dismiss the case on the grounds of futility could have been sufficient, without denying the agency's potential eligibility for bankruptcy. Additionally, they further note that the Reorganization Procedure, intended for private entities and certain state-owned enterprises, is not available for state agencies like Nam Kam due to their distinct legal standing. This renders pursuing reorganization through this process impractical and legally prohibited (Uttabolyukol & Sophonpirom, 2022).

Thai Airways International Public Company Limited

Thai Airways International Public Company Limited soared into existence in 1960. Initially, Thai Airways was founded as a joint venture between Thailand's domestic carrier, Thai Airways Company, and the Scandinavian Airlines System (SAS) (CAPA center for aviation, 2024). Thai Airways International Public Company Limited began experiencing significant debt issues in 2008, primarily due to rising oil prices, internal political instability, and the global economic slowdown. These factors led to continuous financial losses for the airline. By the end of 2019, the COVID-19 outbreak further exacerbated the situation, drastically reducing travel demand and severely impacting the national economy, the aviation industry, and the tourism sector (Chokanan, 2020). This economic downturn resulted in substantial debt accumulation, financial instability, and an urgent liquidity crisis, making it impossible for the company to meet its obligations. At that time, the company's debt had reached THB 349 billion (approximately $10.6 billion), the largest in its history, with defaults on loans and bonds. Furthermore, potential corruption and excessive overtime costs placed additional strain on its finances (Khaliq, 2020). Given these challenges, the authors strongly believe that bankruptcy should always be the last resort for any entity facing financial difficulties. It should only be considered once all other alternatives have been explored. This aligns with Thai Airways' efforts to explore various debt management options before resorting to bankruptcy. With government support, the company filed a petition with the Central Bankruptcy Court to initiate the reorganization process. On September 14, 2020, the court issued an order for business rehabilitation. The Central Bankruptcy Court has considered and concluded that if Thai Airways undergoes debt restructuring, organizational changes, and management improvements under the business reorganization plan according to the Bankruptcy Act, the company will be able to continue operations. This approach would also allow Thai Airways to generate enough revenue to repay its creditors fairly, while preserving many employee jobs—an outcome preferable to bankruptcy (Central Bankruptcy Court, 2020, Red Case No. Ff 20/2563).

Methodology

This research employs a documentary research methodology, focusing on the systematic analysis of secondary data from non-personal sources, including academic publications, government reports, and official documents. The study investigates Bangkok's public debt management through a comparative analysis of the debt restructuring mechanisms outlined in Chapter 9 of the US Bankruptcy Code and the framework for local administrative organizations in Thailand. Relevant data were collected from diverse sources, primarily government reports and academic publications. The analysis first employed descriptive analytics to outline Bangkok's debt management practices, followed by diagnostic analysis to evaluate their effectiveness in comparison with the US bankruptcy framework. This approach aimed to generate actionable recommendations for enhancing debt management within Thai local governments.

Analysis and Discussion

Legal Issues in Bangkok's Debt Management.

The COVID-19 pandemic and the BTS Green Line extension, among others, have severely strained Bangkok's finances. Current legal frameworks protect state agencies' assets, including those of local government organizations like Bangkok Metropolitan Administration, from seizure. Additionally, Supreme Court precedent prohibits the declaration of bankruptcy for state agencies. These protections create challenges for debt recovery. While creditors can take state agencies to court, and even if the court rules in their favor, they lack the means to fully execute judgments, raising questions about the incentives for debt repayment. However, the state agency cannot even contemplate the possibility of escaping its debt obligations. To do so would trigger a domino effect with catastrophic consequences. Taking Bangkok Metropolitan Administration as an example: Firstly, defaulting on its debt would irreparably damage Bangkok's reputation. This would leave the city vulnerable to external intervention, similar to the situation that arose when the BTS threatened to shut down its services. Without such a critical transportation artery, the metropolis would be left paralyzed, severely impacting the lives of its citizens. Additionally, other service providers might lose confidence in Bangkok's financial stability, potentially leading them to follow suit and discontinue their services, further crippling the city. Secondly, as a public organization established by law, Bangkok is responsible for being a role model for legal compliance. The cabinet has clearly articulated that it is the state's obligation to follow the laws and rules, including fulfilling its financial and contractual commitments. Bangkok is no exception to this rule

(Mamount, 2014). Further, defaulting would not only breach this legal duty but could also lead to disciplinary actions against executive staff or administrative fines (The Act on Establishment of Administrative Courts and Administrative Court Procedure, B.E. 2542 [1999], Section 75/4, para. 1). Thirdly, the legal framework itself provides no escape for Bangkok. Its existence and purpose are stipulated by law, and its dissolution can only occur through the same legal channels. Defaulting does not offer a loophole in this regard. Finally, creditors still possess alternative avenues to pursue their claims. For example, legal provisions allow Bangkok's creditors to directly demand payment from Bangkok's debtors, bypassing the city itself (Thai Civil and Commercial Code, 1992, Sections 233–236). Additionally, an arbitral tribunal can render an award against Bangkok, thanks to the New York Convention (United Nations, 1958), to which Thailand is a party (Thailand acceded to the United Nations Convention on the Recognition and Enforcement of Foreign Arbitral Awards on December 19, 1959.). The arbitral award can be enforced worldwide. Consequently, if Bangkok, or Thailand, has assets outside of Thailand, those assets are not immune from seizure in foreign countries. The authorities in the respective jurisdictions might recognize and enforce the arbitral award, potentially leading to the fulfillment of Bangkok's financial obligation ("In the past, an arbitral tribunal issued an award against a Thai state agency, requiring the department to repay the debt owed to the claimant in the arbitration proceedings. While the department's assets within Thailand were immune from seizure, the claimant successfully sought enforcement of the award against a Thai state agency asset located in a foreign country."). Presently, Bangkok faces five potential options to address its financial challenges: obtaining a loan, issuing bonds, securing government budget allocations, negotiating with creditors, and restructuring. The option of obtaining a loan is deemed highly impractical due to Bangkok's current state of over-indebtedness. Private banks, both domestic and international, as well as foreign governments, are hesitant to extend substantial funds given the lack of government guarantees, as Bangkok's debt is not classified as public debt. Additionally, stringent regulations set by the Committee on Public Debt dictate that local governments cannot borrow more than 10 percent of their revenue. Because Bangkok's debt exceeds this threshold, any potential loans might be insufficient to repay the existing debt fully. Additionally, Bangkok can only obtain loans with the approval of the Bangkok Metropolitan Administration Council, as mandated by law (The Bangkok Metropolis Administrative Organization Act, B.E. 2528 [1985], Section 117(8)). With the negative precedent set by the "Nam Kam" incident where individual staff were held liable for exceeding borrowing limitations, securing council approval for further loans proves exceptionally difficult. Furthermore, even if a loan were secured, it would not be a long-term solution. While a loan might temporarily address immediate needs, the additional burden of interest payments would ultimately exacerbate Bangkok's existing financial challenges. Issuing bonds also presents significant challenges. There was no precedent that local government bodies in Thailand have ever issued bonds, creating uncertainty and potentially limiting investor confidence. Furthermore, while issuing bonds might offer a temporary reprieve, it would ultimately add to the city's long-term debt burden, further exacerbating its financial woes. Securing appropriate budget allocations from the government is similarly unfeasible. Despite constitutional and legal guarantees, revenue sources consistently fall short of Bangkok's needs. Moreover, providing sufficient funds for Bangkok could set a precedent that other financially strained local governments might exploit. When a debtor cannot repay its debts as scheduled, negotiation naturally follows. However, this option may not be suitable for Bangkok, especially regarding a major creditor like BTS. Unlike smaller debts, which Bangkok could potentially offset with its nearly THB 1 billion annual surplus, managing a large debt through out-of-court negotiation poses significant challenges. Convincing creditors to accept Bangkok's commitments after a default is difficult. Furthermore, during negotiations, Bangkok would need to offer concessions. Requesting additional time, although superficially appealing, results in increased interest accrual and creditors would likely demand immediate full or substantial partial payment, a requirement that Bangkok would likely struggle to meet.

Comparing the Restructuring between Bangkok and Other Entities.

In Bangkok, restructuring—both organizational and debt restructuring—is likewise forbidden by law. The possibility of success decreases with the amount of debt since debt restructuring requires talks with creditors, even with the help of knowledgeable, impartial third parties like mediators or conciliators. For example, Thai Airways was able to classify its debts as public debt and even received full support from the government at the time, but it was ultimately unable to come to a settlement with its creditors. Consider comparing it with Nam Kam Municipality. Firstly, the sheer scale of Bangkok's

responsibilities dwarfs those of Nam Kam. Comparing their debt burdens, therefore, becomes an exercise in futility. While Nam Kam's debt of THB 14 million might seem substantial for a remote area, it pales compared to Bangkok's mountainous debt. Secondly, the legal frameworks surrounding their respective borrowings differ significantly. Nam Kam's debt was deemed illegal due to a regulatory gap at the time, effectively rendering the borrowing not binding on the municipality. Contrastingly, Bangkok's debt was incurred entirely within the existing legal framework, eliminating any comparisons based on the legality of their financial actions. While Bangkok and Thai Airways currently face the challenge of managing significant debt burdens with limited ability to repay them in the foreseeable future, fundamental differences exist between them. First of all, the distinction in their debt classification carries significant weight. Unlike Thai Airways, whose debt was considered part of the public debt due to its previous status as a state-owned enterprise, Bangkok's debt remains separate and distinct. This distinction has far-reaching implications for their options for managing and restructuring their debt. The Thai government, for instance, might possess greater flexibility, or a heavier burden, in intervening or assisting with Thai Airways' debt due to its classification under public debt. On the other hand, Bangkok, a local government organization with separate debt, faces different constraints and may require alternative approaches for managing its financial challenges without the government's help. Additionally, the nature and origin of their debts diverge significantly. Thai Airways' debt might be attributed to factors like internal mismanagement or intense industry competition, factors often associated with profit-driven commercial enterprises. In contrast, Bangkok's debt primarily arises from fulfilling its obligations as a public service provider, including essential services like infrastructure maintenance, public transportation, and social welfare programs. The inherent difference in the purpose behind their debts necessitates unique approaches to managing and potentially restructuring them. Additionally, since Bangkok has never issued bonds, unlike Thai Airways, which has already defaulted on its bond issuance, the possibility of bond defaults for Bangkok is eliminated. Finally, the legal avenues available for debt restructuring also diverge significantly. Both Thai Airways and Thai Smile, as they were state-owned enterprises operating in the forms of a public company and a private company, respectively, were eligible for the reorganization procedures outlined in Thai bankruptcy law. Conversely, as a local government organization, Bangkok is not eligible for this type of protection, so recognizing the unique characteristics and legal frameworks governing each case is crucial for developing effective and sustainable solutions for Bangkok's specific financial challenges.

Results

Without viable legal options specifically tailored to address local government insolvency, researchers have advocated for considering the Chapter 9 of the US Bankruptcy Code's process as a potential solution. Despite differing political structures between the United States and Thailand, both nations share a common goal of decentralization. This decentralization aims to empower local governments to play a more active role in serving their citizens. While public services may not inherently serve a business purpose, they often involve accumulating debt, sometimes to a significant extent, as evidenced by the financial challenges faced by Bangkok Metropolitan Administration.

Chapter 9 bankruptcy offers several advantages, including an automatic stay that provides breathing room for the debtor and the ability to adjust obligations through negotiations or reorganization plans. These concepts are already present in Thai bankruptcy law, demonstrating compatibility with the principles underlying Chapter 9. Besides the good points of that application in having the specific law for the mentioned case, local administrative organizations will have principles and guidelines for organization and debt management with systematic and accurate procedures. It should let the Central Bankruptcy Court, the particular jurisdiction on business and property management of the organization, have authorization to play a role in Bangkok property and debt supervision, ordering to allow or dismiss the request for introducing into the process of organization and property management, and approving the plan for organization management and debt restructuring improvement. However, the Central Bankruptcy Court has no authorization to make policy decisions. Bangkok Metropolitan Administration still maintains those authorities as before. The Central Bankruptcy Court also has no authority to order the liquidation and selling of Bangkok property like other types of bankruptcy. During this bankruptcy protection, an Automatic Stay will be performed to let the debtor have time for reorganization and debt restructuring without worrying about litigation for debt enforcement.

While Chapter 9 offers a framework for municipalities to address financial distress, it does not provide a quick

fix. Its use has been very limited. Compared to its counterpart, Chapter 11, which typically sees around 5,000 cases annually for corporations seeking protection, Chapter 9 filings are relatively infrequent. Since its addition to the federal bankruptcy code in the 1930s, there have been approximately 700 filings under Chapter 9. The most recent instances consisted of 1 case in 2022 and 2 cases in 2023, respectively (Nuveen, 2023).

Several factors contribute to the rarity of Chapter 9 filings, including the stringent conditions for petitioning under Chapter 9. Specifically, municipalities must be insolvent, Chapter 9 protection must be voluntary on the part of the municipality, and the state law of the municipality's origin must allow municipalities to utilize Chapter 9 protection. In addition to the legal conditions, other vital factors also contribute to its rarity such as Bankruptcy Court's limited power, the absence of a trustee appointment (Buccola, 2019), the significant costs associated with the proceedings, the potential negative response from the credit market leading to rating downgrades, and the lasting stigma that can be attached to the municipality (Knox, J., Levinson, M., & Brennan, D. S., 2009). A notable concern surrounding Chapter 9 bankruptcies is their potential correlation with population decline. Studies have shown that roughly half of the municipalities that underwent Chapter 9 proceedings experienced a population decrease exceeding 25 percent compared to their population levels fifty years earlier (Buccola, 2019).

These disadvantages would not apply to Bangkok. First, potential adverse reactions from the credit market are irrelevant, as no local government bodies in Thailand, including Bangkok, have a history of issuing bonds. Additionally, the high costs associated with US Chapter 9 proceedings are not a factor, as the prosecution organization is legally obligated to provide free services to state agencies, including Bangkok. Moreover, concerns regarding stigma or population decline hold less weight in the metropolis' case due to its unique status as the capital city and the nation's economic and governmental center. Furthermore, unlike its US counterpart, the current Thai corporate reorganization procedure allows debtors to seek protection even if they are not demonstrably insolvent. Merely unable to repay their debts in timely manner is sufficient to fulfill the legal requirement. If Chapter 9 of the US Bankruptcy Code were adopted in Thailand, the Thai version's requirement should align with the current practice, effectively eliminating the more restrictive requirement in the US system. Thailand also possesses a specialized infrastructure for handling reorganization procedures. Both bankruptcy judges and official receivers are government officers with extensive experience, having been familiar with the process since the inception of the Thai reorganization law. If Chapter 9 were to adopt into the existing Bankruptcy law, the newly enactment should fall under the jurisdictions of bankruptcy judges and official receivers. Since Chapter 9 closely resembles Chapter 11 and considering Thailand's successful adoption of Chapter 11 with minimal modifications, implementing Chapter 9 is likely to be a smooth process.

When considering the standard criteria wildly used to start the bankruptcy process: financial liquidity, cash flow, or stop paying (United Nations Commission on International Trade Law, 2004). The facts appeared that Bangkok Metropolitan Administration had stopped paying the debt to the creditor (BTSC) since May 2019, leading to two letters from the creditor asking for payment dated 18 September 2020 and 15 January 2021. However, Bangkok Metropolitan Administration has remained inactive to pay off. It reasoned that it wanted to pay debts to comply with the law and contract requirements, but it could not because the Bangkok Metropolitan Council (BMC) did not approve the budget. The council gave the reasons that Bangkok Metropolitan Administration had limited accumulated funds, and they have had the policy to postpone the fare collection on the Green Line Sky Train until the present (2022). For all these reasons, Bangkok Metropolitan Administration cannot bring the fare to pay the expenses for project implementation. (The Judgment of Central Administrative Court: Red Case No. 1926/2022). Stopping paying debts reflects the financial difficulties of Bangkok Metropolitan Administration. It can be presumed that Bangkok Metropolitan Administration is insolvent (Bankruptcy Act, B.E. 2483 [1940], Section 8) or unable to pay debts, eligible for using rights to file a petition for organization and property management under Chapter 9.

Conclusion and Recommendation

Conclusion

Bangkok facing significant financial challenges, has created a critical situation requiring innovative solutions. Typical solutions like government intervention, taking loans, bond issuance, negotiating with creditors, or restructuring face limitations in Thailand. Therefore, exploring alternative approaches, like Chapter 9 bankruptcy, becomes crucial.

Chapter 9, while seemingly unconventional at first glance, presents interesting possibilities for financial-

distressed local government organizations in Thailand, including Bangkok. Thailand's existing bankruptcy framework already incorporates reorganization procedures akin to Chapter 11. Integrating the municipality reorganization principles would not be a radical change but rather an adaptation of existing practices. Moreover, its automatic stay provision offers a crucial advantage by providing local self-governed organizations with breathing room to negotiate debt restructuring plans with creditors, aided by neutral specialized arbiters like bankruptcy judges and official receivers. Regardless of the negotiation outcome, the court retains the authority to "cram down" and approve the plan even if not all creditors agree. Adapting Chapter 9 principles to the Thai context and local government structure could be a viable solution for Bangkok's specific situation.

Recommendation

The study shows that Thailand lacks the measures and solutions to the debt problem for the debtor: local administrative organization. Thus, Chapter 9 of the United States Bankruptcy Code should be applied as an example to consider and compare to find the solutions. However, this application should be considered based on the different management between Thai and US local Administrative Organizations.

Chapter 9 has been enacted since 1937 and used for the debt management of the municipality by applying the reorganization and debt restructuring plans from rehabilitation law to be enforced mutatis mutandis. It affects the business and asset management by operating systematically and having a precise period of operation. (US Code, Title 11, Chapter 9, rev.2013, § 901). This law can help the municipality ask for protection from the Court in case of a financial crisis. Moreover, during the debt restructuring plan, the municipality can continue operating its fundamental affairs for public services. When considering the government structure of Bangkok Metropolis as the debtor, there is no difference or disadvantage to applying the debt management process under Chapter 9.

In presenting the legal measures to improve the business rehabilitation process for local government organizations within the framework of the Thai Bankruptcy Act, B.E. 2483 [1940], the principles of Chapter 9 must be amended and incorporated to effectively address the debt administration and management problems of local government organizations. The information is as follows:

2.1 Amend the Thai Bankruptcy Act, B.E. 2483 [1940], to incorporate Chapter 9 principles.

2.2 Align with existing reorganization procedures by eliminating the requirement for local governments to be insolvent. Instead, they should demonstrate their inability to repay debt in a timely manner.

2.3 The Bankruptcy Court will retain its status as the sole discretionary decider, having absolute power to approve or deny petitions and sanction restructuring plans.

2.4 Leverage the expertise of bankruptcy judges and official receivers, who specialize in handling business and property management within the bankruptcy framework. They will oversee the local government units' property and debt supervision.

2.5 Prohibit the Central Bankruptcy Court and official receivers from making policy decisions or allocating spending on behalf of the local government units. These responsibilities will remain solely with the local government organizations administrators.

2.6 Unlike in standard bankruptcy proceedings, the Central Bankruptcy Court would not be authorized to order the liquidation or sale of the local government organizations' assets.

The authors believe that applying the principles of Chapter 9, as outlined in the U.S. Bankruptcy Code, to manage the debts and assets of local government organizations in Thailand would be beneficial for both creditors and debtors. In the past, Thailand has adopted Chapter 11 from the U.S. Bankruptcy Code into the Thai Bankruptcy Act, B.E. 2483 [1940], to provide an alternative method for debt management outside of the Civil and Commercial Code and Civil Procedure Code. Because of this, using the rules of Chapter 9, which is another part of the U.S. Bankruptcy Code, for local government groups would be a good way to help them solve their debt problems.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Exploring the influence of financial literacy on financial happiness and wellbeing: Evidence of physical therapists in Thailand

Nawapum Pholsomboon[a], Kanokwan Meesook [a,†], Praphada Srisuwan[a], Somnuk Aujirapongpan[b,*]

[a] *School of Accountancy and Finance, Walailak University, Thasala, Nakhon Si Thammarat 80160, Thailand*
[b] *Faculty of Management Science, Silpakorn University, Cha-Am, Phetchaburi 76120, Thailand*

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Abstract

This research aims to examine the influence of Financial Literacy on Financial Happiness and Well-being among physical therapists in Thailand by employing Structural Equation Modeling (SEM). The sample group consisted of 175 physical therapists in Thailand. The findings reveal that Financial Literacy does not have a positive influence on Well-being. However, Financial Literacy positively influences Financial Happiness, and Financial Happiness positively influences Well-being. Furthermore, this research suggests that developing financial literacy and cultivating financial happiness are crucial factors contributing to the well-being of physical therapists. Emphasizing the development of good financial behavior from the student level, alongside enhancing financial knowledge, attitudes, and both short-term and long-term financial planning, will help promote financial happiness and well-being among physical therapists. This, in turn, will positively impact their work performance and patient care in the long run.

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Introduction

The working-age population plays a significant role in society, particularly in the economic sector. This group drives the country's progress. According to the Ministry of Labor's definition, "the working age includes individuals aged 15 and above who work at least one hour per day and receive compensation in money or goods" (Ministry of Labor, 2022). In 2022, the working-age population in Thailand numbered 39.22 million, comprising 20.86 million men and 18.16 million women. Beyond merely earning money, individuals in this age group must manage various financial responsibilities, such as personal expenses, rent, debt repayment, entertainment, self-development, and charitable donations. Effective financial management requires robust financial literacy. The Organization for Economic Co-operation and Development (OECD,

* Corresponding author.
E-mail address: somnuk.aujirapongpan@gmail.com (Aujirapongpan, S.).
† Co-first author.

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2022a) defines financial literacy as the awareness of the financial knowledge, skills, attitudes, and behaviors necessary for making sound financial decisions that contribute to overall well-being.

A survey conducted in 2022 by the Bank of Thailand in collaboration with the National Statistical Office highlighted an improvement in the financial literacy of Thais compared to previous years. Financial knowledge and behaviors showed an upward trend, although financial attitudes declined. The COVID-19 pandemic underscored the importance of financial planning and saving for the future. The survey also revealed that while 71.7 percent of Thais have emergency savings, only 22.4 percent have savings for six months or more. Successful retirement planning is closely linked to the ability to save for emergencies. These findings emphasize the growing awareness and importance of financial literacy among Thais (Bank of Thailand, 2022).

Thailand is still a country where government welfare is not universally accessible or sufficient. Additionally, issues such as social inequality, including disparities in culture, occupation, social status, and relationships, impact financial stability. These challenges necessitate a heightened focus on financial literacy (Srisuphan et al., 2023). Financial happiness, which does not necessarily equate to having a large amount of money, involves effectively managing and utilizing one's financial resources with contentment (Alisara, 2020). Achieving financial happiness can lead to overall well-being, reducing stress related to work and finances, allowing for a balanced life, and enabling contributions to society (Warr & Nielsen, 2018).

The medical profession is considered stable, given that it requires professional certification and generally offers above-average income. However, despite this higher income, many in the medical field lack adequate financial knowledge and planning, particularly concerning debt management. Medical professionals often face financial challenges due to student loans and high tuition fees. Even after entering the workforce, financial issues persist (Ahmad et al., 2017). This lack of financial literacy is not limited to doctors but extends to other allied health professionals who receive little formal education on financial management (Agarwal & Biswas, 2022). Financial problems can negatively impact well-being, particularly financial well-being, which, in turn, affects job performance and increases the risk of errors in medical practice (Dahle, 2019).

Physical therapists, as part of the medical profession, face similar financial challenges. These issues often begin during their student years, particularly for those who rely on student loans (Bynum, 2022). After graduation, they encounter difficulties in managing their finances, including investing, handling insurance, and tax planning. These financial challenges affect their overall well-being. In Thailand, research on financial literacy among healthcare professionals is still limited. This raises research questions about how financial literacy and financial happiness influence overall well-being. The objective of this study is to investigate the impact of financial literacy and financial happiness on the well-being of physical therapists in Thailand. The findings will inform the development of financial education curricula for Physical therapy students and guide the design of financial products tailored to the needs of physical therapists.

Literature Review

The research team has reviewed the following theories: Financial Literacy, Financial Happiness, and Well-being. This literature review serves to confirm the theoretical framework and will be used to further enhance future studies.

Financial Literacy

Financial literacy is an essential skill necessary for daily life. It represents the ability to manage finances effectively, which is crucial for ensuring a secure and happy future. Financial literacy comprises four key components (Moore 2003):

(1) *Financial Knowledge*: This involves understanding core financial principles, concepts, and theories. It includes topics such as budgeting, saving, investing, and risk management. Foundational studies by Lusardi and Mitchell (2011, 2014) and Remund (2010) emphasize that a strong grasp of these areas is vital for making informed financial decisions.

(2) *Financial Experience*: This involves the accumulation of practical knowledge through real-life financial experiences. Such experiences play a significant role in developing decision-making and problem-solving skills in financial contexts (Afifi & Setyorini, 2023).

(3) *Financial Behavior*: This component captures the actual practices related to managing money, including budgeting, spending, saving, and investing. Research indicates that sound financial behavior, underpinned by strong financial knowledge, is crucial for achieving long-term financial well-being (Lusardi & Mitchell, 2014).

(4) *Financial Attitude*: Financial attitude encompasses

the beliefs, values, and perspectives individuals hold regarding money and financial management. Drawing on the Theory of Planned Behavior (Ajzen, 1991), scholars have demonstrated that these attitudes significantly influence both financial intentions and behaviors over time.

The development of financial literacy requires the integration of these four components. It begins with providing accurate and up-to-date financial knowledge, coupled with opportunities for individuals to learn from real-world experiences. Simultaneously, it is essential to promote good financial behavior and instill attitudes that support effective financial management (OECD, 2022b).

The importance of financial literacy has grown in an era of rapidly evolving financial technologies, where financial products and services are increasingly diverse and complex. Strong financial literacy enables individuals to carefully evaluate financial options, make informed decisions, and adapt to changes in the financial environment (Panos & Wilson, 2020). Moreover, financial literacy is critical for overall economic and social development. When citizens possess strong financial literacy, it can reduce household debt problems, increase national savings rates, and promote efficient investment, all of which contribute to sustainable economic growth in the long term (Demirguc-Kunt et al., 2018).

Financial Happiness

Financial happiness is a crucial factor that reflects an individual's quality of life and satisfaction with managing financial resources. By definition, financial happiness refers to a state in which an individual feels secure, satisfied, and financially independent, resulting from having sufficient income to support living expenses and cover essential costs, a low level of debt or being debt-free, adequate savings for future expenses and unforeseen events, and the ability to allocate surplus financial resources for public benefit or social assistance. The key components of financial happiness can be categorized into three main dimensions: Financial Cashflow, Debt Burden, and Retirement Planning (Lusardi & Streeter, 2023).

Moreover, financial happiness is closely linked to financial literacy. It is not solely dependent on the amount of wealth or income but also on the ability to manage finances, set realistic financial goals, and maintain a balanced perspective between current consumption and future savings (Alisara, 2020).

Emphasizing financial happiness not only enhances the quality of life for individuals but also has broader implications for society and the economy. Reducing financial stress, improving work efficiency, and promoting healthy family relationships are all desirable outcomes of achieving financial happiness. Therefore, promoting policies and programs that focus on enhancing financial happiness is a worthwhile investment for a sustainable future for society (Xiao, 2016).

Emphasizing financial happiness not only improves individual quality of life by reducing stress and promoting healthier personal relationships but also has broader implications for economic stability and societal progress. Therefore, investing in initiatives that foster financial education and strategic planning is a critical step toward a sustainable future.

Well-Being

Well-being is a multidimensional concept that encompasses various components and has been extensively studied across psychology, sociology, and public health. It is generally understood to include having good physical and mental health, sufficient knowledge, gainful employment, an adequate income to support living, a stable and warm family, and residing in a healthy environment (Suavansri et al. 2022). The World Health Organization (2021) further describes well-being in terms of physical, mental, social, environmental, and spiritual dimensions. In addition to these components, research has identified physical health, mental health, social relationships, and the environment as key contributors to well-being (Kalfoss et al., 2021).

Theoretical models have significantly enhanced our understanding of well-being. For instance, Seligman's PERMA model (2011) outlines five essential elements, Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment, that collectively contribute to a flourishing life. Complementing this, Ryff's model of psychological well-being (Ryff, 1989) emphasizes six dimensions: Self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, and positive relations with others. These models underscore the complexity of well-being and the importance of addressing multiple life domains.

Moreover, Deci and Ryan's Self-Determination Theory (2000) posits that well-being is achieved when the basic psychological needs for autonomy, competence, and relatedness are fulfilled. This framework has been particularly influential in examining work-life balance, suggesting that satisfaction in both professional and personal spheres is critical for overall well-being. Diener et al. (2003) further contribute to this field by exploring

how subjective well-being is shaped by personal, cultural, and environmental factors.

Work, as an integral part of daily life, is a crucial factor influencing mental health and overall well-being. Employment not only provides economic stability but also fosters a sense of purpose and identity (Warr, 1987). Additionally, the availability of leisure time is seen as reflective of personal freedom and purpose, contributing significantly to an individual's quality of life (Kelly et al., 2020). Therefore, mental health, social relationships, and work-life balance are essential for fostering comprehensive well-being.

Partial Least Square Structural Equation Model (PLS-SEM)

Partial Least Squares Structural Equation Modeling (PLS-SEM) is a statistical approach used for analyzing complex relationships among latent variables, focusing on prediction rather than theory confirmation. Unlike covariance-based SEM (CB-SEM), which assesses how well a theoretical model fits the data, PLS-SEM maximizes explained variance and is particularly useful for handling both reflective and formative measurement models. In a reflective model, the latent variable causes the indicators, meaning the indicators are interchangeable, highly correlated, and contain measurement errors. An example is customer satisfaction, where service quality, product quality, and responsiveness are different manifestations of the same construct. In contrast, a formative model assumes that the indicators collectively form the latent variable, meaning they are not interchangeable, may be uncorrelated, and do not include error terms. For example, socioeconomic status is formed by distinct factors such as income, education, and occupation. Proper specification of these models is crucial, as misidentification can lead to incorrect conclusions. PLS-SEM is particularly advantageous for formative models, as it avoids strict identification constraints, making it ideal for exploratory research and theory development (Hair et al., 2021).

Development of Research Hypotheses

Based on the literature review, the research team formulated the following research hypotheses.

Relationship between financial literacy and well-being

The literature review demonstrated a positive relationship between financial literacy and well-being of physical therapists in Thailand. Durodola et al. (2017) concluded that financial literacy significantly impacts various aspects of well-being, including financial stability, effective financial decision-making, and economic engagement. In addition, research by Fernandes et al. (2014) supports the idea that sound financial management practices, which stem from higher financial literacy, are associated with greater overall life satisfaction. Together, these findings suggest that financial literacy plays a crucial role in fostering a higher level of well-being. Based on the above literature review, the researcher formulates Hypothesis 1 as follows:

H1: Financial literacy has a positive influence on well-being.

Relationship between financial literacy and financial happiness

Lusardi and Streeter (2023) found that higher financial literacy is associated with better financial behaviors, such as retirement planning and reduced debt burden, which in turn enhance financial well-being. Additionally, a meta-analytical review examined various factors influencing financial literacy and its subsequent impact on financial happiness. The review highlighted that financial capability, numeracy, and education significantly contribute to financial literacy, which in turn enhances financial happiness (Choowan et al, 2025). Based on the above literature review, the researcher formulates Hypothesis 2 as follows:

H2: Financial literacy has a positive influence on financial happiness.

Relationship between financial happiness and well-being

Netemeyer et al. (2018) conducted a study on the impact and relationship between financial happiness and well-being. The research examined two key aspects: Debt management and essential expenses, as well as long-term financial stability. The findings indicated that financial happiness could predict well-being at a level comparable to other variables such as job satisfaction, physical health, and social support. Additionally, Vanags et al. (2025) explored how household income and financial happiness are associated with prosocial behaviors globally. The study found that greater income and financial happiness are linked to increased prosocial behaviors, which are known to enhance personal well-being. Based on the above literature review, the researcher formulates Hypothesis 3 as follows:

H3: Financial happiness has a positive influence on well-being.

Building on the literature review, the research team

devised the study's structure and conceptual framework by integrating the key dimensions of financial literacy, financial happiness, and well-being. In this framework, Financial Literacy is comprised of Financial Knowledge, Financial Experience, Financial Behavior and Financial Attitude; Financial Happiness encompasses elements such as Financial Cashflow, Debt Burden, and Retirement Planning; while Well-being is defined by factors including Mental Health, Social Relationships, and Work-Life Balance, into the following framework (Figure 1):

Methodology

This study focuses on physical therapists in Thailand who are registered with the physical therapy Council, encompassing a population of 16,150 individuals (Physical Therapy Council, 2023). This research employs a quantitative approach, using a questionnaire to collect data. The sample was selected using purposive sampling, targeting physical therapists. The sample size was calculated using the G*Power v.3.1.9.7 program, by using "Linear multiple regression: R^2 deviation from 0" as Statistical test, with Effect size (f^2): .10, confidence level of .95 which determined that a minimum of 158 participants was required. This adheres to the recommended sample size for PLS-SEM analysis, which should be at least 10 times the number of latent variables (Hair et al., 2011).

The research instrument was a questionnaire developed through a literature review, consisting of four sections:

Section 1: Personal Factors—This section collects general demographic information about physical therapists, including

Section 2: Financial Literacy—The questions in this section were adapted from the Bank of Thailand and the literature review. They cover topics such as financial knowledge, financial behavior, and financial attitudes.

Section 3: Financial Happiness—This section utilizes questions adapted from the Consumer Financial Protection Bureau and the literature review, focusing on financial liquidity, debt burden, and retirement planning.

Section 4: Well-being—Questions in this section were adapted from the WHO-5 Well-Being Index and the literature review. The topics include mental health, social relationships, and work-life balance.

A five-point Likert scale was used, where respondents marked their answers in the provided spaces according to the option that best represented their situation. For financial knowledge, a scoring system was implemented, with the results used for statistical analysis. For financial experience, the questionnaire provided two options related to income, expenditure, investment, debt repayment, and insurance.

The research instrument was developed from a literature review and validated for content validity by three experts. These experts evaluated the questionnaire items for congruence with the specified context, and the results were used to calculate the Index of Item-Objective

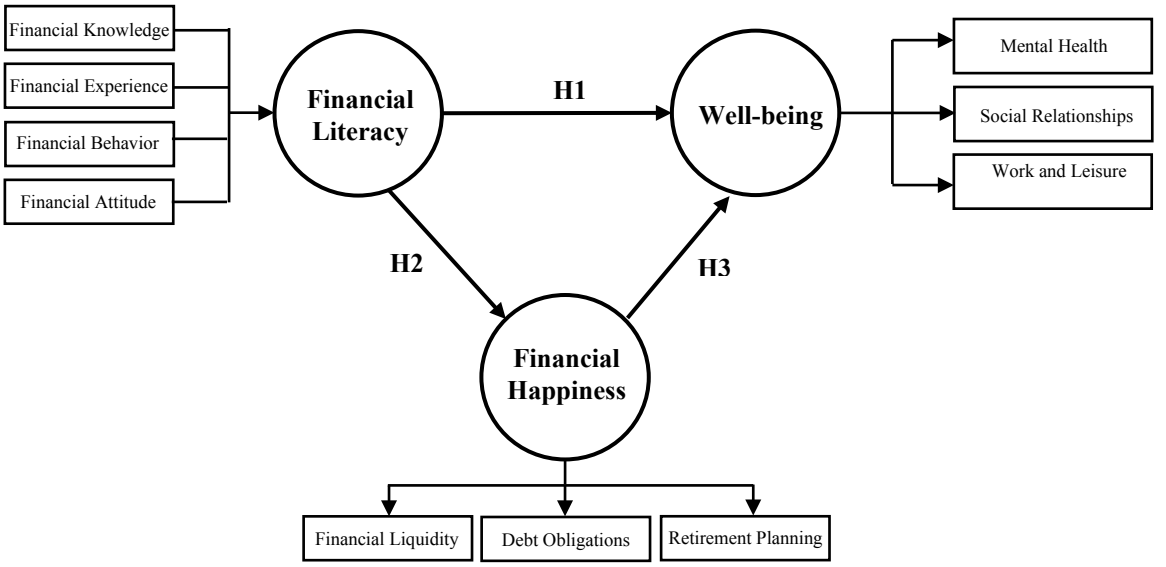


Figure 1 Research framework

Congruence (IOC). The criteria for content validity required each item to have an IOC value of .67 or higher. The completed questionnaires were then coded and analyzed using statistical software in two stages:

Preliminary Data Analysis: Descriptive statistics were used to describe the characteristics of the sample and the variables under study.

Data Analysis for Research Questions: Inferential statistics were used to answer the research questions and meet the research objectives. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed for data analysis, with statistical testing conducted through the bootstrapping process.

Results

The study collected a total of 175 questionnaires, exceeding the calculated sample size by 10.75 percent. The majority of respondents were female, with 138 respondents (78.56%), compared to 34 male respondents (19.34%). In terms of age, most respondents were under 30 years old, accounting for 109 individuals (62.29%). The majority held a bachelor's degree, with 154 respondents (88.00%). Regarding the nature of their work, most respondents were employed in government hospitals, with 66 individuals (37.71%). The majority had less than five years of work experience, comprising 110 respondents (62.68%). Most respondents reported a monthly income in the range of 20,001–40,000 THB, with 104 respondents (59.43%). The detailed information is presented in Table 1.

Based on the questionnaire, the majority of respondents reported having debt. In terms of financial knowledge, most respondents correctly answered five out of six questions. Additionally, the questionnaire included questions about financial experience, where respondents could choose between two options: "Yes" or "No." As shown in Table 2, the majority of respondents (55.43%) reported having debt. Regarding financial knowledge, 66 respondents (37.71%) correctly answered five out of six questions. For financial experience, most respondents scored between 11 and 15, with 89 respondents (50.86%) falling into this range.

The assessment of the Goodness-of-Fit (GoF) indicated that the Standardized Root Mean Square Residual (SRMR) value was less than .08, and the discrepancy values (dULS and dG) were lower than the upper bounds of the 99 percent confidence interval (Table 3). Therefore, it can be concluded that the model demonstrates an appropriate Goodness-of-Fit.

The evaluation of the structural model revealed that this study utilizes a mixed structural model, which includes both reflective and formative measurement models. The variables modeled reflectively include Financial Happiness and Well-being, while Financial Literacy is modeled formatively. As a result, the evaluation metrics differ for each type of model.

Reflective Model Evaluation (Table 4): The assessment begins with examining the Factor Loadings, where all values were found to be greater than .707,

Table 1 General information of respondents

Variable	*N*	Percentage (%)
Gender		
Male	34	19.43
Female	138	78.86
Others	3	1.71
Age		
Less than 30 years	109	62.29
30–39 years	53	30.29
40 years and above	13	7.43
Education Level		
Bachelor's Degree	154	88.00
Master's Degree	18	10.29
Doctorate Degree	3	1.71
Type of Work		
Government Hospital	66	37.71
Private Hospital	18	10.29
Physical Therapy Clinic/Multi-Clinic	51	29.14
Medical Equipment Sales Representative	3	1.71
Sports Physical Therapy	2	1.14
Educational Institution	15	8.57
Others	20	11.43
Work Experience		
Less than 5 years	110	62.68
5–9 years	39	22.29
More than 10 years	26	14.86
Monthly Income		
Less than 20,000 THB	52	29.71
20,001–40,000 THB	104	59.43
40,001–60,000 THB	13	7.43
60,001–80,000 THB	5	2.86
More than 100,000 THB	1	.57
Total	175	100.00

Table 2 Responses to financial questions

Variable	*N*	Percentage (%)
Do you have debt obligations?		
Yes	97	55.43
No	78	44.57
Financial Knowledge Score		
6	24	13.71
5	66	37.71
4	47	26.86
3	25	14.29
2	9	5.14
1	4	2.29
0	0	.00
Financial Experience Score		
0–5	9	5.14
6–10	44	25.14
11–15	89	50.86
16–20	33	18.86
Total	175	100.00

indicating that over 50 percent of the variance in the indicators is explained. Internal consistency reliability was assessed using Cronbach's Alpha, rho_A, and Composite Reliability (CR), all of which should exceed .7. The results indicate that Financial Happiness and Well-being have values above .7.

Convergent validity, which indicates whether a construct is better than another construct, was evaluated using the Average Variance Extracted (AVE). An AVE greater than .5 suggests that the construct is superior to others. To assess collinearity, the Variance Inflation Factor (VIF) was used, with a recommended threshold of less than 3. Additionally, the Heterotrait-Monotrait Ratio (HTMT) was employed to examine the discriminant validity across different constructs within the model, where all values were found to be below .85, indicating that each construct possesses distinct characteristics.

The evaluation of the formative model (Table 5) begins with assessing collinearity using the Variance Inflation Factor (VIF), where the VIF should not exceed 3, indicating that the components are distinct from one another. The assessment of statistical significance includes the *t* value, which should be greater than 1.96, and the *p* value, which should be less than .05. Additionally, the factor weights should be greater than .500.

From the table, it is observed that only Financial Behavior meets all the criteria for factor weight, *t* value, and *p* value, indicating statistical significance. However, since the formative model's components are distinct and cannot substitute for one another, the research team has decided to retain the variables for further consideration.

The predictive power of the variables within the structural model was evaluated using the PLSpredict method. The results indicate that the model for Financial

Table 3 Goodness of fit

Criterion	Value	HI95	HI99	Conclusion
SRMR (Standardized Root Mean Square Residual)	.062	.056	.063	Supported
dULS (Unweighted Least Squares Discrepancy)	.210	.172	.217	Supported
dG (Geodesic Discrepancy)	.109	.106	.114	Supported

Table 4 Reflective structural model evaluation

Constructs and Indicators	Loading	VIF	Alpha	rho_A	CR	AVE
Financial Happiness			.835	.837	.901	.752
Financial	.845	1.803				
Liquidity						
Debt Obligations	.872	2.023				
Retirement	.883	2.042				
Planning Well-being			.832	.848	.899	.749
Mental Health	.925	2.787				
Social	.835	2.124				
Relationships						
Work and Leisure Balance	.834	1.734				

Table 5 Formative structural model evaluation

Constructs and Indicators	Weight	VIF	t value	p value
Financial Literacy				
Financial	.023	1.078	.200	.421
Knowledge				
Financial	.391	1.079	3.172	.001
Experience				
Financial Behavior	.865	1.021	11.197	< .001
Financial Attitude	.137	1.190	1.190	.117

Happiness has a moderate predictive level, while the model for Well-being shows a high predictive level. This suggests that the model is effective in predicting the dependent variables (Table 6). The research findings reveal that Financial Literacy does not have a positive influence on Well-being (β = −.085, t = .787, p = .216). However, Financial Literacy has a positive influence on Financial Happiness (β = .627, t = 13.496, p = < .001), and Financial Happiness, in turn, has a positive influence on Well-being (β = .552, t = 7.210, p = < .001) (Table 7).

Discussion

Recent demographic studies indicate a significant gender imbalance in the physical therapy profession, with females outnumbering males (78.86% female). Stenberg et al. (2022) suggest that this disparity is linked to gender identity, noting that the service-minded and attentive traits traditionally associated with women align with the demands of service-oriented medical professions such as physical therapy. Similarly, research by Kaewsawang et al. (2018) in Thailand found a higher prevalence of female physical therapists, which may be attributed to these gender-specific characteristics of care and attentiveness.

The idea that financial knowledge does not significantly contribute to financial literacy is a debated topic among researchers. While financial knowledge provides individuals with an understanding of financial concepts, studies suggest that knowledge alone does not necessarily lead to better financial decisions. For

Table 6 Results of the predictive quality analysis of the model

Variable	R^2	Q² Predict (PLS-SEM)	PLSpredict	
			RMSE (PLS-SEM)	RMSE (PLSpredict)
FH (Financial Happiness)	.393	.354		
FH_1 (Financial Liquidity)		.204	.569	.572
FH_2 (Debt Obligations)		.321	.551	.549
FH_3 (Retirement Planning)		.270	.597	.597
WB (Well-being)	.225	.026		
WB_1 (Mental Health)		.017	.813	.817
WB_2 (Social Relationships)		.040	.737	.751
WB_3 (Work and Leisure Balance)		.007	.557	.559

Table 7 Research findings

Research Hypothesis	Influence	Coefficient	t value	p value	Result
H1: Financial Literacy → Well-being	Direct	−.085	.787	.216	Rejected
	Indirect	.328	5.902	< .001	
	Total	.243	2.774	.003	
H2: Financial Literacy → Financial Happiness	Direct	.627	13.496	< .001	Accepted
H3: Financial Happiness → Well-being	Direct	.552	7.210	< .001	Accepted

instance, Fernandes et al. (2014) argue that financial education has a limited impact on financial behaviors, as habits, emotions, and external influences play a more significant role. Moreover, Lusardi and Mitchell (2017) highlight that while financial knowledge is essential, financial literacy also requires practical application, self-control, and decision-making skills. Therefore, improving financial literacy should go beyond theoretical knowledge and focus on behavioral aspects, access to financial tools, and real-life financial experiences.

Empirical evidence consistently indicates that financial experience is a significant contributor to financial literacy. For instance, Frijns et al. (2014) demonstrate that "learning by doing"—through direct engagement with financial products and decision-making processes—leads to measurable improvements in individuals' financial knowledge. This study suggests that experiential learning not only reinforces theoretical financial concepts but also builds the practical skills necessary for sound financial decision making. Similarly, Tang and Peter (2015) provide evidence that both personal and parental financial experiences interactively narrow the financial knowledge gap among young adults. Their findings imply that early and continuous exposure to financial activities is essential for developing robust financial literacy, thereby underscoring the role of financial experience in fostering financial competence.

Financial behavior plays a pivotal role in reinforcing and enhancing financial literacy. Engaging in sound financial practices—such as budgeting, regular saving, and proactive debt management—not only reflects an individual's current financial knowledge but also provides continuous, real-world feedback that reinforces learning and deepens understanding of complex financial concepts. Moore (2003) argues that active involvement in personal financial management can improve financial competence by transforming abstract concepts into practical skills. Moreover, Robb and Woodyard (2011) provide evidence that the adoption of best financial practices creates a reinforcing cycle, whereby positive financial behavior leads to further learning and refinement of financial skills, thereby contributing to overall financial literacy.

Recent studies indicate that while a positive financial attitude might be expected to enhance financial literacy, empirical evidence suggests its direct contribution is minimal. For example, Hilgert et al. (2003) found that measurable financial knowledge was more strongly linked to formal education and exposure to financial information than to attitudinal factors. Similarly, Hastings et al. (2013) concluded that cognitive abilities and structured financial education play a more pivotal role in shaping financial literacy outcomes than personal financial attitudes. These findings imply that interventions aimed at improving financial literacy should prioritize the acquisition of concrete financial knowledge over solely fostering positive financial attitudes.

The analysis of the structural equation model reveals that financial literacy does not have a direct positive influence on well-being ($\beta = -.085$, $t = .787$, $p = .216$). However, when considering the indirect and overall effects, a positive influence is observed. This finding aligns with the study by West et al. (2021), which examined factors affecting the well-being of university students in Australia. The study found that income and age were the most significant and consistent factors explaining well-being, while financial literacy did not play a significant role. Other factors, particularly financial stress and income, were more critical in influencing financial well-being, suggesting that financial knowledge alone may not be sufficient to ensure well-being without adequate income support (West et al., 2021). Additionally, Atul et al. (2022) found that financial literacy, particularly financial knowledge, did not significantly influence well-being, highlighting that financial literacy's components may not always contribute directly to well-being.

The study also found that financial literacy positively influences financial happiness ($\beta = .627$, $t = 13.496$, $p = < .001$). This result is consistent with research that explains how financial literacy impacts financial happiness by enhancing financial decision-making and improving access to financial services. This process enables individuals to manage their financial resources more effectively, better meet their financial needs, and ultimately achieve higher levels of financial happiness. The findings underscore the importance of financial education and the development of financial skills as tools to improve financial quality of life (Gerrans et al., 2014). Furthermore, the study provides compelling quantitative evidence on the impact of financial literacy on financial happiness, particularly among students. It was found that students with financial literacy were 1.8 times more likely to experience higher levels of financial happiness than those lacking such skills, emphasizing the importance of developing financial literacy early in adulthood. These findings have significant implications for educational policy and curriculum development, highlighting the need to integrate financial education into higher education curricula (Philippas & Avdoulas, 2021).

Financial happiness has a positive influence on well-being ($\beta = .552$, $t = 7.210$, $p = < .001$), consistent with previous research indicating that financial happiness is influenced by four factors: (1) the burden of debt

repayment, (2) timely debt payments, (3) having monthly savings, and (4) sufficient income to cover monthly expenses. These factors contribute to the enhancement of well-being (Nui-Suk et al., 2023). Rath and Harter have also proposed that financial happiness is a key component of well-being, as it provides individuals with a sense of security and confidence in life (Rath & Harter, 2010). Financial happiness impacts various dimensions of life, including mental health, as financial stability reduces stress and anxiety, promotes good mental health, and lowers the risk of depression. In terms of relationships, financial happiness reduces family conflicts arising from financial issues, fostering better relationships within the family and community. In the workplace, individuals with financial happiness are often more motivated and efficient, which positively influences career advancement.

This study highlights the intricate relationship between financial literacy, financial happiness, and well-being, revealing that financial literacy does not directly influence well-being but does so indirectly through financial happiness. This finding aligns with the Mediator Model proposed by Baron and Kenny (1986), where financial happiness acts as a mediator between financial literacy and well-being, resulting in a full mediation effect. This suggests that the impact of financial literacy on well-being is fully channeled through financial happiness. The importance of psychological and emotional factors in the study of financial literacy's impact on well-being is underscored, indicating that efforts to promote well-being should not only focus on developing financial skills but also on enhancing financial happiness and satisfaction in financial management (Lone & Bhat, 2024).

The research also reveals that financial behavior, a key component of financial literacy, has the highest factor weight (.865), emphasizing the critical role of good financial behavior among physical therapists. This is particularly important compared to the mere impartation of financial knowledge. The long-term development of financial literacy should begin at the student level, focusing on cultivating good financial behaviors, such as consistent saving, effective budgeting, basic investing, debt management, and business management for aspiring entrepreneurs. However, achieving well-being involves more than just financial literacy or financial happiness; it requires a holistic approach that includes knowledge, experience, behavior, and attitudes toward money management. Financial planning, both short-term and long-term, plays a vital role in reducing financial stress and anxiety, which directly affects mental health—a factor shown to have a high impact in this study (Factor Loading = .925).

To effectively implement these financial literacy initiatives, educational institutions and the physical therapy Council can start by integrating personal finance courses into the curriculum as mandatory or elective subjects. These courses should cover essential topics such as budgeting, student loan repayment strategies, investment planning, retirement savings, and tax management. Additionally, workshops and seminars can be held regularly, featuring financial experts, experienced physical therapists, and career advisors to provide real-world insights into financial planning at various career stages. Establishing mentorship programs where senior physical therapists share their financial experiences and strategies with junior professionals can create a culture of financial awareness and preparedness. Furthermore, developing digital tools such as budgeting apps, loan repayment calculators, and investment tracking platforms tailored for physical therapists can provide accessible and practical financial management solutions. Collaborations with financial institutions to offer personalized financial counseling and access to beneficial financial products, such as lower-interest loans or customized savings plans, could further support financial happiness and well-being. These initiatives, when combined, can empower physical therapists to make informed financial decisions, reduce financial stress, and enhance both their professional satisfaction and the quality of patient care (Pakos & Mpogiatzidis, 2025).

Conclusion

This research highlights the importance of financial literacy for financial happiness and well-being among physical therapists in Thailand. The findings confirm that while financial literacy is crucial for daily life, it is not the sole determinant of well-being. Financial happiness plays a key role, suggesting that physical therapists need not only financial knowledge, experience in financial activities, appropriate financial behaviors, and positive financial attitudes, but also financial happiness. Financial happiness, derived from both short-term and long-term financial planning, equips physical therapists with the resilience to handle economic challenges. This, in turn, enhances their professional growth, enabling them to provide better care for patients. Ultimately, strengthening financial literacy and happiness contributes not only to the well-being of physical therapists but also to the overall advancement of the profession. These findings have practical implications for policy-making and the development of the physical therapy profession,

emphasizing the need to integrate financial dimensions alongside professional skill development for the long-term improvement of public health services.

Recommendations for Future Research

For future research, it is recommended to expand the sample size to include a broader range of professionals within the healthcare team, such as doctors, nurses, pharmacists, and medical technologists. Additionally, the study of financial literacy should be further explored, particularly in areas such as tax planning. It is also advisable to adjust variables to better fit the specific context of different professions.

It is recommended to employ additional analytical methods to enhance the reliability of the research findings. Techniques such as multigroup analysis or other inferential statistical methods could be used to examine more complex causal relationships. Additionally, longitudinal analysis could be employed to study changes in variables over time, providing insights into the development of financial literacy, financial happiness, and well-being.

Beyond quantitative research, qualitative research offers another valuable approach to gaining deeper insights into financial literacy. In-depth interviews or focus group discussions with participants could provide a better understanding of the perspectives and factors that influence financial literacy. Qualitative research would complement quantitative findings and offer a more comprehensive understanding, particularly in diverse contexts. It also allows for exploring the psychological aspects related to financial literacy.

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Ethics Declaration

Authors declared that the participants were assured that their participation is voluntary and that they can withdraw from the study at any time. The data collected from the participants were kept confidential and anonymous, and the data were only used for research purposes. Authors further declared that the study complied with ethical guidelines set forth by the Institutional Review Board of the human research ethics committee of Nakhon Ratchasima College (NMCEC-0002/2567), Thailand.

Conflict of Interest

Authors declare no competing interest.

Data Availability

Data generated or analyzed during this study are available from the authors on request.

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Comparative study of financial management before, during, and after the Covid-19 pandemic of Mae Kampong Village Homestay business, Chiang Mai province.

Wanlop Lomtaku*, Sittichai Leewiwatwong†
Faculty of Business and Communication Arts, University of Phayao, Phayao 56000, Thailand.

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Abstract

One type of travel that contributes to sustainable tourism is the homestay. Mutual exchange of cultural knowledge leads to the final distribution of revenue within society. This study aimed to provide a comparative analysis of the financial management of the Mae Kampong village homestay business in Chiang Mai province prior to, during, and following the COVID-19 pandemic. Data were gathered from 50 homestay owners in Mae Kampong village, Chiang Mai province, using a questionnaire, and from the community chief, in-depth interviews were performed. Frequency, percentile, mean, standard deviation, and context analysis were used to examine the data. The research revealed that all homestay owners are Mae Kampong village cooperative members. Most of them had run a homestay business for 1−5 years. They hold a primary education and run other types of business apart from homestay, such as owning a shop. During the Covid-19 pandemic, most of the samples had less income than before the Covid-19 pandemic, and the income increased again after the Covid-19 pandemic. They had a similar amount of expenditure in the three periods. They did not have savings and investment prior and during Covid-19 pandemic, but they had more saving and investment after Covid-19 pandemic. Some samples had debt which came from homestay renovation. During Covid-19 pandemic, most of the samples had lower proportion of income from homestay than pre Covid-19 pandemic, but the homestay income was higher again after Covid-19 pandemic.

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Introduction

The spread of the COVID-19 virus started in December 2019. It greatly affected world tourism, causing international travel to be disrupted, including affecting the number of foreign tourists traveling into

* Corresponding author.
E-mail address: wanlop_ltk@mju.ac.th (Lomtaku, W.).
† Co-first authors.

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Thailand. It was found that the number of foreign tourists traveling to Thailand between January and December 2020 was 6.7 million people, which decreased from the same period in 2019, which was approximately 39.9 million people, or a contraction of approximately 83.2 percent (Ministry of Tourism and Sports, 2022). In addition, due to the spread of COVID-19, Thailand's income from foreign tourists dramatically decreased. In the period January to December 2020, income from foreign tourists was 9,263.2 million USD, decreasing from the same period in 2019, which was 53,339 million USD (Ministry of Tourism and Sports, 2022).

Thailand is a country that depends on income from tourists who come from all over the world. Whilst considering the impact of the COVID-19 outbreak on the business sector related to the tourism industry in Thailand, businesses such as hotels, restaurants, and airlines are exposed to high risks because they are directly affected due to the direct decrease in the number of tourists, both from foreign and domestic tourists. As shown in Table 1, the number of tourists and income from foreigners entering Chiang Mai Province in 2018−2021 decreased greatly (Ministry of Tourism and Sports, 2022).

Table 1 Number of tourists and income from foreigners entering Chiang Mai Province 2018–2021

Years	Number of foreign tourists (people)	Income from foreign tourists (million USD)
2018	3,258,386	1,152.7
2019	3,474,407	1,211.9
2020	564,736	205.53
2021	30,998	6.0911

In the year 1998−1999, the Thai government announced the Year of Thai Tourism in terms of Amazing Thailand. Every government agency had a policy to support tourism activities, causing tourism management in community areas and expanding more activities and more homestays, including minority areas. So, many hill tribe villages also supported homestay activities.

With the COVID-19 pandemic, Hoteliers faced unprecedented disruption. From January to November 2020, average occupancy rate slumped to 29.3 percent from 69.7 percent in the same period in 2019. Average revenue per room across the country fell 73.6 percent. Operators have adopted a variety of responses to address these challenges that included slashing room rates, overhauling the kinds of services they offer, placing greater emphasis on domestic tourists and cutting overheads (Krungsri Research, 2021) (Figure 1).

At present, ecotourism has become increasingly popular with both Thai and foreign tourists. There are activities organized for tourism in community areas to study and learn about the local way of life, culture, and handicrafts. Homestay means more than "accommodation" because it is a form of tourism that takes the form the accommodation being the centre and organizes various activities. According to the needs of tourists, the simple lifestyle of Thai rural society is also included, which is a significant point that tourists pay attention to organizing accommodation activities and experiencing rural culture. Therefore, it is an attractive force for tourists to visit community areas which are

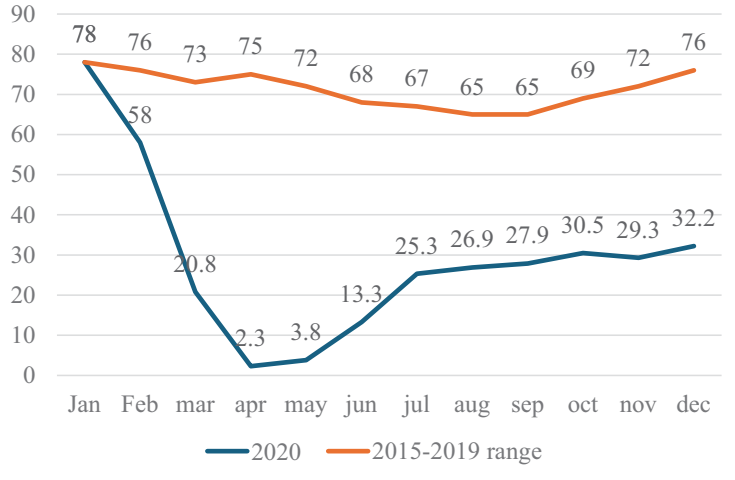


Figure 1 Hotel occupancy rates

considered alternatives in the local market (Boonratana, 2010).

Homestays, defined as rooms or spaces within the private homes of community members, are offered for a nominal fee to guests. These guests expect to experience simple rural living or traditional lifestyles and to interact and have cultural exchanges with the host family. This arrangement provides a meaningful learning experience for both hosts and visitors. (Boonratana, 2010). Homestays are a form of tourism that leads to sustainable tourism and focuses on allowing tourists to learn regarding the way of life, traditions, and culture of the community. The tourists will have the opportunity to live, study, and stay overnight in the community allowing tourists to experience the local way of life. There is a dissemination of cultural knowledge and eventually distribution of income to the community. Therefore, homestay accommodation is a convenience for tourists in community tourist attractions. It is an alternative in the local market that are not commercial competitors in areas with hotels or resorts (Boonratana, 2010).

One of the biggest barriers to the growth of community-based tourism is the failure to transform history into assets. To raise the earnings of ethnic minorities through community-based tourist homestays, Luan et al. (2023) investigated how to get bank loans. Based on four distinct search algorithms, their findings demonstrated that credit receivers' overall income level grew by an average of $194.63, from $180.11 to $228.58, in comparison to non-recipients. According to the findings, more bank loans should be prepared to increase homestays' revenue.

Homestay entrepreneurs' success is influenced by a variety of elements, including their personality qualities, behavior, personal values, social capital, human capital, strategic considerations, and geographic location. Homestay entrepreneurs are primarily characterized by their personality traits and behavioral traits, which include effective communication, adept negotiation, patience, persistence, sociability, confidence, innovative thinking, creativity/creative thinking, pleasantness, friendliness, self-efficacy, restraint, proactiveness, courtesy, and persistence. The entrepreneur's personal values reflect their commitment to provide the warmest welcome, as well as their values of discipline, honesty, hospitality, humanism, and a sense of belonging to all visitors, in addition to profit. Education, aptitude, experience, discernment, and knowledge are all considered components of human capital. Social networks are made up of government assistance, human connections, cultural exposure, social recognition, and support from family, friends, and intimate acquaintances. Organizational objectives, opportunity identification, and managerial conceptual abilities are all related to strategic variables. Lastly, the constructed environment, natural ecology, climate, and natural environment make up the geographical components (Devadas & Jayasooriya, 2021).

Community based rural homestays (CBH) are promoted as tourism products and are expected to work as a tool for the development of rural communities by participating in small tourism enterprises. Various government agencies have provided financial as well as non-financial support to CBH operators to help them serve visitors and ultimately to maintain their performance. Homestay operators saw leadership as more important than community support to ensure the success of their home stay. (Kayat et al., 2016).

Factors such as threat and fear have a negative impact on hotel bookings intentions, and perceived coping efficacy has a negative effect on the impact of fear on hotel bookings. However, perceived coping efficacy does not attenuate the effect of perceiving cognitive threat on the hotel bookings intentions. Present hedonism has a positive effect on full board hotel bookings but does not mitigate the negative effect on full board bookings from threat or fear. These findings provide new findings for hospitality managers to consider as they work to accelerate the healing process in the hospitality industry (Apaolaza et al., 2022).

The following are things that SMEs (small and medium-sized enterprises) should do or learn after the COVID-19 outbreak situation has passed. When it comes to the number of jobs created and their economic worth, SMEs are a crucial part of the economy. Businesses that weather the crisis or alter to emerge from the COVID-19 pandemic will discover that several jobs become more efficient. These tasks range from modifying the system and working techniques to eliminating inefficiencies that were present in the firm before to the crisis. As a result of partners who assisted in resolving the crisis and shifting business models from new platforms utilized for conducting business, SMEs developed distinct strategies or concepts from those of SMEs that were unable to adapt. Furthermore, customers also need to adjust; it's not just SMEs that need to. Not only do small and medium-sized enterprises (SMEs) face challenges from evolving business practices, but customers are also exposed to new avenues for doing business, such as placing orders online and utilizing delivery services. This new behavior has an impact on how we conduct business going forward. SMEs need to adapt to this new way of living and seize

the opportunity presented by this shift (Phantarak, 2022).

Chiang Mai Province has many homestay tourist attractions with a good atmosphere, surrounded by beautiful nature and the experience from community life; fresh air, surrounded by mountains and a sea of mist in the morning, and at night, tourists can sleep and look at the stars. For example, the Ban Mae Kampong community has accommodations with a Lanna-style atmosphere. After the opening of the country after the COVID-19 situation was resolved, the number of tourists returning to travel in Mae Kampong village in Chiang Mai Province increased. This is a new form of tourism in the New Normal style. Therefore, the researcher is interested in studying whether entrepreneurs in Mae Kampong Village have been affected by the COVID-19 outbreak or not, in terms of the number of tourists, income, and expenses and interested in a comparative study of financial management of homestay businesses in Mae Kampong Village, Chiang Mai Province, before, during, and after the spread of the COVID-19 situation. It is a comparative study of how different homestay business operators in Mae Kampong Village, Chiang Mai Province, have managed the finances of business in all three phases. This information will be beneficial to homestay entrepreneurs and agencies and involved in promoting, developing, and supporting homestay business operators to survive sustainably.

Literature Review

Community-Based Tourism (CBT)

As per Boonratana (2010), the notion of community-based tourism (CBT) ought to encompass the subsequent elements: 1) Host communities uphold customs and traditions that draw tourists. 2) The host towns' tourism is conceived, planned, and overseen with their approval. 3) Host communities take an active role in the conception, creation, and administration of tourism-related goods and services. 4) The planning, development, and administration of tourism contributes to the cohesiveness, vigor, and sense of community among host towns. 5) Host communities have the authority to organize, grow, and oversee tourism that fits in with their way of life. 6) As workers, land managers, business owners, providers of services and goods, and entrepreneurs, all inhabitants of the host towns have an equal chance to make a living. 7) The money is utilized as a supplemental, alternative source of income or to lessen poverty. 8) Projects that will jointly benefit the host communities are allocated a portion of the tourism industry's earnings. 9) The preservation of cultural and natural assets is aided by tourism in the host communities. 10) Tourists, host communities, and other stakeholders are aware of the detrimental effects of tourism and act to lessen those effects. 11) The host communities' social and cultural standards are explained to visitors either prior to or following their presence, which promotes appropriate behavior. 12) Exchange between visitors and host communities promotes tolerance, understanding and intercultural learning; and 13) Host communities, visitors and other stakeholders are required to avoid commercialization of rituals and ceremonies (especially sacred and/or religious).

Business Financial Management

The operational process of a business seeking to obtain and apply finances effectively that are necessary for business operations is known as financial management (Unacademy, 2024). Its focus is on how to handle the company's finances effectively. In layman's terms, corporate finance or company finance refers to the financial management that businesses engage in.

The relationship between financial management and other academic fields like accounting and economics is what makes it what it is. One of the most important aspects of management is financial management. Numerous academic disciplines and fields, including economics, accounting, manufacturing, marketing, human resources, and quantitative approaches, are linked to the fundamental idea of financial management.

Two Basic Concepts of Financial Management

Getting and managing money is referred to as financial management. The principal aim of financial management is to enhance the value of the company. The two fundamental ideas of financial management are raising and spending money.

Getting money is one of the fundamental ideas of financial management. Obtaining funding can be difficult for businesses because it comes from a variety of sources. When seeking funding, the management of the company should consider the many risks, expenses, and controls associated with these funds. The fund manager should purchase these assets at the best price while balancing risk and control variables.

The least hazardous funds are those that are raised

through equity shares because there is no payback obligation. However, there is a drawback to using equity funds: they are costly since shareholders want dividends that are significantly greater than interest rates. If new shares are issued, the shares held by current shareholders may be diluted. Funds might also be provided by banks and educational institutions. There are certain restrictive covenants pertaining to these funds. The borrower's capacity to get money from other sources is restricted by these debt covenants. Another constraint on the reform process is a comprehensive review of resource end-use. These restrictions are required to guarantee the security of donations made by organizations.

The efficient use of finances is a further aspect of financial management. The proper use of these funds must be guaranteed by the financial manager. They are also in charge of keeping a careful eye on instances of money being misappropriated or wasted. The most essential of the fundamental ideas in financial management is the utilization of acquired funds because if the money raised isn't used to generate more revenue than the acquisition cost, it could be a total waste of time and money. The money must be spent in a way that maximizes profits for the business without jeopardizing its stability financially.

Financial analysis is an important tool used in making decisions related to a company's business. It precedes the management process, ie it precedes the planning process which is an integral part of the company's management. There are different types of analysis. What they have in common is the application of various analytical tools and techniques by which the data from the financial statements are converted into usable information relevant to management (Alshowishin, 2021).

The information resulting from this analysis is not comprehensive and does not provide consideration of the entire business of the company. The analysis provides only financial information. The beginnings of the use of financial analysis techniques are related to the thirties of the XX century, ie the period of the Great Economic Crisis in the period from 1929 to 1933. Namely, the problems related to the need to maintain liquidity and capital, which were reflected in the mass bankruptcies of companies, were a direct reason for attempts at a deeper analytical view of the activities of companies. The idea was to identify and correct possible weaknesses and inconsistencies in the current business on the basis of analytical interpretation of information on the achieved activities and results of the company, and to consider all circumstances that can ensure that the company avoids potential financial problems in business. Since the mentioned period, the techniques of financial analysis have been constantly improved. In modern business conditions, financial analysis techniques are an indispensable instrument of financial management (Alshowishin, 2021).

Business Adaptation Under the COVID-19 Pandemic

As a result of this COVID-19 crisis, the future of world and Thai tourism will never be the same again. Therefore, Thailand must have health and safety standards, both the "Fit to Traveling" system and the cleanliness management system in the tourism business, including the trend of traveling by yourself to avoid overcrowding. Thai tourism strategy will shift from a wide market to more quality, creativity, responsibility, and high value. All of this has resulted in businesses having to make major adjustments. Therefore, developing effective communication skills within the organization reduces the anxiety of employees who must work under pressure from uncertain situations. Risk management and immediate problem-solving skills; this requires many skills, such as creativity, anxiety control, and creating emotional health and the increased use of technology, for example, hotel and restaurant businesses use technology to help reduce contact with customers, such as using QR codes for payments. In reaching more customers, entrepreneurs, and all sectors involved in the hotel and restaurant business can adapt and be immune, able to deal with future challenges just like we have been through many major crises in the past. The main strength of Thailand's service sector is "Thainess" which is generous and friendly (Bank of Thailand, 2022).

The Evolution of Homestay Operations before, during, and after the COVID-19 Crisis

Sann et al. (2024) study COVID-19's Impacts on the Tourism and Hospitality Industry: Recommendations for Future Research. Utilizing the Web of Science database and the PRISMA approach, 752 SSCI index articles published in 47 leading tourism and hospitality journals were extracted and analyzed through an integrative review consisting of bibliometric, and systematic analyses. The bibliometric technique revealed that there were 28 prolific contributing countries. Next, the systematic approach uncovered that researcher engaged the most with the theory of planned behavior. These theoretical frameworks may offer a way to investigate the new paradigm wherein tourism and hospitality firms can provide better services to their customers during and after

the COVID-19 pandemic.

Jafari et al. (2023) study Hospitality and tourism industry amid COVID-19 pandemic: voices from small Mediterranean town. Results of the study showed that the novel coronavirus has hampered the tourism sector in Famagusta, Northern Cyprus. Indeed, as the globe suffered its effects in terms of economic gains, business and business closure. It has been the same with Famagusta, while a few private sectors positively gained (Internet and Technology), all other tourism-reliant sectors such as hotels, restaurants, travel agencies and the transport sector massively suffered as a result of the global lockdown due to COVID-19 pandemic.

Foroudi et al. (2021) study, The gloom of the COVID-19 shock in the hospitality industry: A study of consumer risk perception and adaptive belief in the dark cloud of a pandemic found that, as the new coronavirus (COVID-19) spreads globally, the hospitality industry is at the heart of implementing social distancing, a measure demonstrated to be effective in flattening the epidemic curve. Informed by the perceived risk theory, this research examines how the customer's perception of the shock of the coronavirus pandemic impacts on their beliefs, and how their beliefs could influence their anticipated emotions (negative and positive) which could affect their future desire towards visiting restaurants. Structural equation modelling was used to understand the research constructs' associations. This study provides two key suggestions: (i) that the hospitality industry is built on trust from their customers by supporting and resourcing consumers' self-protection behavior and adoptive belief, and (ii) that the economic influence and the continuous uncertainty and transformation of the restaurant business need the enhancement of localization strategies, practices and performance.

Homestay Travel Concept

Homestays are part of Community Based Tourism (CBT) management. It is a form of accommodation that is currently receiving significant interest in community tourism management. Homestays are a combination of tourism and accommodation. This will allow tourists to learn about living, eating, and daily life as well as the traditions and culture of local communities that are real life. Ngamprapasom (2023) studied the management strategies of Ban Pa Miang homestay, Mueang Pan district, Lampang province in the state of the spread of coronavirus disease 2019. The research results found that the outbreak of coronavirus disease 2019 has caused problems in community homestay management in all indicators. In particular, the accommodation side is directly affected by the lack of tourists coming to stay, revenue has decreased, prices of raw materials for cooking have increased, peace in the community decreased because some people in the community were laid off, unemployed, and stressed, lack of interaction between the community and tourists. Some activities have been disrupted. The committee's planning process is complex due to poor access to online communications. This causes more miscommunication.

Impacts on community homestay management have both direct and indirect effects. This directly impacts homestay owners from the reduction of tourists, causing a loss of income. On the other hand, it has a positive effect where homeowners have more time to take care of their own homes. As for other impacts, in particular, tour programs and cultural performances cannot organize large gatherings. As for the indirect impact on the community, it is the lack of income from stores selling products in the community. The Pa Miang community homestay management strategy is 1) Homestay management strategy follows public health measures such as adjusting the pattern for tourist services. Peace units within the community Create understanding among people in the community on how to behave with tourists, including adjusting the pattern of committee meetings. Receiving and paying for tourist services through applications 2) Product strategy by selling products online and 3) Have marketing strategies to promote tourism through online media.

Agmapisarn and Chantapong (2022) studied the flexibility in adapting the hotel and restaurant business during the COVID-19 crisis. As a result of external impacts from the COVID-19 outbreak, business operators need to be flexible in adapting to situations that arise. This research aimed to study flexibility to adapt to the hotel and restaurant business during the COVID-19 crisis using qualitative research methods with business operators of 38 hotels and 37 restaurants in provinces that generate high income levels for the tourism sector. The results of the study found that the COVID-19 crisis affected the hotel and restaurant business causing concern about the situation and health and safety of employees who provide service to customers and the image of customer confidence in cleanliness and safety. Businesses face income and expenditure problems due to the fluctuations and uncertainties of the epidemic and government measures. This means businesses need to manage internally, be highly flexible in adapting during crises, and be ready to accept risks ahead. Emphasis is placed on crisis management, creating culture and

strategy in the organization through family business management, having communication skills, such as listening to the news, being mindful, and having a good attitude in solving problems.

Methodology

The questionnaire data were collected from a sample of 50 homestay owners in Mae Kampong Village, Chiang Mai, and in-depth interviews with 1 head leader of Mae Kampong Village, Chiang Mai Province to get more in-depth information. The research method is as follows.

The population of this study is 60 homestay owners in Mae Kampong village, Chiang Mai Province (information from the village headman of Mae Kampong Village as of 6 June 2022). A sampling group of homestay owners in Mae Kampong village, Chiang Mai Province and, responded to 50 persons, accounting for 83.33 percent.

This study used an in-depth interview and a questionnaire. The questionnaire consisted of 5 parts: Part 1: Personal information of homestay operators. Part 2: Financial information of homestay operators, the period before the outbreak of coronavirus disease 2019: the period before 2020, a period during the outbreak of coronavirus disease 2019: period 2020-2021, and period with Opening the country after the COVID situation: 2022-present. Part 3: Financial management behavior of the homestay business Before the COVID-19 outbreak, during the COVID-19 outbreak, and after COVID-19. Part 4: Suggestions/guidelines for financial management of homestay businesses during the outbreak of coronavirus disease 2019 or if a similar situation occurs again. Part 5: Suggestions/guidelines for the financial management of homestay businesses in the period after the opening of the country, welcoming tourists as usual.

The researcher contacted Mae Kampong village leaders to request an in-depth interview, and the results of the interviews were summarized and analyzed in terms of content. The researcher develops a questionnaire for collecting the data with a sample group of homestay owners in Mae Kampong Village, Chiang Mai Province. There were 50 people out of 60 who responded to the questionnaire. Data were analyzed using descriptive statistics, consisting of frequency, percentage, mean, standard deviation—and content analysis.

Results

Part 1 Personal information of homestay business operators. Most respondents providing homestay are members of the Mae Kampong Village Savings Cooperative Group, Chiang Mai Province. The duration of doing the homestay business is 1−5 years. There are 2−3 family members. The other work or business that is done in addition to running a homestay business is trading.

Part 2 Financial information and financial management of homestay operators in various periods as shown in Table 2.

Part 3 Success factors in the survival of the homestay business Mae Kampong Village, Chiang Mai Province has 5 factors as follows:

1) Having a good leader. The most important factor which makes the village and the Mae Kampong homestay business survive sustainably. No matter what situation you encounter, leaders must have a vision, aiming to work for the common good, benefit both business and the public, and cultivating people in the community to participate in community and village development. Be a leader so that people in the village respect trust and talk with each other with reason and the problem was handled well.

2) Capital must be sustainable. 2.1) natural resources: they did not destroy nature, there are rules and regulations that people in the village follow together, namely, not cutting down trees. If cutting, you must cut in your own area and must ask for permission first. Everyone uses organic fertilizers in agriculture, namely, growing coffee and growing Miang, with fertilizer managed by the cooperative (not using chemical fertilizers and not spraying pesticides). If pesticides are used, there is a fine and penalty. 2.2) way of life: the main occupations of villagers at Mae Kampong are still farming, growing coffee, and converting houses into homestays. Mae Kampong village has not allowed outside capitalists to invest in their village. They preserve jobs and careers for their villagers. 2.3) Culture: Mae Kampong village people are Chiang Mai native people (Lanna people), not ethnic people, and still maintain the traditions and customs of the Lanna Chiang Mai people.

3) Creating groups, occupational groups, capital groups such as cooperatives, various funds, and further development, such as a million-dollar fund. Village revolves fund for tourism development in borrowing. Deduction of maintenance fees from tourists, for example, keeping 2 percent of the money as the village's revolving

Table 2 Financial information and financial management of homestay operators in various periods

Period	Financial information	Financial management
before the outbreak of coronavirus disease 2019	Most respondents have an average monthly income of 554.51 – 1108.97 USD, average monthly expenses of less than 277.24 USD, no savings or investments, mostly they do not have debt and debt burdens are mostly related to renovations and improving the homestay (large proportion of homestay cost of production), having a proportion of income from the homestay business average is 43.1 percent.	Mae Kampong Village has a village revolving fund for tourism development, giving loans to villagers and the cooperative will receive interest from lending and the cooperative group will deduct village maintenance fees from the income that each homestay receives from tourists. For example, keep 2 percent as the village's revolving fund and develop the village in various aspects, such as developing public tourist attractions Marketing development
Period of the coronavirus disease 2019 outbreak: 2020-2021.	Most respondents have an average monthly income of less than 277.24 USD (significantly reduced) and have an average monthly expense of less than 277.24 USD. No savings or investments. Mostly they do not have debt and most of the debt is a debt related to the improvement of the homestay (large proportion of homestay cost of production).	Mae Kampong Village received minimal impact from COVID-19, comparing as people with a fever, that is, they have a low-grade fever. The village is closed for only about 1 month, which is at the end of April - end of May 2021. The reason why the village was less affected is because the village has had a good business management and financial management system since the beginning, which is in the form of a cooperative that has money for villagers to borrow. People in Mae Kampong village had the original main occupation of collecting Miang. and coffee cultivation if there are no tourists. The cooperative group creates employment and income for people in the village, such as building/developing tourist attractions, with funds and the cooperative group providing financial assistance.
The period when the country is opened after the COVID situation: 2022-present.	The average monthly income of most of the respondents after the epidemic period was 554.51 – 831.73 USD. They have an average monthly expense of 277.27 - 554.49 USD. They have an average monthly savings or investment of 110.92 - 166.35 USD. (increase). Mostly they do not have debt and most of the debt is related to the improvement of the homestay (large proportion of homestay cost of production). Most have a proportion of their income from the homestay business is 48.8 percent (increase)	Mae Kampong Village has good capital; therefore, it is not much affected by COVID-19 and rarely has problems with financial management.

fund and developing the village in various areas such as developing public tourist attractions and marketing.

4) Creating a variety of networks in both the public and private sectors, such as universities and educational institutions (learning and development, research). Having a travel network. As a result, there are tourists who come to visit Mae Kampong throughout the year. Being a place for study visits and a role model in many matters.

5) A sound management system has been created in the community, such as management in the form of cooperative groups.

Part 4 Suggestions/Guidelines for Financial Management of Homestay Business Mae Kampong Village, Chiang Mai during the outbreak of coronavirus disease 2019 or if a similar situation occurs again, as follows:

1) There should be income generation from other channels than the homestay business. There is knowledge seeking, such as dealing with various problems, giving importance to saving, investing in other channels, and reducing costs, and increasing additional savings against dangers that may occur in the future.

2) They should invest in other channels to have multiple income streams, should study and gain additional knowledge in financial management from experts, and should do an accounting of income and expenses. There is a reduction in unnecessary expenses and there should be a reserve fund in case of future emergency situations.

Discussion

The results of a comparative study of financial management of homestay businesses in Mae Kampong village, Chiang Mai Province, before, during, and after the outbreak of the COVID-19 situation can be discussed as follows.

During the COVID-19 outbreak, most respondents' incomes decreased significantly, and they began to adapt by reducing unnecessary expenses; this can be seen from the fact that the average monthly expenses decreased significantly, with no additional savings or investments.

As with the results of the study by Theerathanyasirikul (2023), who studied techniques for managing personal finances in times of crisis, the research found that during a crisis, it is important to have spending planning, which includes personal cash, budgeting cost, reducing risk prevention, income planning, and investment planning, respectively. Such is consistent with Ngamprapasom (2023), who studied the management strategies of Ban Pa Miang Homestay, Mueang Pan District, Lampang Province, in the state of the spread of coronavirus disease 2019. The research results found that the outbreak of coronavirus disease 2019 caused problems in community homestay management in all indicators. In particular, the accommodation side is directly affected by the lack of tourists coming to stay, revenue decreased, prices of raw materials for cooking increased, Peace in the community decreased because some people in the community were laid off, unemployed, and stressed.

Financial management behavior of the homestay business during the COVID-19 outbreak: most respondents earn money from other jobs that are not related to the homestay business, but there still isn't enough money to save or invest much. Most respondents have reduced their debt burden and borrowing money to invest in additional businesses such as home renovations. Most respondents plan to manage their own money to prevent various events or problems that may occur in the future and to have a better quality of life in the future. This is consistent with the results of the study by Chuntanasira (2020), which studied the personal financial management of civil servants under the Ministry of Education who retired at the end of fiscal year 2019. The research results found that most of the sample group planned their own finances to control their financial status and preventing debt burdens that exceeded the ability to repay debts.

In the section on guidelines for the financial management of the homestay business in the period before the outbreak of coronavirus disease 2019, most respondents already had quite good financial management. A relatively stable financial foundation has been laid. There is a gathering of people in the village to help each other. There are good leadership, planning, and management within the organization, as well as high flexibility in adapting. Emphasis on management, creating culture, and strategy in village savings cooperative groups. This is in line with the findings of Agmapisarn and Chantapong (2022), who studied the flexibility in adapting the hotel and restaurant business during the COVID-19 crisis. The research found that COVID-19 crisis affected the hotel and restaurant business, causing concern about the situation and health and safety of employees who provide services to customers and their image of confidence in cleanliness and safety. Businesses face income and expenditure problems due to the volatility and uncertainty of the epidemic and government measures. As a result, businesses need to manage within the organization, have high resilience during a crisis, and be ready to accept the risks ahead. Emphasis is placed on crisis management and creating culture and strategy in the organization through family business management by having communication skills such as listening to news, being mindful, and having a good attitude in solving problems.

Conclusion and Recommendation

From the comparative study of financial management of homestay businesses in Mae Kampong village, Chiang Mai Province before, during and after the outbreak of the COVID-19 situation, there are the following recommendations.

Suggestions for Homestay and Related Businesses

Mae Kampong Village has a village revolving fund for tourism development giving loans to villagers, with the cooperative receiving interest from lending, and the cooperative group will deduct village maintenance fees from the income that each homestay receives from tourists. For example, keep 2 percent as the village's revolving fund and develop the village in various aspects, such as developing public tourist attractions, Marketing development, which correspond with the theory of planned behavior, that may offer a way to investigate the new paradigm wherein tourism and hospitality firms can provide better services to their customers during and after the COVID-19 pandemic (Sann et al., 2024)

In the constant situation, which is always changing, the emergence of new diseases spread throughout the world, such as the infectious disease coronavirus 2019 and smallpox, may spread more. Entrepreneurs should always plan and prepare for business financial management, and there is knowledge about earning income, controlling spending, managing debt, combine savings and investments in various channels to get the most benefit beyond just depositing money with the bank.

Homestay operators should also invest money in other channels to generate income in multiple channels. The study should have more knowledge in financial management from various sources of knowledge. There should be an accounting of income and expenses. There

is a reduction in unnecessary expenses, and there should be a reserve fund in case of future emergencies.

Forming groups to help and support each other within the community will strengthen the community so that it can deal with problems or serious situations that may arise.

Suggestions for All Stakeholder Groups

The Department of Tourism or related stakeholder groups should provide more assistance to various communities, especially tourism communities that help generate income for the country in the form of training, to provide knowledge on business money management, managing personal finances, troubleshooting and dealing with various problems that may arise or may study how to deal with problems in homestay villages with good management, and take the information received. Such is a guideline for management for future homestay business groups in other areas.

Suggestions for Next Study

A comparative study of financial management of homestay businesses in Mae Kampong village, Chiang Mai Province, before, during, and after the COVID-19 outbreak had a relatively small population size. Therefore, you may study to increase your education with the homestay business in Chiang Mai Province or other tourist communities throughout Thailand. This may gain information on the financial management of homestays in various areas, which is very diverse and comprehensive, to provide a guideline for effective management of the homestay business.

Conflict of Interest

There is no conflict of interest.

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Development of public's role in Thailand medical tourism driven through public-private partnerships

Ngamnetr Eiamnakha

Faculty of Social Sciences and Humanities, Mahidol University, Nakhon Pathom, 73170, Thailand

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Abstract

This research aims to analyze the confirmatory factors of Public-Private Partnerships (PPPs) in medical tourism and to propose guidelines for the public sector's role in driving medical tourism through PPPs. A mixed-method approach was employed, utilizing Confirmatory Factor Analysis (CFA) in a quantitative study to validate the components of PPPs in medical tourism. The sample for this study comprised 220 health tourism operators and small entrepreneurs involved in health and tourism-related activities within the area. An in-depth interview protocol with semi-structured, open-ended questions was applied to gather insights from 10 key informants. These informants included executives from health and tourism agencies, health and tourism business operators, and scholars specializing in public policy and PPPs. The questionnaire used in this research was developed based on a thorough literature review and tested for reliability through a pilot study. The overall reliability of the questionnaire was confirmed with a Cronbach's alpha coefficient of 0.951. Quantitative data were analyzed using Social Science software packages. Descriptive statistics, such as frequency, mean, and standard deviation, along with inferential statistics like CFA were applied. The results of the quantitative analysis confirmed that the seven components of the PPPs model in health tourism aligned with the empirical data. Furthermore, the qualitative findings emphasized that the government should prioritize promoting medical tourism for healthcare purposes, modernization of laws and regulations**,** enhancing capacity building, and strengthening responsible public agencies by addressing the factors influencing PPPs in medical tourism.

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Introduction

The global landscape of medical tourism has evolved significantly in recent years, driven by a combination of economic factors, advancements in healthcare, and increased international travel accessibility. Thailand

E-mail address: ngamnetr@gmail.com

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attracts patients seeking affordable medical services, particularly for dental procedures, cosmetic surgery, and elective surgeries. Its modern healthcare infrastructure, coupled with excellent hospitality, draws many tourists.

Current trends in Medical Tourism are 1) Growth of telemedicine 2) Specialized care 3) Wellness tourism 4) Medical tourism insurance 5) Post-COVID 19 recovery and health prevention. However, the medical tourism industry presently faces many challenges which are regulatory and ethical issues, language barriers, post-treatment care, risk of complications and safety concerns.

Medical tourism represents a dynamic and growing sector in the global healthcare landscape, with opportunities for innovation, expansion, and improvements in patient care and satisfaction. However, safety, quality assurance, and ethical concerns remain, requiring ongoing efforts to ensure the industry's sustainable growth and success.

The public sector in a market-driven economy faces complex challenges in balancing the demands of efficiency, social equity, and sustainable growth. Governments must navigate a landscape where market forces often prioritize profit over the public good, while simultaneously fulfilling their role in providing essential services, regulating industries, and ensuring social welfare. To overcome these challenges, public sectors need to focus on strategic governance, invest in innovation, promote collaboration with the private sector, and ensure accountability in delivering public services.

Thailand has had a policy to promote medical tourism as a generator of income into the country from health and wellness services, known as the Medical Hub policy, since 2004. (Department of Health Service Support, 2004). The stated development vision includes a focus on strengthening a leading competitive position in the global market (Salamon, 2002). A clear vision for development is especially necessary in an era of aging population and wellness economy to meet quality of health care requirements and a particular variety of health services.

However, since the inception of the medical hub policy, Thailand has had systemic problems of shifting the paradigm of public health administration to be market oriented. There is no determination of the role of the public sectors that drive the policy, including the assessment of policy capabilities (Painter and Pierre, 2005). The important challenges in driving forward this policy are the public sector's ability to drive commercial health policy including the collaborative governance of policy administration (Kapucu et al., 2009; Peters & Pierre, 1998) of the Thai government to strengthen the country as a medical tourism destination. Furthermore, there were also effects of a health professional movement from public to the private sector as the main service provider to foreigners (Marohabutr, 2018). This means that Thai people may be affected in equal access to health services. These challenges have meant Thai public sectors, the Ministry of Public Health especially, need to have skills and capacities in new public management. By good governance, the Medical Hub policy should be driven by the participation of the public and private sector including the relative sectors in order to maintain the legitimacy of policy implementation and to limit the adverse impact that may occur on the national health system (Marohabutr, 2020).

To establish Thailand as Southeast Asia's premier medical hub, the country requires a transformative administrative framework to strengthen collaboration between the public and private sectors. Public-Private Partnerships (PPPs), as highlighted by Roehrich and Wright (2013), offer a critical tool for fostering such relationships. However, while significant research has been conducted on PPPs, limited studies explore the integration of New Public Management Theory and the concept of Managerialism in structuring these partnerships effectively. Thus, the author proposes a study entitled **"**Development of the Public's Role in Thailand's Medical Tourism Driven by Public-Private Partnerships,**"** which aims to provide a framework for promoting PPPs within the medical tourism sector, serving as a strategic tool to position Thailand as the medical hub of Southeast Asia.

Objectives

1) To analyze the confirmatory factors and discover relevant key information of Public-Private Partnerships in Thailand medical tourism.

2) To propose guidelines for the development of public sector's role in driven medical tourism through Public-Private Partnerships.

Research Framework Overview

For Thailand, medical tourism is the most likely strategy to drive Medical Hub policy into practice. However, to perform this important role, the Ministry of Public Health, the responsible government agency, has not yet driven the policy to be fully consistent with the circumstances and context of Thailand's development. Therefore, to increase the capacity of public agencies responsible for implementing Medical Hub policies, the ADEPT model (Rütten et al., 2011) that presents a framework of multilateral cooperation was applied to

the medical tourism model of Thailand. To support the concept of Marketization, the 'Principal and Agency' theory was applied to keep a balance between the parties in multilateral collaboration (Jensen & Meckling, 1976).

A comprehensive overview of the research framework in terms of Medical Hub policy implementation, and synthesized guidelines for developing the public sector's role in driven medical tourism through PPPs is as shown in Figure 1.

Literature Review

Presently, Thailand's economy is a liberal or Capitalism system in which the private sector conducts economic activities. To perform the role of the state in driving service-based economic mechanism, 'Marketization' is the one neo-classic economic concept (Slattery et al., 2013) with a principle of 'Principal and Agency' (Jensen & Meckling, 1976) which converts state activities to private activities, relaxes the public sector structure to increase the role of market mechanisms, promotes private sector participation, creates public service values, provokes professional ethics, focusing on efficiency and value for money. The two important concepts of New Public Management lead to a change in the public management paradigm, importing management methods

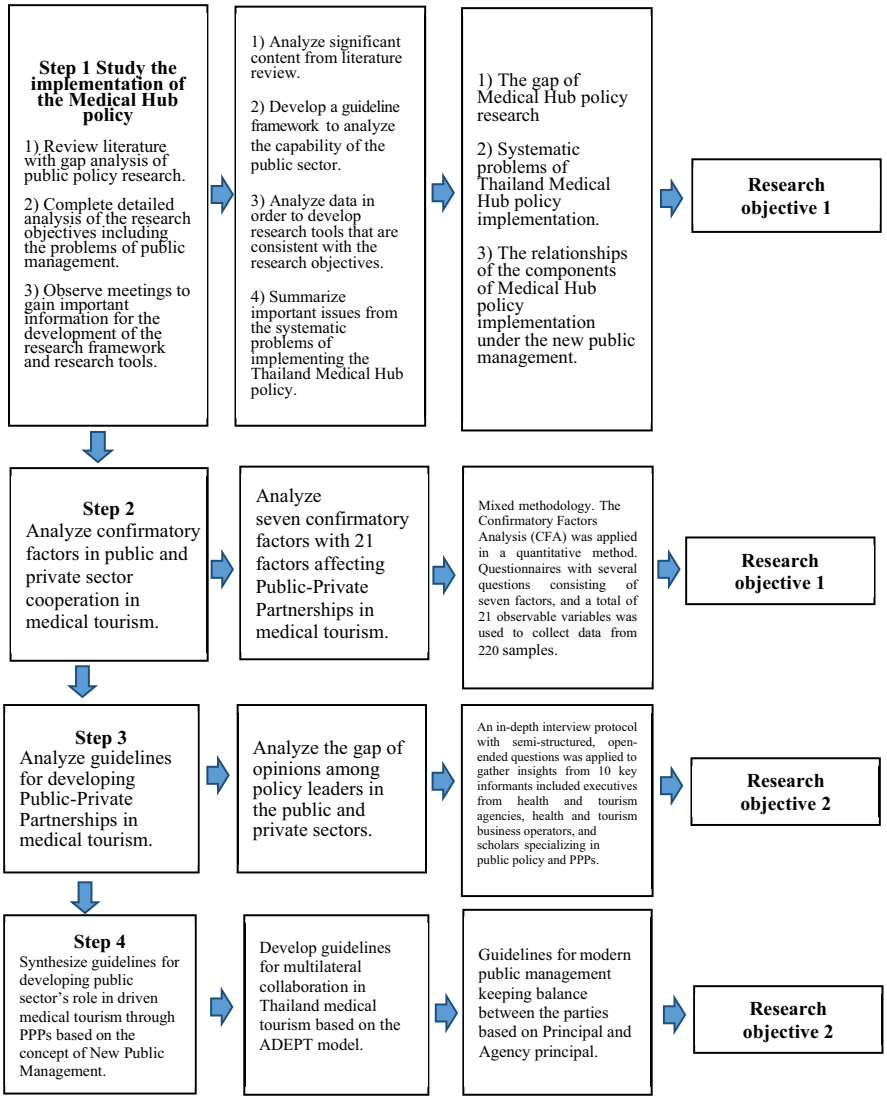


Figure 1 Research framework

and techniques of the private business sector to develop skills of market-driven public management (Hood, 1991) in the form of PPPs.

The ADEPT model; The Analysis of Determinants of Policy Impact: An approach to policy analysis in health

The ADEPT model is the model to present a framework for increasing the capacity of agencies responsible for implementing health promotion policies (Rütten et al., 2011). There is 'Multilateral Collaboration' among entities that have expertise accumulated in activities related to health policy and development both in the economic and social dimensions (U.S. Department of State, 2023). In addition, the ADEPT model also has the ability to assess the readiness of the agencies that implement the promotion policy into action. This study applied this model to analyze the readiness and capability of Thailand public agencies both in terms of multilateral collaboration and readiness to drive the Medical Hub policy into action.

The Theory of 'Principal and Agency'

The theory of 'Principal and Agency' explains that human behavior can be described in the form of contracts, in which one party (employer / principal) enters into an exchange agreement with the other party (contractor / agent). The agent-representative will be assigned the authority to make some decisions to be responsible for various operations instead of the principal according to the contract conditions or mutual agreement between the parties (Jensen & Meckling, 1976). However, personal interests may cause conflicts of interest when the relationship between these two parties is imbalanced (Kettl, 1993). The researcher applied this principle in developing a PPPs model for Thailand medical tourism by utilizing the experience of the public sector to create fair and equitable access to public health services with the private sector experience in improving health services efficiency including effective policy communication for information symmetry between the two sectors.

In conclusion, the ADEPT model and the theory of 'Principal and Agency' can guide the development of new variables or inform confirmatory analyses by providing theoretical foundations and identifying relationships between key constructs. By integrating the ADEPT model's structured focus on performance dynamics with the 'Principal and Agency' theory's relational and governance focus, the researcher can derive nuanced variables and test complex relationships. Confirmatory analyses (e.g., structural equation modeling) can then validate these relationships, helping to advance both theoretical understanding and practical applications.

Factors affecting Public-Private Partnerships in medical tourism

Based on the concept of the key factors of PPPs in social development (Asian Development Bank, 2015) together with the principles for collaborative governance of PPPs (Charbit, 2011), the researcher has applied these concepts as a guideline for a tool of collecting and analyzing data regarding factors affecting PPPs in medical tourism. The important factors of cooperation of public and private sectors in the social dimension as mentioned was applied to develop research tools regarding the seven factors, and a total of 21 observable variables of PPPs in medical tourism, which consist of: (1) the role of public sectors; (2) the legitimacy of the policy; (3) the capability of public policy; (4) decentralization of authority; (5) service obligations between sectors; (6) public management; and (7) increasing the value of goods and services. To analyze the relationship of these components to propose ways to increase the efficiency of Thailand medical tourism driven by PPPs model, the researcher used Confirmatory Factor Analysis (CFA) (Brown, 2015).

Methodology

The research method framework incorporates both quantitative and qualitative approaches. In the quantitative study, Confirmatory Factor Analysis (CFA) was employed to validate the construct validity of the components within the PPPs model. As highlighted by Kline (2015), CFA statistics are instrumental in evaluating the validity of constructs in research. Additionally, CFA enables researchers to test theoretical models by comparing observed data with expected relationships among variables (Byrne, 2016).

The sample size for the quantitative study was 220, which is the overall number of the operators and small entrepreneurs involved in health and tourism-related activities within the area at that time. However, this sample size is adequate for analysis with SEM as Hair et al. (2019) proposed that 200 samples are sufficient for analyzing the model with up to 7 factors. The duration of data collection was August 2019–January 2020 in Bangkok and potential areas of medical tourism in Thailand.

A questionnaire was used to collect data from the samples. It was developed from a literature review and comprised 21 five-level Likert scale questions. The questionnaire was tested for reliability through the pilot test with 30 samples. The overall reliability of the questionnaire was confirmed with a Cronbach's alpha coefficient of 0.951.

The qualitative study employed a semi-structured interview protocol to gather insight from 10 key informants who were purposively selected from executives of government agencies or related organizations, health and tourism entrepreneurs, and experts on public policy and PPPs. The opinions of these key informants highlighted relevant policy issues and supported the analysis of approaches for strengthening policy capacity and the development of the role of the Ministry of Public Health and relevant public agencies.

Data Analysis

To collect data for the implementation of the Medical Hub policy from the quantitative method, questionnaires with several questions about the components of PPPs in medical tourism, consisting of seven factors, and a total of 21 observable variables were analyzed using CFA. The instrument was validated for content reliability. The overall alpha Cronbach's coefficient was 0.951 indicating high validity of the research instrument as a basis for assessing confirmatory factors of PPPs in Thailand medical tourism. In testing of the consistency of the research questionnaires, the Item-Objective Congruence (IOC) were 0.93–1.000.

Quantitative data analysis was conducted using Social Science software packages. Descriptive statistics, including frequency, mean, and standard deviation, were employed to summarize the sample characteristics and opinions on the components of PPPs. To assess the Confirmatory Factor Analysis (CFA) of PPPs in the medical tourism model, the Structural Equation Modeling (SEM) approach was applied. The Pearson Product-Moment Correlation Coefficient was used to analyze the relationships in the dataset. Model consistency was evaluated using chi-square and relative chi-square tests, alongside the consistency index derived from the confirmatory factor analysis.

The qualitative study was employed to develop the guidelines for developing PPPs in medical tourism. The interviews were directed to three semi-structured question categories reviewed by experts which were: (1) medical tourism cooperation that is aimed at medical treatment; (2) enabling factors; and (3) the indirect skill development of the Ministry of Public Health shifting from the role to become the wellness economy driven unit. The qualitative data was analyzed using the content analysis technique.

Results and Discussion

Quantitative Finding

Demographic profile of the respondents

The analysis result showed that the majority of the respondents were female (65.50%), aged 45 years or older. (45.20%) Most of them held a Bachelor's degree (62.60%), as presented in Table 1

Table 1 Demographic profile of the respondents

Variables	Characters	Percentage
Genders	male	65
	female	35
Total		100
Ages	Less than 25 years	10.50
	25–less than 35 years	23.80
	35–less than 45 years	20.50
	45 years and more	45.20
Total		100
Education	Secondary education	0.0
	Diploma	9.20
	Bachelor	62.60
	Master	27.60
	Doctorate	0.60
Total		100

Construct validity of PPPs component' structure confirmed by CFA

The CFA results, as shown in Figure 2, demonstrate that the specified confirmatory components are consistent with the empirical data. The analysis yielded a chi-square (χ^2) value of 190.35 (df = 182), with a χ^2/df ratio of 1.046, which is below the threshold of 2. The probability value (p-value) was .32055, exceeding the .05 threshold, and the RMSEA value was 0.014, which fell within the acceptable range of < .05. This result confirms the model of PPPs in health tourism with seven components is congruent with the empirical data. Additional details on the goodness of fit indices are presented in Table 2.

Qualitative Finding

According to the result of the qualitative study, the guidelines for the development of public sector's role

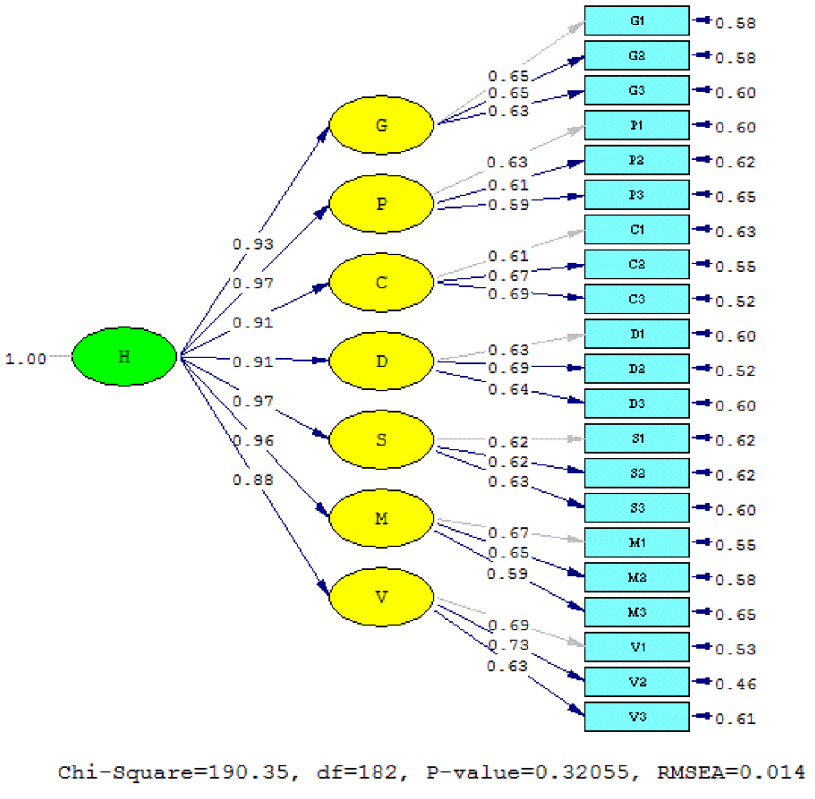


Figure 2 The Confirmatory factor analysis of PPPs' component construct

Table 2 Goodness of Fit values

Goodness of Fit	Thresholds	Obtained values	Outcome
χ^2/df	≤2.00	1.046	pass
p-value	>0.05	0.32055	pass
GFI	≥0.95	0.96	pass
AGFI	≥0.95	0.97	pass
CFI	≥0.95	1.00	pass
NFI	≥0.95	0.97	pass
RMSEA	≤0.05	0.014	pass
SRMR	≤0.05	0.040	pass
CN	>200	345.17	pass

Sources: Barrett (2007), Jöreskog and Sörbom (1996), Kline(2015), McDonald(2002)

in driven medical tourism through PPPs include; the government should reduce redundant rules, including reducing roles and decentralizing powers (Ojelabi et al., 2015). It is important to note that mutual trust is a key success factor in decentralization and PPPs (Ismail, 2013). To increase the cost-efficiency of products or services, the supervision and control of commercial and non-commercial health services should be separated from each other (Boston et al., 1996). To promote capabilities of PPPs in medical tourism, the elements that should be developed are: (1) adopting a new governance paradigm of public policy administration (Torchia & Calabrò, 2018); (2) reinventing government to be a mission-driven bureaucratic system; (3) maintaining the social safety net for acceptance of the social towards the medical tourism strategy; and (4) monitoring activities to be prepared to prevent potential problems that may occur in the future rather than reacting to resolve problems after they occur (Barlow et al., 2*013*; Osborne & Gaebler, 1992) such as in the case of the COVID-19 outbreak in early 2020 which needed a strict protocol for effective control of an emerging disease that may arise from people's travels.

Development guidelines for Medical Hub policy competency

The development guidelines of public health management should stem from social welfare. As a matter of fact, legal standards for commercial and non-commercial health services must be defined by the same standards under the relevant laws, so that there is a mechanism to protect consumers. Therefore,

modernization of state licensing laws and relaxing laws restricting collaboration is a tool for facilitating the development of Thailand's medical tourism. Various rules must not conflict with each other on transforming health systems through PPPs (Lim et al., 2012). Managing increasing service obligations under the concept of PPPs requires each sector to use their efficiency and capacity to drive public affairs under the principles of collaborative governance (Kapucu et al. 2009). Corporate social responsibility, service quality accreditation, medical facilities and qualifications, risk sharing, marketplace, travel insurance and medical malpractice insurance should all be defined as conditions for sustainable partnerships (Medhekar, 2010). Meanwhile, there should be measures in cost-reduction, downsizing, increasing competitiveness, outsourcing and privatization of services, all with a firm idea of leadership in a new corporate culture (Mahboob Ali & Medhekar, 2016).

To facilitate the needed common understanding, transparency and trust, a separate independent unit for PPPs in medical tourism management might be established to work in multilateral collaboration (Pocock & Phua, 2011) as is consistent with the concept of ADEPT model which among entities accumulated in activities related to Medical Hub policy are ready to implement policy into action with accurate and realistic goals considering for balanced development both in the economic and social dimensions (Rütten et al. 2011). In the realm of the concept of relationship between principal and agency, the research findings lead to suggestions for strengthening the balanced relationship between the public and private sectors in medical tourism by (1) reducing the disadvantages of information asymmetry of demand of service guided by market research and (2) risk management from uncertain situations to mitigate taking unfair advantage and exploiting the circumstances, especially in the allocation and distribution of health resources. Including establishing the criteria for measuring the quality and standard of the private sector represented when the contract has been established.

Conclusion and Recommendations

By integrating qualitative and quantitative research findings, the public sector can balance statistical evidence with real-world context, ensuring that PPPs are both effective and responsive to the needs of the private sector. This approach leads to more informed decision-making, efficient resource allocation, and stronger PPPs in medical tourism.

Formation of PPPs in medical tourism will elevate the Thailand Ministry of Public Health implementation of a Medical Hub policy in a quasi-business-like manner and with good performance in multilateral collaboration. The change of the public sector's performance tends to increase efficiency, effectiveness and quality of services. Consequently, the lack of technical and methodological skills under the concept of 'value for money' will be improved. The research findings show that, PPPs is one of the best ways of implementing and therefore achieving sustainable development goals. Thus, the theoretical elaboration shows how to elevate the public sector's role that highlights the beneficial contribution as shown in Figure 3.

The value chain connecting supporting factors, trust between the parties, and the social safety net in PPPs for medical tourism involves a sequence of interconnected activities and relationships that optimize the delivery of healthcare services while addressing

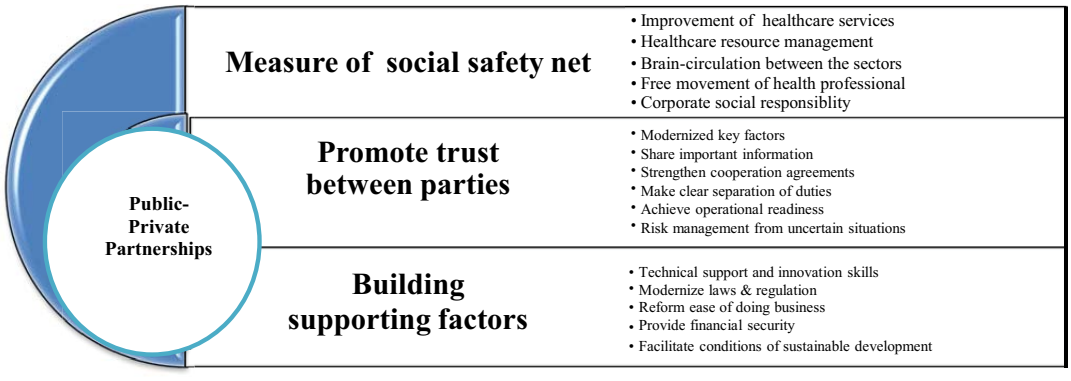


Figure 3 Features of public sector's role in supporting private sector a value-based healthcare economy and achieving sustainable development goals

Adapted from Researcher 2022

the unique demands of medical tourism. This value chain emphasizes creating an ecosystem that fosters trust, ensures equitable outcomes, and aligns economic benefits with the social welfare of local populations. The value chain of the public sector's role in contribution in a value-based healthcare economy by participating with private sector in medical tourism may be explained as (1) balancing economic gains and social equity (2) trust built through transparency and accountability (3) community engagement and (4) ethical standards. By integrating support factors, trust, and the social safety net, the value chain ensures that the public sector achieves health equity goals; meanwhile, the private sector benefits from predictable, fair partnerships. Consequently, communities, especially vulnerable populations, gain access to affordable, high-quality health care, which is the role of the public sector in driving sustainable development in line with the SDG3 goal (Health and Well-being).

Medical tourism is a lesson for the Thailand Ministry of Public Health to learn how to keep a balance of social and economic development with shared responsibilities of social protection among stakeholders. When the public sector performs good governance in multilateral collaboration, the country gains more competitive advantage in the healthcare global arena sustainably.

Research Implications

Implications of the study for policy advocacy indicate that the Ministry of Public Health should do a systemic review to obtain important information integrated into a foresight scenario planning to discover opportunities for long-term investment in medical tourism. Modernization of relevant laws and regulations as well as strategic human resource strategic planning are also key factors in driving Thailand to be the world destination of medical tourism. Meanwhile, research studies applying traditional wisdom should be promoted for building a health safety net for Thai people in accordance with the sufficiency economy philosophy consistent with sustainable development goals.

Directions for future research should be to develop laws and regulations, taking into account special conditions to enhance the environment of PPPs while developing the impact indicators in both the desired effect and the unwanted effects in the medical tourism industry of Thailand. An analysis of the relationship between the increase of health manpower from the free movement of health professionals under the ASEAN Free Trade Agreement should be studied. As well, an analysis of the market-driven bureaucratic system and a model of desired partnerships should be the basis for further study. Analyzing opportunities from the growth of the wellness economy toward sustainable development of Medical Hub policy is an interesting issue for research and development.

Conflict of Interest

The author declares that there is no conflict of interest.

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The interconnected dynamics through structural equation modelling in the context of revisiting Phuket, Thailand in the aftermath of Covid-19

Winayaporn Bhrammanachote[a,*], Nathdanai Pratuangboriboon[b], Yothin Sawangdee[c]

[a] *International Business Program, Department of Business Administration, Faculty of Management Sciences, Chiangmai Rajabhat University, Chiang Mai 50300, Thailand*

[b] *Public Administration Program, Faculty of Humanities and Social Sciences, Lampang Rajabhat University, Lampang 52100, Thailand*

[c] *Institute for Research and Development, Suan Sunandha Rajabhat University, Bangkok 10300, Thailand*

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Abstract

Phuket is a prominent tourist destination known for its magnificent beaches, vibrant nightlife, and fantastic classical architecture. Prior to the Covid-19 pandemic, the island attracted millions of visitors around the world, contributing to Thailand's economy. The aftermath of the Covid-19 pandemic has significantly reshaped the landscape of global tourism, and as the world gradually recovers, an intention to revisit tourist destinations is experiencing a renaissance. The aim of this research is to explore the connection between anxiety, attitude, perception, and revisit intention to Phuket, Thailand. Data collection was gathered through an online survey consisting of 3,194 responses all over Thailand, during October and November 2021.This paper presents the Structural Equation Model (SEM) in analyzing the relationship between the variables. The results of causal relationship model analysis of the connection between variables showed the consistency index of the model based on the Chi-squared test values (χ^2 = 499.034, df = 172, χ^2/df = 2.901, p value = .000, RMSEA = 0.024, RMR = 0.022, GFI = 0.986, NFI = 0.991, and TLI = 0.986). This holistic perspective contributes to the theoretical framework surrounding tourist behavior and mental health by illustrating how these constructs interact in the context of travel. However, the key finding from this research demonstrated that anxiety influences the opposite direction to revisit intention; anxiety exists only in the crisis situation.

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* Corresponding author.
E-mail address: winayaporn_bhr@g.cmru.ac.th (Bhrammanachote, W.).

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Introduction

Tourism continues to be a driving force in preserving natural and cultural heritage and ensuring that these legacies are enjoyed by future generations (Pololikashvili, 2021). In the early 21st century, tourism has become a global phenomenon and remains a powerful driver of economic development, shaping the identity of many countries worldwide (Hall, 2019). However, the emergence of the Covid-19 pandemic since late 2019 has led to a continuous decline in global tourist numbers. In the first quarter of the year 2021, there was an 83 percent decrease when compared to the same period in 2020 due to the ongoing travel restrictions and low consumer confidence resulting from the widespread coronavirus outbreak. This was followed by an unprecedented 73 percent decrease in international tourist arrivals in 2020, marking it as the worst year on record for international tourism. In the Asia and Pacific region, the issue of declining international tourist numbers remained a significant concern, with a 94 percent decrease in the first quarter of 2021 compared to the same period in 2020 (The World Tourism Organization, 2020).

In Thailand, the abundance of natural resources, both on land (mountains and forests) and in the waters (sea, rivers, lakes, and reservoirs) has attracted people from both within and outside the country to come and experience them (OpenDevelopmentThailand, 2017). Once experienced, these resources create fascination and a desire to return, as well as the inclination to share their experiences with others. This holds great significance for the development of Thailand's tourism industry. The Tourism Authority of Thailand (TAT, 2024) has designated tourism as the largest sector within various industries, with numerous connections to other businesses. Tourism plays a substantial role in generating income for the country. Therefore, the government has used tourism as a tool to shape policies and create strategies for national development.

Phuket province is in the southern part of Thailand and is a significant tourist destination for the country, often referred to as the "Pearl of the Andaman Sea" (Sarwono & Vionita, 2023). This is due to its remarkable natural beauty, with pristine white sandy beaches meeting the clear blue sea. Additionally, Phuket is known for its distinctive culture and architecture, especially the Sino-Portuguese style, which creates a unique blend of "East Meet West" where the East meets the West (Khoopongsakorn et al., 2022). It is a modern and international city while preserving its own art and culture. Phuket is also a renowned centre for sea tourism on a global level.

Before the pandemic, Phuket was one of Thailand's premier tourist destinations and a bustling hub for international travellers. The tourism situation in Phuket in the period before the pandemic crisis was characterized by a steady increase in the number of visitors, both tourists and day-trippers. In the first five months of 2020, the number of foreign tourists was 3 million (Thaicharoen et al., 2023), while generally there are more tourists visiting Phuket such as 12 million travellers in 2023 (The Nation, 2023). The pandemic significantly impacted the tourism sector worldwide, including Phuket, leading to travel restrictions, closures, and a drastic reduction in tourist arrivals (Chuenniran, 2023). However, tourism in Phuket during the first half of 2024 is recovering strongly, with a total of 4.3 million foreign tourists, which is only 7 percent lower than pre-Covid levels. For the second half of the year, it is expected that foreign arrivals will exceed 2.7 million (Bangkokbiznews, 2024). These visitors were divided into Thai nationals, accounting for 25.6 percent, and foreign nationals, accounting for 74.4 percent of the total (Phuket Provincial Statistical Office, 2024).

Recently, numerous studies has emphasized tourist crises, particularly during and after the Covid-19 pandemic which have caused enormous damage to the local and global tourism industry (Bhati et al., 2020; Novelli et al., 2018). The topic of tourists' intention to revisit has received much scholarly interest in the travel and tourism literature over the past 10 years (Zulfiqar et al., 2024) as it is considered vital to contribute to the profitability and sustainability of the tourism industry (Alves et al., 2019). Yet previous studies have been shown to study the antecedents of tourists' revisit intention, tourists' experiences and satisfaction on revisit intention (Zhang et al., 2021), the role of revisiting the destination (Choo & Petrick, 2014; Ranjbarian & Pool, 2015). Prior published literature in tourism emphasizes on destination image, service quality, satisfaction, and perceived value affecting revisiting a destination, while rarely studying the way these factors help predicting intention to revisit (Abbasi et al., 2021).

To fill this gap, the aim of this research is to explore the connection between anxiety, attitude, perception, and implications for revisiting Phuket, Thailand. Hence, the research objectives include: to explore factors influencing the revisit intentions to Phuket province, to analyse the causal relationships of anxiety, attitude, and perception towards the intention to revisit Phuket province, and to provide recommendations for tourism marketers and stakeholders in Phuket to enhance tourists' perceptions

and reduce anxiety, thereby increasing revisit intentions. The unique contribution of the study lies in its focus on the psychological dimensions of tourist behaviour during crises, its practical implications for enhancing tourism recovery strategies, and sustainable tourism post-Covid-19.

Literature Review

People commonly experienced anxiety during the Covid-19 pandemic, which influenced them to adopt behaviour to protect their health (Akdeniz et al., 2020). When people misunderstand a disease, they may develop negative perceptions that can create social and psychological problems, including stigma, which in turn can trigger excessive anxiety (Yeni et al., 2018). Anxiety, attitude, and perception are three intertwined facets of the human psyche that wield a profound influence on one's confidence to act on something (Ajzen, 1991). This section explains each variable, including perception, attitude, anxiety, and revisit intention, followed by the hypothesis, and the relationship between these variables.

Perception is a subjective norm, which directly influences tourists' psychology and decision-making processes (Jiang et al., 2022). Knowledge perception refers to a tourist's ability to recognize and understand risks related to tourism and Covid-19, which can enhance their sense of control in uncertain situations (Zhang et al., 2021; Zhu & Deng, 2020). Tourists who feel more knowledgeable are likely to engage in travel activities as they believe they can better manage risks (Tassiello & Tillotson, 2020). However, when travellers face difficulties during their trips, they quickly develop risk perceptions that can lead to dissatisfaction and decreased intentions to revisit (Khasawneh & Alfandl, 2019; Rindrasih, 2018). Various risks can hinder tourist flows and affect destination perceptions, with the Covid-19 pandemic being a prime example of this phenomenon (Perić et al., 2021).

Attitude pertains to an individual's overall assessment of engaging in a particular behaviour. Attitude comprises cognitive, affective, and behavioural components which describe the tourists' psychological tendencies expression of positive or negative when engaging in certain behaviours. According to Liu et al., (2018), tourists' attitude toward destination has a significant influence on travel intention while destination image impacts tourist attitude. The concept of attitude is considered a crucial factor in predicting behaviour, especially in the context of purchasing behaviour. People's approach to Covid-19 was reflected in how willing they were to comply with government-mandated quarantine and social distancing measures (Roy et al., 2020).

In the light of the Covid-19 pandemic, the tourism industry must adopt strategies to mitigate and alleviate tourist anxiety (Jamal & Budke, 2020). Anxiety is a crucial factor influencing travel behaviour; as anxiety levels rise, the inclination to avoid risky behaviours also increases (Allen et al., 2019). Dealing with uncertain situations can heighten anxiety levels, especially when there is a perceived risk of mortality. This can lead both healthy and vulnerable individuals to adopt protective behaviours (Shigemura et al., 2020). Anxiety is often overlooked when examining factors influencing travel intentions, although anxiety levels did not relate to travel intentions (Şengel et al., 2023). Kovačić et al. (2019) found that while perceived risk raises travel anxiety, it lowers the intention to travel.

Revisit intention refers to a tourist's likelihood of returning to a destination, reflecting loyalty and potentially enhancing economic benefits for that location (Gyte & Phelps, 1989). Despite its importance, there is a notable lack of research on factors influencing revisit intentions (Li et al., 2018), making it crucial for developing marketing and management strategies in tourism. Various factors have shaped the intention to revisit Phuket post-pandemic, including health and safety protocols, Phuket Sandbox Model, vaccination status, digital marketing, sustainable tourism initiatives, flexible booking options, and government support. The proactive management of the pandemic has fostered trust among tourists, particularly through Phuket Sandbox initiatives. Additionally, the Thai tourism industry's resilience and gradual reopening have helped restored confidence in Thailand as a safe destination. Effective communication about safety measures has further encouraged travellers to consider returning, however, individual intentions to revisit vary based on health concerns and the global situation. Overall, Thailand's commitment to safety and its allure as a tourism destination significantly contribute to rebuilding visitor confidence. From reviewing the related literature, the proposed hypotheses are (Figure 1):

H1: Perception has a positive relationship with anxiety.

H2: Perception positively influences attitude.

H3: Anxiety positively influences attitude.

H4: Perception positively influences revisit intention.

H5: Anxiety positively influences revisit intention.

H6: Attitude mediates the relationship between perception and anxiety on revisit intention.

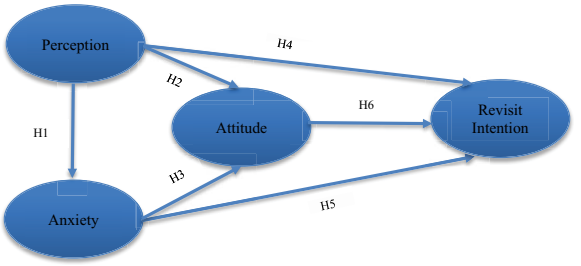


Figure 1 The proposed conceptual model

Relationship between the variables

The Theory of Planned Behaviour highlights subjective norms as a crucial factor influencing behavioural intentions, reflecting how individuals perceive the views of their reference groups (i.e. family and friends) (Belanche et al., 2019). Research shows that tourists' intentions to revisit are shaped by their attitudes, subjective norms, and perceived behavioural control (Han et al., 2020). Additionally, tourists' perceptions of travel destinations significantly impact their revisit intentions (Hasan et al., 2017). While tourist anxiety can negatively affect travel intentions by navigation of potential travellers away from anxiety-inducing destinations, this effect has diminished since the Covid-19 pandemic. Although perceived risks still generate anxiety, they no longer necessarily discourage travel intentions (Kovačić et al., 2019; Şengel et al., 2023). Revisit intentions are influenced by consumers' perceptions and anxieties regarding safety standards and control measures at destinations. The relationship between perception and anxiety is mediated by attitude, which can directly or indirectly influence the intention to revisit. Covid-19 has acted as a stressor, triggering significant anxiety responses that can lead to behaviour changes (Malesza & Kaczmarek, 2021). Tourists face various uncertainties related to hygiene, transportation, cultural differences, security, and language barriers, shaping their risk perceptions before travelling. However, these perceived risks do not essentially affect their intention to revisit a destination (Hasan et al., 2020).

Methodology

This is a quantitative research project where the researchers distributed a survey via Google Forms online, consisting of 3,194 respondents who have previously traveled to Phuket province. Hair et al. (2010) noted that contemporary sample sizes are adaptable and depend on the nature of the data being analyzed. Most of the measurement scales utilized are interval scales, often incorporating aspects of Rensis Likert's scale which typically ranges from 1 to 5. However, Boomsma (1985) stated that a minimum sample size of 100 or 200 is required for structural equation modeling (SEM). Data collection occurred during October and November 2021 after the Phuket Sandbox project by the Tourism Authority of Thailand on June 29, 2021, believing that the sandbox approach could revive tourism. The researchers aimed to analyze whether there was interest from tourists following the confirmation of plans to reopen Phuket. Additionally, Phuket was the only location (by that time) under trial, allowing vaccinated individuals to travel. This research employed a systematic data collection procedure with multi-stage sampling stratified by regions and provinces (Makmee et al., 2024; Prasertcharoensuk et al., 2020). The process of collecting data from questionnaires involves several steps, including (1) developing metrics: creating measurement standards and criteria, (2) distributing the questionnaires through an online system, (3) statistically processing the data using a structural equation model (SEM), (4) analyzing the results comprehensively and providing additional recommendations based on the research findings obtained from the closed-ended questionnaires. The statistical presentation of data covers all aspects studied, enabling clear numerical analysis of relationships and differences.

The researcher conducted a thorough review of the literature and relevant research works to develop a framework and guidelines for constructing the questionnaire. The questionnaire was divided into three parts; Part 1 includes personal information of the survey respondent, Part 2 includes information on anxiety, attitude, and perception to revisit Phuket in the form of multiple-choice questions. These questions are in a survey format, and they use a 5-Point Likert Scale, where 5 indicates the highest level of agreement, and 1 indicates the lowest (Likert, 1970).

Participants: The research was conducted in Thailand to investigate customers' intentions to return to Phuket, as Thailand's most popular province generating large income into a country. Respondents were selected through a convenience sampling method. The sample population included Thai people with various age groups who had lived or visited Phuket. The questionnaire was posted on social media such as Facebook page of a traveling group and Pantip.com in Blueplanet group. A total of 3,308 questionnaires were sent out and 3,274 questionnaires were returned. However, after cleaning

invalid and missing data in the questionnaires, 3,194 valid questionnaires were obtained. The sample size met the minimum requirement of at least 385 according to the appropriate sample size for a 95 percent confidence level (Cochran, 1977).

Data were analyzed by examining personal data, residence, chance to visit Phuket province, and intention to revisit Phuket province by descriptive statistics, which is the mean and standard deviation. Upon obtaining the data, SPSS was used for descriptive statistics throughout this study. The Structural Equation Modelling (SEM) using AMOS was employed to validate the questionnaire's rationality, which primarily tests the data's reliability and validity (Hair et al., 2012).

Reliability and Validity Analysis: The researchers ensured the reliability and validity of the constructs by evaluating internal consistency by using composite reliability and Cronbach's alpha (α). Hair et al. (2012), noted that when measuring internal consistency, the accepted reliability of above 0.70 is required. The researchers conducted a pilot test with 30 people where the Cronbach's alpha was 0.890. The purpose of this pilot study was to evaluate the content validity of the research instrument using the Item-Objective Congruence method with three experts in the field of management, tourism, and statistics. The IOC score was 0.85. Convergent validity was confirmed by assessing inter-correlations among indicators within the same constructs using factor loadings and average variance extracted (AVE). All constructs in the measurement model demonstrated highly significant factor loadings exceeding 0.5 (p value < 0.001), indicating robust reliability and strong associations with their respective constructs (Sarstedt et al., 2017). The average variance extracted (AVE) values of the variables were 0.701 (perception), 0.707 (anxiety), 0.650 (attitude), and 0.648 (revisit). Thus, this research successfully proves convergent validity.

Results and Discussion

The demographic characteristics of the participants in the study are presented below (Table 1 and Figure 2):

Data shown in Table 2, factor loading indicate the strength of the relationship between each indicator and its corresponding construct, where values above 0.70 are generally considered acceptable, meaning that the construct explains more than 50 percent of the variance in the indicator. Cronbach's alpha (α) assesses internal consistency reliability, showing each variable is related to its own group. For instance, values of 0.933 in perception, 0.923 in anxiety, 0.874 in attitude, and 0.926 in revisit all indicate acceptable reliability. Average variance extracted (AVE) measures the level of variance captured by a construct in relation to the variance due to measurement error. Value above 0.50 suggests the construct explains more than half of the variance in its indicators. The constructs show an AVE of 0.701 (perception, 0.707 (anxiety), 0.650 (attitude), and 0.648 (revisit) indicating good explanatory power. Finally, all the composite reliability (CR) values above 0.70 are considered reliable.

All constructs demonstrate discriminant validity according to the Fornell-Larcker criterion since the square roots of their AVEs are greater than their respective correlations with other constructs. Table 3 and Figure 3 illustrate that each construct (revisit, perception, anxiety, and attitude) is distinct from one another, thereby confirming their individual contributions to the overall research model without excessive overlap.

Table 4 compared the model fit statistics of the initial model and the modified model. The modifications made to the model resulted in substantial improvements across all fit indices, indicating that the modified model provides significantly better data compared to the initial model. This suggests that the adjustments made during the

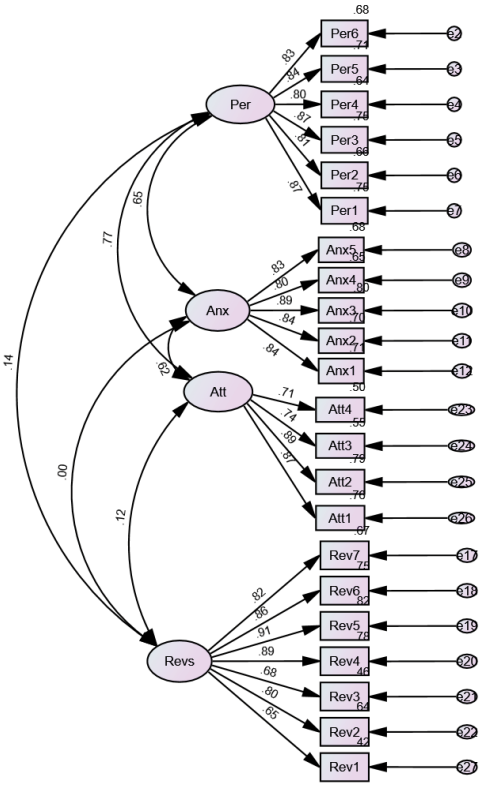


Figure 2 The measurement model

Table 1 The characteristics of the participants

Characteristics	n = 3,194	Percentage
Gender		
Male	1,173	36.7
Female	2,021	63.3
Age		
20 years or below	387	12.1
21−30 years	832	26
31−40 years	525	16.4
41−50 years	697	21.8
51−60 years	576	18
More than 60 years	177	5.5
Occupation		
Freelance	403	12.6
Government officer	1,323	41.4
Selling goods	49	1.5
Company's employee	386	12.1
Private enterprise	207	6.5
Others	826	25.9
Income		
Below 10,000 Baht	932	29.2
10,001−20,000 Baht	529	16.6
20,001−30,000 Baht	391	12.2
30,001−40,000 Baht	467	14.6
40,001−50,000 Baht	307	9.6
More than 50,000 Baht	568	17.8
Residence		
Not living in Phuket	3,194	100
Hometown		
North	522	16.3
South	297	9.3
Central	1,858	58.2
Experienced to Phuket		
Yes	1,633	51.1
No	1,561	48.9
Interested in revisiting Phuket		
Yes	594	18.6
No	1,913	59.9
Not sure	687	21.5

modeling process were effective in enhancing its validity and reliability. The results of causal relationship model analysis of the connection between anxiety, perception, attitude, and revisit Phuket, Thailand with AMOS program showed the consistency index of the model as follows: Chi-squared (χ^2) is 499.034, Degrees of freedom (df) is 172, Chi-squared ratio and the degrees of freedom (χ^2/df) is 2.901. The p value of the test statistic is <.001 The root mean square error of approximation (RMSEA) is 0.024. The root mean square residual (RMR) is 0.022. The goodness of fit index (GFI) is 0.986. The normed fit index (NFI) is 0.991. The Tucker-Lewis index (TLI) is 0.986. The compliance index meets the specified criteria: Chi-squared (χ^2) is less than 3, RMSEA, RMR less than 0.05 and GFI, NFI, and TLI more than 0.95 (Schumacker & Lomax, 2016). Therefore, it can be concluded that the causal relationship model of the connection between anxiety, perception, attitude, and Phuket revisit intention that developed is in line with empirical data and the details of the analysis.

The results of hypothesis testing (Table 5) for all the specified variables mostly support where the perception, anxiety, attitude can concurrently explain the variance of revisit at 0.05 percent. The hypothesis test results mean that perception has a direct effect on anxiety (0.710), followed by attitude (0.648) and revisit (0.159). Anxiety has a direct effect on attitude (0.185). Attitude has a direct effect on revisit intention (0.115). Except for hypothesis 5 (H5) where anxiety positively influences revisit, which has supported negative relationship (-0.180). The research results are inconsistent with the hypothesis, suggesting that as anxiety increases, the revisit intention decreases. Thus, anxiety levels affect the travel behaviour in the wake of Covid-19 pandemic (Şengel et al., 2023; Williams, 2015). This confirms the theory of anxiety/risk reduction management stating that when people experience high levels of anxiety and perceived risk, they have low confidence and tend to avoid that environment (Gudykunst & Hammer, 1988). However, anxiety influencing the revisit intention to Phuket province only exists during the period when the Covid-19 situation occurred. When the situation recovers, people tend to visit the destination.

The results of this study confirmed the hypotheses (H1-H6, whereas H5 was not supported), these findings aligned with Srisuwan (2019), who specified that trust in individuals, based on their knowledge and understanding, involves perception, feelings, as well as outward demonstrations of intentional behaviors, acceptance of loss, and positive expectations towards individuals or something under certain circumstances. This also aligned with Phansuma and Boonruksa (2021), who indicated that the sources of pandemic information are related to knowledge, attitudes, and behavior. The sample group

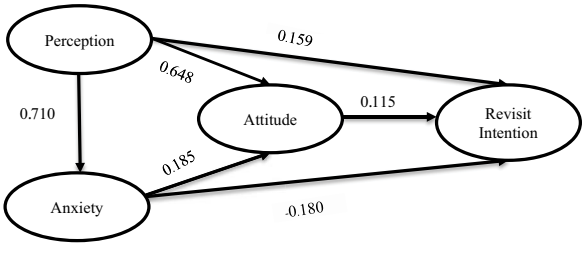


Figure 3 The final conceptual framework

Table 2 Reliability and validity of construct indicators

Constructs	Labels	Factor Loading	Cronbach's Alpha (α)	Average Variance Extracted (AVE)	Composite Reliability (CR)
Perception	Per2	0.814	0.933	0.701	0.933
	Per3	0.868			
	Per4	0.802			
	Per5	0.844			
	Per6	0.827			
Anxiety	Anx1	0.842	0.923	0.707	0.924
	Anx2	0.837			
	Anx3	0.893			
	Anx4	0.804			
	Anx5	0.827			
Attitude	Att1	0.871	0.874	0.650	0.880
	Att2	0.890			
	Att3	0.740			
	Att4	0.709			
Revisit	Rev1	0.651	0.926	0.648	0.927
	Rev2	0.799			
	Rev3	0.675			
	Rev4	0.886			
	Rev5	0.905			
	Rev6	0.865			
	Rev7	0.816			

received pandemic information primarily through the internet/online social media, followed by television. The positive relationship between perceiving Covid-19 information online and preventive behaviors against Covid-19 is evident. Receiving information online helps raise awareness and encourages the public to collaborate in adhering to disease prevention measures. However, addressing the issue of fake news and inaccurate online information is crucial as it may lead to misunderstandings, stress, and excessive anxiety regarding the pandemic. It is also noted that there is a positive effect of Phuket's brand image on repeat patronage as in line with Singh et al. (2023).

Table 3 Discriminant validity through the square root of AVE with the Fornell-Larcker criterion

	Revisit	Perception	Anxiety	Attitude
Revisit	0.805			
Perception	0.136	0.837		
Anxiety	-0.003	0.647	0.841	
Attitude	0.124	0.767	0.619	0.806

Conclusion and Recommendation

This research addressed the underexplored causal relationships between anxiety, attitude, and perception regarding the intention to revisit Phuket post-Covid-19. By examining factors that contribute to anxiety and perception, this study aims to enhance understanding of public responses to health threats (Cao et al., 2020).

Table 4 The comparison of model fit before and after the modification

Model fit of the first model	Model fit after the modification
Chi-squared = 1,845.599	Chi-squared = 499.034
Chi-squared/df = 9.092	Chi-squared/df = 2.901
Degrees of freedom = 203	Degrees of freedom = 172
p value = .000	*p* value = .000
GFI = 0.947	GFI = 0.986
NFI = 0.966	NFI = 0.991
RMR = 0.027	RMR = 0.022
RMSEA = 0.050	RMSEA = 0.024
The Tucker-Lewis index (TLI) = 0.966	The Tucker-Lewis index (TLI) = 0.986

Table 5 Hypothesis testing results

Hypothesis	Path	Path coefficients	*p* values	Remark
H1	Perception → Anxiety	0.710	***	Accepted
H2	Perception → Attitude	0.648	***	Accepted
H3	Anxiety → Attitude	0.185	***	Accepted
H4	Perception → Revisit	0.159	***	Accepted
H5	Anxiety → Revisit	-0.180	***	Unaccepted
H6	Attitude → Revisit	0.115	***	Accepted

Findings indicated that perception positively influences both anxiety and attitude, while anxiety has a moderate positive effect on attitude but negatively impacts the likelihood of revisiting. Although most hypotheses were supported, it was noted that pandemic-related anxiety is not permanent; it decreased over time due to habituation and increased tolerance to uncertainty (Costa et al., 2022). The results align with Huabcharoen and Thongorn (2021), emphasizing that tourists prioritize safety measures when making travel decisions during crises. This involves temperature checkpoints, handwashing stations, adequate alcohol gel service points, and complete Covid-19 vaccination of service providers and certification of tourist destinations by the Safety and Health Administration (SHA) standards. Confidence in these safety measures significantly influences travel choices during pandemics. Additionally, state-led tourism promotion projects such as "We Travel Together" and "Half-Half" enhance tourist interest in travelling. It is recommended that local businesses, including shops and hotels in popular areas and major tourist attractions in Phuket actively engage in these promotional initiatives.

Therefore, it is advised that the government officially announce measures to elevate screening for inbound travel to Phuket province following strict prevention and control measures for Covid-19 to prevent unauthorized entry of the virus into Phuket. This should be accompanied by rigorous enforcement of screening measures at all entry and exit points of Phuket to prevent the infiltration of the virus into the province, in tandem with adhering strictly to the D–M–H–T–T–A preventive measures. D means Distancing, where people maintain distance between individuals, avoiding physical contact with others. M means Mask, where people always wear medical masks. H means Hand washing frequently and ensuring ample availability of hand sanitizing stations. T means Temperature: check body temperature before entering facilities to screen for unwell individuals. T means Testing for Covid-19. A means Application: install and use "ThaiChana" and "MorProm" applications each time before entering and leaving premises.

This study contributes to the relationships between perception, anxiety, attitudes, and revisit intention in the tourism context. The findings indicate that positive perceptions can enhance intention and mitigate anxiety among tourists and residents alike, thereby influencing their willingness to revisit destinations like Phuket. Importantly, the study underscores the necessity of accurate information dissemination and proactive safety measures to foster a secure environment for travelers. The researchers provided the practical implications for tourism stakeholders in the way that Covid is a newly emerging disease that only appears during a specific time. Its prevention and management by the government and tourism sectors are to take personal precautions where individuals must follow the advice of relevant agencies.

Recommendations for future research

The interconnected dynamics of anxiety, attitude, perception, and revisit intention may employ Structural Equation Modeling (SEM) to examine the relationships among these variables and understand how they collectively influence individuals' decisions to revisit or avoid Phuket. By employing SEM, researchers can model the complex interplay of psychological factors and identify the key drivers affecting the destination's image and perceived safety. Given the implications of these outcomes, further research is recommended to explore the long-term effects of psychological factors on tourism behavior in post-pandemic contexts.

Future studies could investigate how various demographic factors influence perceptions and attitudes toward safety in tourism settings. Additionally, examining the impact of misinformation on traveler confidence and behavior could provide valuable insights for policymakers and tourism operators. By understanding these dynamics more deeply, stakeholders can develop targeted strategies to enhance visitor experiences and ensure sustainable tourism growth in the region. The future scope for improvement might include a comparative analysis with

other tourist destinations with similar context, such as Chiang Mai or Chonburi provinces.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Appendix

Table 1 Instrument source

Constructs	Items	Questions	References
Perception	7	1. The Covid-19 situation makes me more careful, vigilant, and protective of my well-being. 2. I actively search for management strategies to prevent Covid-19 transmission for myself and my close contacts. 3. I strictly follow government measures to prevent Covid-19 spread. 4. I understand and recognize challenges posed by multiple waves of Covid-19. 5. The greater the impact of Covid-19, the more attention I pay to related issues. 6. I encourage others to be mindful, aware, and cooperate in efforts to prevent the spread of Covid-19. 7. I regularly exchange opinions about issues related to Covid-19 situations.	Malesza & Kaczmarek, (2021); Puspitasari et al. (2020)
Attitude	8	1. I actively stay informed about Covid-19 situations. 2. I regularly evaluate the Covid-19 situations. 3. I share accurate Covid-19 information with others. 4. I independently analyze Covid-19 data beyond media reports. 5. I inform my own views about Covid-19 based on multiple sources. 6. I can propose solutions to Covid-19 when given the opportunity. 7. I have a clear vision of post-pandemic recovery. 8. I understand how Covid-19 affects various social aspects.	Upadhana et al. (2022); Svenningsson et al. (2021); Puspitasari et al. (2020)
Anxiety	5	1. I feel anxious about Covid-19 situations in my surrounding environment. 2. I am concerned about personal and family economic systems due to Covid-19 situations. 3. I worry about the physical and mental health of myself and my family due to the effects of Covid-19. 4. I have concerns about my relationships with my family and others as a result of the Covid-19 situations. 5. I am anxious about social recovery once the Covid-19 crisis comes to en end.	Roy et al. (2020); Malesza and Kaczmarek, 2021
Revisit intention	7	1. I feel more inclined to revisit destinations that have implemented robust health and safety measures post-Covid-19. 2. I support the government's initiatives aimed at ensuring a safe travel environment, which influences my intention to travel again. 3. I am eager to participate in tourism programs, such as Phuket Sandbox, to support recovery efforts. 4. I believe that effective measures taken by destinations will reassure me and encourage my return to travel after the pandemic. 5. I am confident that the government policy will help resolve economic issues caused by Covid-19 situations. 6. The reputation of a destination affects my intention to revisit in the aftermath of Covid-19. 7. A positive image of country's tourism services influence my intention to revisit after the Covid-19 recovery.	Abbasi et al. (2021);

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Decoding hotel brand loyalty in the digital era: A multidimensional analysis of online feedback, service quality, and customer engagement in western Thailand

Issarapong Poltanee

Department of Hotel and MICE Business, Faculty of Hospitality Industry, Kasetsart University, Kamphaeng Saen Campus, Nakhon Pathom 73140, Thailand

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Abstract

The study aims to elucidate the impact of online guest feedback on hotel selection in Western Thailand. Its objective is to increase understanding of how internet users' reviews influence satisfaction, engagement, and loyalty in the luxury hotel sector. Based on a comprehensive literature review, the research examines key factors affecting online guest reviews: guest feedback, hotel management response, and customer decision-making processes. These factors, in turn, impact levels of service quality, customer satisfaction, and engagement in the hotel and tourism industry in Western Thailand. The practical problem arises when there is a decline in customer engagement and loyalty. Hotel management particularly faces challenges in addressing negative comments in the online market. The quantitative method tested the validity of measurements and the correlation of constructs through GSCAM and NCA tools. Four hundred and three respondents participated in the survey, primarily associated with the hotel and tourism profession. The results demonstrate that the customer's decision-making process and guest online feedback have the most significant impact on overall service quality, which in turn influences customer satisfaction and engagement behaviors. The study's implications are to foster luxury hotel management and sustainable tourism by effectively managing online reviews in developing regions. Limitations and suggestions for future research are also discussed to contribute to an overall understanding of existing and future hospitality studies.

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E-mail address: issarapong.p@ku.th (Poltanee, I.).

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Introduction

In the current digital era, the internet has become a crucial source of information, significantly influencing consumer decision-making across various industries, particularly in the hotel and tourism sectors (Vo et al., 2019a; Vo et al., 2019b). The rapid growth of information technology has compelled most hotel businesses to adapt by developing their own websites and collaborating with online travel agencies (OTAs) as effective tools for sales and marketing. Online reviews from previous guests have emerged as a critical factor influencing tourists' decisions to choose hotel services. Korfiatis et al. (2012) found that reading reviews greatly impacts decision-making, while Malik and Hussain (2018) highlighted that the content of reviews is highly effective for information seekers.

Previous studies have confirmed the importance of online reviews in consumer decision-making processes. Erkan and Evans (2016) found that electronic word-of-mouth (e-WOM) on social media significantly influences consumers' purchase intentions. Furthermore, Ukpabi and Karjaluoto (2017) noted that user reviews on OTA websites have a substantial impact on consumer behavior. This is consistent with Sparks et al. (2016), who affirmed that consumers actively engage with online reviews when evaluating hotels. However, Ahmad and Sun (2018) cautioned that unreliable reviews can undermine consumer trust.

The response of hotel management to online feedback plays a crucial role in guests' decision-making processes. Sparks et al. (2016) demonstrated that management responses can mitigate the risk of readers misinterpreting negative feedback, particularly in cases where negative comments are made. Li et al. (2017) found that the frequency, promptness, and length of responses influence the quality of interactions with customers, reflecting the complexity of communication between hotels and guests in the digital era.

The western region of Thailand is a significant tourist destination, with a diverse range of hotels and accommodations. Understanding the factors that influence guests' decisions to choose hotel services based on online information in this specific regional context is therefore essential. This study aims to develop and test an integrated model that explains the interaction between online customer feedback, hotel management responses, decision-making processes, service quality, customer satisfaction, and customer engagement behaviors, which ultimately impact hotel brand loyalty and sustainable tourism in the western region of Thailand. The study employs quantitative analysis and Necessary Condition Analysis (NCA) to identify key factors and necessary conditions for enhancing the sustainability of the hotel and tourism industry in the digital age.

This research is expected to provide valuable insights for hotel operators in the western region of Thailand, aiding in a deeper understanding of online consumer behavior. The findings will help operators to develop effective digital marketing strategies, increase customer satisfaction, promote engagement, and build long-term brand loyalty. Additionally, the study will benefit academics and policymakers by offering insights into consumer behavior trends in the digital era, leading to the sustainable development of the tourism and hotel industry in the western region of Thailand.

Literature Review

This literature review examines relevant theories and research to inform the study of hotel selection decisions by guests in the western region of Thailand based on online information.

Guest Online Feedback (GOF)

Online reviews have a significant influence on hotel selection decisions, particularly in the western region of Thailand. Casaló et al. (2015) presented empirical evidence supporting the credibility of online reviews, which aligns with the current study's finding that guest online feedback (GOF) has a positive impact on the perception of overall service quality (OSQ). Mauri and Minazzi (2013) demonstrated a positive relationship between online reviews and service quality and customer satisfaction, while Fuentes (2016) found that customers are willing to pay more for services that receive positive reviews. However, Li et al. (2017) emphasized the negative impact of unfavourable reviews on a hotel's reputation and booking decisions. Casaló et al. (2015) showed that hotels with high rankings in reputable online communities tend to receive more bookings. The current study confirms the importance of GOF, identifying it as a necessary condition for hotel brand loyalty and sustainable tourism (HBST). Although social media is a key communication channel, Li et al. (2017) warned of the severe consequences of negative reviews. Effective management of online reviews is therefore crucial for hotel operators in the western region.

Hotel Management Response (HMR)

The response of hotel management to online feedback plays a crucial role in the decision-making process of guests. Sparks et al. (2016) provided evidence that management responses can mitigate the risk of misinterpreting negative feedback, particularly when dealing with negative comments. Li et al. (2017) found that the frequency, promptness, and length of management responses significantly affect the quality of interactions with customers, reflecting the complexity of communication between hotels and guests in the digital era. For hotel operators in the western region of Thailand, Kim and Busser (2018) recommend monitoring online discussions and real-time reviews across multiple platforms to maintain their reputation and respond promptly to customer needs. Effectively managing online reviews, both positive and negative, is therefore a crucial strategy for hotel operators in the western region. Such efforts not only enhance credibility but also attract new customers through online channels. In an era where digital communication is paramount, timely and appropriate responses to customer feedback are key factors in gaining a competitive advantage in the hotel industry (Kim & Busser, 2018; Li et al., 2017; Sparks et al., 2016).

Decision-Making Process (DMP)

The decision-making process for selecting hotel services is a complex phenomenon, influenced by both internal and external factors. The development of internet technology has significantly transformed how consumers choose and book hotels, particularly in the western region of Thailand. Numerous studies have demonstrated a positive relationship between online reviews and booking decisions (Chan et al., 2017; Mauri & Minazzi, 2013). Additionally, electronic word-of-mouth (e-WOM) communication is widely recognized as an effective tool for attracting new customers (Reimer & Benkenstein, 2018). However, there is a caution that consumers are often more influenced by negative information in the early stages of decision-making, which can impact their choice of services. In contrast, online reviews from reputable travel communities tend to increase booking intentions (Casaló et al., 2015). For hotel operators in the western region of Thailand, understanding the decision-making process of consumers and the influence of online information is crucial for developing effective marketing and service strategies. The key challenge lies in managing both positive and negative reviews effectively to build a strong reputation and attract new customers while balancing the benefits of e-WOM with the potential negative impacts of unfavourable reviews.

Overview of Service Quality and Customer Satisfaction

The relationship between service quality and customer satisfaction in the service sector has garnered extensive attention from researchers worldwide. Numerous factors have been found to influence customer satisfaction and loyalty (Rianthong et al., 2016). Online reviews and management responses play a crucial role in shaping customer expectations and decisions (Li et al., 2017; Mauri & Minazzi, 2013). Moreover, service quality is a fundamental determinant of hotel performance (Rianthong et al., 2016; Zhao et al., 2018). Perceived service quality forms the basis for overall quality perception and customer behavior prediction. When service quality aligns with customer satisfaction, customers are more likely to rely on online reviews and recommend the hotel to others (Berezina et al., 2016; Mauri & Minazzi, 2013). The impact of online customer ratings on hotel performance is significant, with a mere 1 percent increase in ratings potentially leading to a substantial increase in sales (Ogut & Tas, 2012). Therefore, hotels must prioritize service quality and customer satisfaction in their operational strategies to maintain competitiveness and sustainability in the market.

Customer Engagement Behaviors (CEB)

Customer Engagement Behaviors (CEBs) play a crucial role in decision-making processes for hotel services in the digital age. Zhao et al. (2018) define CEBs as behaviors that extend beyond transactional interactions, focusing on brand or company engagement. In the context of the hotel industry, online reviews are a key form of CEBs that significantly influence other consumers' decision-making (Li et al., 2017). Key factors influencing repeat purchases in the online context include trust, perceived ease of use, perceived benefits, and satisfaction, all of which are reflected in online reviews and impact consumer decisions. Moreover, service quality is directly related to the generation of positive or negative reviews, which in turn affect the decisions of those seeking information. Service recovery measures, such as refunds, can positively impact satisfaction and CEBs. However, failure to address customer dissatisfaction may lead to customer attrition to competitors. Therefore, when studying the factors influencing hotel selection decisions

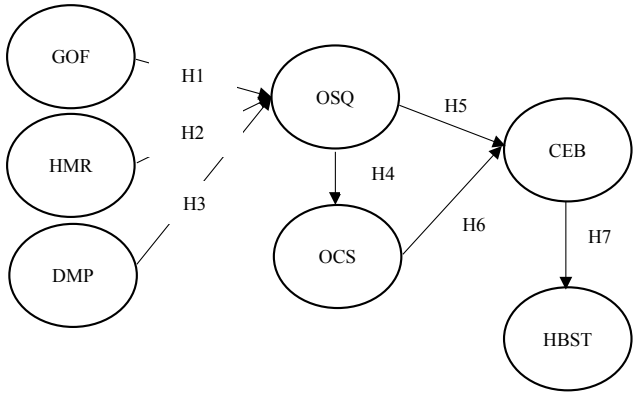


Figure 1 Conceptual framework

based on online information, it is essential to consider the influence of CEBs, particularly online reviews, on consumer perceptions and decision-making. This should include an analysis of the factors affecting hotel choice in the online context, which, based on the aforementioned literature review, can be formulated into the following hypotheses for study (Figure 1).

H1: GOF is related to anticipated OSQ
H2: HMR is related to anticipated OSQ
H3: DMP is related to anticipated OSQ
H4: OSQ is related to anticipated OCS
H5: OSQ is related to anticipated CEB
H6: OCS is related to anticipated CEB
H7: CEB is related to anticipated HBST

Methodology

Measurement and Data Collection

The present investigation employed a quantitative methodology, utilizing both Structural Equation Modeling (SEM) and Necessary Condition Analysis (NCA). The operationalization of variables was derived from established measurement scales in extant literature (Chan et al., 2017; Fuentes, 2016; Li et al., 2020; Vo et al., 2022). The conceptual framework of this study comprises several constructs, each operationalized through multiple indicators. Guest Online Feedback was assessed using a four-item scale, while Hotel Management Response was measured via a three-item instrument. The Decision-Making Process construct incorporated four items, and both Overall Service Quality and Overall Customer Satisfaction were evaluated using three-item scales. Customer Engagement Behaviors were captured through a five-item measure, and Hotel Brand Loyalty Sustainability was gauged using a three-item scale. All measurement items underwent contextual adaptation to align with the study's specific focus on factors influencing hotel service decisions among guests in Thailand's western region, based on online information sources.

Data collection was conducted in July 2024, with the assistance of research students who distributed online questionnaire links to the target sample group. A convenience sampling method was employed to select participants who had used hotel services within the past 12 months. A total of 403 responses were collected and subsequently analyzed using statistical methods.

Descriptive data revealed that 52.6 percent of respondents were female, 35.0 percent were male, and 12.4 percent chose not to disclose their gender. The majority of respondents were young adults, with 44.2 percent aged between 16 and 25 years, followed by those aged 26 to 35 years (32.8%), and individuals over 45 years accounted for 10.4 percent. More than 50% of respondents reported using the internet for more than 4 hours per day. The most popular booking channel was online travel agencies (OTAs), utilized by 47.5 percent of respondents, with 42.9 percent having used OTAs 1 to 3 times. Additionally, the findings indicated that the majority of respondents were students (38.0%) and had a monthly income of less than or equal to 12,000 THB (34.2%).

Table 1 presents the results of the measurement model assessment, including component loadings ($\hat{\lambda}_i$), estimated weights ($\hat{w}_i$), Dijkstra-Henseler's rho_A, and Average Variance Extracted (AVE) for all constructs: GOF, HMR, DMP, OSQ, OCS, CEB, and HBST. All rho_A values exceeded the 0.7 threshold, confirming internal consistency reliability. AVE values for all constructs surpassed the 0.5 benchmark, demonstrating convergent validity. These results confirm that the measurement

Table 1 Measurement model assessment

Construct	Indicator	AVE	Rho A	$\hat{w_i}$	CI$\hat{w_i}$	(L/U)	$\hat{\lambda_i}$	CI$\hat{\lambda_i}$	(L/U)
GOF1	Online feedback is considered trustworthy.	0.532	0.708	0.211	0.158	0.281	0.766	0.763	0.795
GOF2	Negative comments can damage a hotel's reputation as a form of retaliation.			0.453	0.394	0.527	0.784	0.713	0.913
GOF3	Negative reviews have the potential to harm the hotel's reputation.			0.446	0.394	0.5	0.771	0.688	0.843
GOF4	Customers are willing to pay a higher price influenced by online reviews.			0.36	0.311	0.394	0.622	0.525	0.698
HMR1	The hotel regularly responds to guests' online comments.	0.667	0.853	0.398	0.375	0.42	0.796	0.736	0.865
HMR2	The hotel promptly addresses guests' online feedback.			0.431	0.406	0.464	0.863	0.818	0.909
HMR3	The hotel's responses are clear and effectively engage customers.			0.394	0.37	0.419	0.789	0.735	0.849
DMP1	The decision to book a room is influenced by positive online reviews.	0.577	0.841	0.328	0.304	0.347	0.758	0.719	0.809
DMP2	Online rating lists on TripAdvisor are considered more useful and credible.			0.3	0.275	0.324	0.692	0.619	0.776
DMP3	Higher booking intentions are observed on TripAdvisor.			0.341	0.315	0.362	0.786	0.735	0.842
DMP4	Online reviews significantly impact hotel booking intentions.			0.346	0.31	0.379	0.798	0.747	0.852
OSQ1	Evaluating service quality encourages positive online reviews.	0.515	0.721	0.421	0.396	0.536	0.65	0.606	0.758
OSQ2	Customers are willing to pay based on the hotel's star rating.			0.347	0.31	0.443	0.536	0.482	0.626
OSQ3	Individual reviewers tend to be subjective when assessing value, sleep quality, and service.			0.592	0.505	0.622	0.914	0.721	0.935
OCS1	Feel satisfied with guest online reviews.	0.544	0.770	0.436	0.383	0.49	0.711	0.652	0.812
OCS2	Continue relying on online reviews to make booking decisions.			0.452	0.407	0.503	0.737	0.666	0.837
OCS3	Feel pleased with hotel management's responses to online comments.			0.468	0.424	0.506	0.763	0.701	0.844
CEB1	Express dissatisfaction through negative feedback if service quality is unsatisfactory.	0.567	0.86	0.276	0.257	0.291	0.783	0.718	0.844
CEB2	Post positive online reviews if satisfied with service quality.			0.272	0.256	0.291	0.77	0.718	0.814
CEB3	Request a refund if service quality does not meet expectations.			0.227	0.198	0.248	0.643	0.542	0.723
CEB4	Repurchase services based on positive online feedback.			0.248	0.231	0.272	0.702	0.645	0.771
CEB5	Switch to another hotel if experiencing unfair pricing.			0.3	0.274	0.324	0.85	0.807	0.891
HBST1	Be willing to pay a higher price to book a room based on the hotel's star rating.	0.716	0.876	0.413	0.391	0.437	0.887	0.839	0.937
HBST2	Be willing to pay more to book a room based on the hotel's score rating.			0.42	0.392	0.45	0.902	0.861	0.94
HBST3	Plan to book with the hotel again in the future, considering its pricing policy.			0.344	0.327	0.365	0.739	0.684	0.798

Note: $\hat{w_i}$ = the estimated weight, CI$\hat{w_i}$ = the 95% confidence interval for the estimated weight, $\hat{\lambda_i}$ = the estimated component loading, CI$\hat{\lambda_i}$ = the 95% confidence interval for the estimated component loading, rho_A = the Dijkstra-Henseler rho_A value, and AVE = the Average Variance Extracted.

model meets acceptable standards for both reliability and validity.

Analytical Procedures

This study followed the methodology of Richter et al. (2020) to conduct a combined analysis using Structural Equation Modeling (SEM) and Necessary Condition Analysis (NCA), similar to the approach taken by Wattanacharoensil et al. (2024). The data were divided into two sets: a training sample comprising 80 percent of the data and a testing sample comprising the remaining 20 percent. Although specific measures were not applied to assess the reliability and validity of the latent variables within the NCA, the study model was evaluated using SEM criteria as previously outlined by Richter et al. (2020).

Component-based SEM was employed in this study due to its ability to create appropriate linear composite scores for subsequent analysis (Chumwichan et al., 2023; Leruksa et al., 2023; Rasmidatta, 2023). Following the recommendations of Hwang et al. (2017), GSCAM was selected as the primary estimator. GSCAM addresses both the common and unique aspects of indicators, similar to how factor-based SEM handles measurement errors. After determining net effects and individual necessary conditions, the analysis revealed distinct conditions that were not previously identified in the SEM analysis. These conditions are necessary and/or sufficient for the occurrence of the outcome (HBST).

Results

Assessment of the Measurement Model and Net Effects

In this study, the GSCAM approach was employed to assess the measurement model, with the results summarized in Table 1. The validation process confirmed internal consistency by verifying that common reliability estimates, such as Dijkstra-Henseler's rho_A, exceeded the threshold of 0.7. Convergent validity was affirmed through all component loadings and average variance extracted (AVE) values, both of which were above the 0.5 benchmark (Fakfare et al., 2023; Meeprom & Fakfare, 2023). To further assess discriminant validity, the advanced Heterotrait-Monotrait Ratio (HTMT) criterion was applied, revealing that all measured values were below the recommended cutoff of 0.85, thus confirming discriminant validity. Collinearity was evaluated by examining the Variance Inflation Factor (VIF), with all VIF scores generally below 5 (Fakfare et al., 2020; 2021; Hair et al., 2011), indicating no significant issues. Additionally, the fit measures suggested an acceptable fit with the data (SRMR = 0.06, GFI = 0.979), confirming that the measurement model demonstrated both validity and reliability.

Table 2 presents the results of the path analysis derived from GSCAM. Overall, the results support the hypothesized relationships. The analysis results indicate that Guest Online Feedback (GOF) has a significant positive influence on Overall Service Quality (OSQ), with a path coefficient of 0.231, thereby supporting Hypothesis H1. However, no significant relationship was found between Hotel Management Response (HMR) and OSQ (β = 0.046), which does not support Hypothesis H2. Additionally, the Decision-Making Process (DMP) was found to have a substantial impact on OSQ (β = 0.622), supporting Hypothesis H3. Moreover, OSQ significantly affects both Overall Customer Satisfaction (OCS) (β = 0.812) and Customer Engagement Behaviors (CEB) (β = 0.36), supporting Hypotheses H4 and H5, respectively. The analysis also reveals that OCS positively influences CEB (β = 0.496), supporting Hypothesis H6. Finally,

Table 2 Net effect analysis

Construct	Estimate	SE	95% CI	
H1: GOF→OSQ	0.231	0.072	0.1	0.36
H2: HMR→OSQ	0.046	0.054	-0.064	0.159
H3: DMP→OSQ	0.622	0.073	0.504	0.771
H4: OSQ→OCS	0.812	0.035	0.753	0.894
H5: OSQ→CEB	0.36	0.124	0.154	0.672
H6: OCS→CEB	0.496	0.123	0.181	0.696
H7: CEB→HBST	0.764	0.036	0.696	0.83

Note: GOF = Guest Online Feedback, HMR = Hotel Management Response, DMP = Decision-Making Process, OSQ = Overall Service Quality, OCS = Overall Customer Satisfaction, CEB = Customer Engagement Behaviors, HBST = Hotel Brand Loyalty/Sustainable Tourism R-square: GOF = 0.956, HMR =0.987, DMP =0.983, OSQ =0.913, OCS =0.968, CEB =0.967, HBST = 0.989, Bold value = significant

CEB has a significant impact on Hotel Brand Loyalty/ Sustainable Tourism (HBST) (β = 0.764), supporting Hypothesis H7. These findings highlight the critical relationships among various factors in the hotel service context, particularly the pivotal role of Overall Service Quality in driving customer satisfaction and engagement behaviors, which ultimately lead to hotel brand loyalty and sustainable tourism.

Figure 2 presents the confirmed research model, illustrating the structural path relationships among all latent variables. As shown, GOF (β = 0.231) and DMP (β = 0.622) significantly influence OSQ, while HMR did not reach significance (β = 0.046). OSQ subsequently drives both OCS (β = 0.812) and CEB (β = 0.360), with CEB exhibiting the strongest direct effect on HBST (β = 0.764), confirming the sequential mediation pathway proposed in this study.

NCA Results

In the NCA model, the combined factor scores derived from the GSCAM-SEM were employed, following the methodology proposed by Dul (2016). This approach has been consistently applied in studies related to recreation and tourism, as demonstrated in the research by Satitsamitpong et al. (2024) and Wattanacharoensil et al. (2024). These references highlight the relevance and effectiveness of this method, reinforcing its applicability in the context of this study.

Table 3 presents the Necessary Condition Analysis (NCA) process, focusing on deepening the understanding of essential factors required for achieving desired outcomes, particularly in the context of identifying necessary conditions for significant results. In this study, six key variables were selected to serve as the foundational framework for constructing the NCA model, each playing a specific role in determining the targeted behavioral outcomes, which in this case is the dependent variable (HBST). These variables include GOF, HMR, DMP, OSQ, OCS, and CEB, and they were analyzed through the creation of NCA graphs to reflect the causal relationships between these variables and the desired outcomes.

The analysis effectively demonstrates the significance of these latent variables as fundamental conditions influencing HBST, presenting a clear and comprehensive summary of the ceiling lines, which define the upper bounds of the necessary conditions for all identified

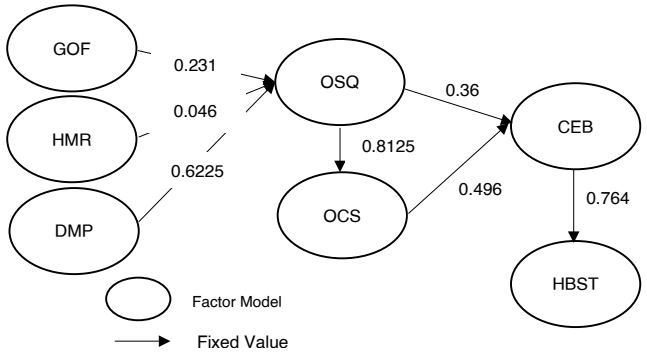


Figure 2 Confirmation of our research model.
Note: GOF = Guest Online Feedback, HMR = Hotel Management Response, DMP = Decision-Making Process, OSQ = Overall Service Quality, OCS = Overall Customer Satisfaction, CEB = Customer Engagement Behaviors, HBST = Hotel Brand Loyalty/ Sustainable Tourism

Table 3 Single necessary condition analysis

Outcome HBST	CE-FDH (d)	*p*-value	Triggered level 80% Outcome	Necessary
GOF	0.665	2.060	32.00%	In kind**
HMR	0.517	2.730	28.50%	In kind**
DMP	0.638	2.010	47.10%	In kind**
OSQ	0.723	1.780	39.00%	In kind**
OCS	0.878	4.210	35.20%	In kind**
CEB	0.788	3.720	34.70%	In kind**

relationships. The research analysis reveals that each determinant variable has a statistically significant effect size of the necessary condition ($d > 0.1$, $p < .05$), consistent with previous research findings (Dul, 2016; Wattanacharoensil et al., 2024). Consequently, all identified determinant variables are considered critical factors that play a significant role in HBST, indicating that all independent variables—GOF, HMR, DMP, OSQ, OCS, and CEB—have a positive relationship with HBST. This suggests that an increase in these independent variables is likely to enhance HBST, with OCS showing the highest effect, followed by CEB, OSQ, GOF, DMP, and HMR, respectively.

These results indicate that all independent variables are considered necessary conditions "In kind" for predicting HBST, aligning with quantitative analyses that show an increase in these variables significantly impacts HBST. These findings will be discussed in detail in the discussion section. Additionally, Figure 2 provides a visual representation of the NCA chart, offering a clear depiction of the interactions among the key latent variables within the model.

Discussion and Implications

The primary objective of this study was to understand the relationships between various factors influencing overall service quality (OSQ) and overall customer satisfaction (OCS) within the hotel industry. The factors examined include Guest Online Feedback (GOF), Hotel Management Response (HMR), Decision-Making Process (DMP), Overall Service Quality (OSQ), Customer Engagement Behaviors (CEB), and Hotel Brand Loyalty/Sustainable Tourism (HBST).

The analysis revealed that the Guest Online Feedback (GOF) model component has a significantly positive influence on the perception of Overall Service Quality (OSQ), which aligns with the established hypotheses (Fuentes, 2016; Li et al., 2020). However, Hotel Management Response (HMR) did not show a significant impact on OSQ, suggesting that customers' perceptions of hotel management responses may not substantially affect their evaluation of overall service quality in this context. In contrast, the Decision-Making Process (DMP) had a strong influence on OSQ, underscoring the importance of decision-making in customers' assessments of service quality (Mauri & Minazzi, 2013).

Further analysis also revealed that OSQ has a significantly positive influence on both Overall Customer Satisfaction (OCS) and Customer Engagement Behavior (CEB), underscoring the crucial role of service quality in fostering customer satisfaction and engagement (Casaló et al., 2015; Reimer & Benkenstein, 2018). Additionally, OCS was found to positively influence CEB, and CEB, in turn, has a significant impact on Hotel Brand Loyalty and Sustainable Tourism (HBST). This demonstrates that customer engagement behaviors contribute to long-term brand loyalty and support for the brand. This study thus highlights the importance of enhancing customer satisfaction and engagement to promote brand loyalty and sustainable tourism (Casaló et al., 2015; Mauri & Minazzi, 2013).

In the context of hotel services, customer satisfaction (OCS) is often influenced by the perceived overall service quality (OSQ), which aligns with the theory that when consumers receive high-quality service, they are more likely to feel satisfied and inclined to return. Moreover, the perception of service quality is linked to customer engagement behaviors (CEB), indicating that customers who perceive the service they receive as high quality are more likely to engage in behaviors such as posting online reviews or recommending the service to others. These behaviors play a key role in fostering brand loyalty and promoting sustainable tourism (HBST) (Li et al., 2020; Reimer & Benkenstein, 2018).

The relationship between service quality and customer satisfaction is a critical indicator that underscores the importance of guest online feedback (GOF). This study demonstrates that GOF has a significant impact on the perception of overall service quality, allowing consumers to express pride or dissatisfaction when providing feedback online. Although Hotel Management Response (HMR) does not directly affect the perception of service quality in this context, it can help alleviate any feelings of guilt that may arise when customers recognize their role and responsibility in the service process. This finding highlights the complexity of the interaction between customers' emotional responses and their decision-making process when selecting hotel services (Fuentes, 2016).

Further research reveals that the Decision-Making Process (DMP) plays a crucial role in shaping customers' perceived service quality. This aligns with the concept that when customers are involved in a clear and transparent decision-making process, they are more likely to feel confident and perceive service quality more positively. These feelings can lead to increased satisfaction, which ultimately enhances Customer Engagement Behaviors (CEB)—a key factor in fostering brand loyalty and sustainable tourism (Casaló et al., 2015; Mauri & Minazzi, 2013).

Furthermore, in the context of sustainable tourism, fostering customer satisfaction and engagement is crucial, as these factors directly influence brand loyalty (HBST). This study suggests that promoting a sense of pride and awareness of responsibility in the service process can be an effective strategy for encouraging sustainable customer behaviors. By making customers aware of the impact of their actions and involving them in the decision-making process, hotel operators can enhance customer loyalty and support long-term sustainable tourism (Li et al., 2020; Reimer & Benkenstein, 2018).

These studies also emphasize the relationship between service quality and customer satisfaction, which serves as a key indicator of the importance of guest online feedback (GOF). This study reveals that GOF significantly influences the perception of overall service quality, allowing consumers to express either pride or dissatisfaction when providing feedback online. Although Hotel Management Response (HMR) does not directly impact service quality perception in this context, it can help mitigate feelings of guilt that may arise when customers recognize their roles and responsibilities in the service process. This underscores the complexity of the interaction between customers' emotional responses and their decision-making process in choosing hotel services (Fuentes, 2016).

Additionally, for the development of Hotel Brand Loyalty and Sustainable Tourism (HBST), this study identified six necessary conditions: Guest Online Feedback (GOF), Hotel Management Response (HMR), Decision-Making Process (DMP), Overall Service Quality (OSQ), Overall Customer Satisfaction (OCS), and Customer Engagement Behavior (CEB) (Fuentes, 2016; Mauri & Minazzi, 2013; Reimer & Benkenstein, 2018). These findings underscore the complex nature of brand loyalty and sustainable tourism, highlighting the importance of addressing various psychological factors such as perceived service quality, customer satisfaction, and engagement behaviors. To achieve the desired outcomes in terms of brand loyalty, it is crucial that interventions and strategies comprehensively address all these necessary conditions.

Theoretical Implications

This study offers key contributions to both academic research and practical applications in the hospitality sector, particularly in luxury hotels. Academically, it contextualizes the dynamics between Overall Service Quality (OSQ) and Overall Customer Satisfaction (OCS), incorporating variables such as Guest Online Feedback (GOF), Hotel Management Response (HMR), and Decision-Making Processes (DMP). It further extends the frameworks of Customer Engagement Behavior (CEB) and Hotel Brand Loyalty and Sustainable Tourism (HBST), especially in the context of sustainable tourism. Additionally, by using Necessary Condition Analysis (NCA), the study identifies essential conditions for HBST, enriching the analytical methods available to researchers.

From a practical perspective, the research offers actionable insights for hoteliers and policymakers. It emphasizes managing online feedback to build trust and satisfaction, while also highlighting the importance of improving service quality to foster customer engagement and brand loyalty. The application of NCA helps hotel managers design more precise strategies for promoting loyalty and sustainability. Overall, the findings bridge theoretical insights with practical implications, providing a comprehensive framework to enhance service quality, customer satisfaction, and brand loyalty in the evolving landscape of sustainable tourism.

Limitations and future research

This study has several limitations. First, the cross-sectional design captures data at a single point in time, limiting the ability to observe changes over time. Future research should consider longitudinal studies for a more dynamic analysis. Second, the study focuses on specific constructs like Guest Online Feedback (GOF) and Hotel Management Response (HMR), which may not capture all relevant factors. Future studies could incorporate additional variables or alternative models, such as the Technology Acceptance Model (TAM). Lastly, the use of GSCAM for analysis, while effective, could be complemented by other estimation methods like Maximum Likelihood Estimation (MLE) in future research to verify robustness.

Conflict of Interest

The author declares that there is no conflict of interest.

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Creative innovation based on wildlife biodiversity for participatory ecotourism management in Prachuap Khiri Khan province

Nipharat Saiprasert*, Danai Winairat†

Department of Tourism and Tour Guide Innovations, Faculty of Hospitality and Tourism Industry, Rajamangala University of Technology Rattanakosin, Wang Klaikanwon Campus, Prachuap Khiri Khan 77110, Thailand

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Abstract

As the demand for housing and agricultural land increases, conflicts between humans and wildlife have become more pervasive, resulting in the unfortunate loss of wild elephants and gaurs in Prachuap Khiri Khan Province (PKN). Meanwhile numerous wildlife species still hold potential for tourism promotion. The necessary knowledge related to wildlife in PKN was explored and synthesized to design and develop a wildlife tourism (WT) innovation that involves local participation to address conflicts and promote WT in the area. This innovation consists of four routes, a guidebook and four video clips. Subsequently, use of WT innovation was evaluated with tourists who participated in the program. After the trips, they reported high satisfaction (84.33%) with the overall WT innovation. Feedback from users, academics, and stakeholders revealed positive perceptions (+8.40) of the WT innovation, acknowledging its benefits for wildlife ecotourism and expressed low confidence (+2.39) in its ability to fully resolve human-wildlife conflicts and generate substantial income for the local community. Finally, the 3A7M wildlife ecotourism management model (3A7M model) was constructed based on lesson learned from WT management in Kui Buri National Park (NP). This model has been accepted by stakeholders who are relevant WT in PKN and can serve as guideline for initiating WT management or enhancing WT potential in any wildlife protected areas.

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Introduction

Wildlife issues continue to arise in many areas due to human behavior that damages the Earth, the home of all living things. To protect the Earth, it is essential to promote environmental awareness and encourage changes in human actions that impact the environment. This involves fostering ecological understanding to

* Corresponding author.
E-mail address: nipharat.sai@rmutr.ac.th (Saiprasert, N.).
† Co-first authors.

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inspire to adopt positive behaviors toward environmental preservation. An effective way to build this awareness is through ecotourism, which allows people to experience diverse ecosystems firsthand by visiting natural attractions. This approach not only provides relaxation but also offers a deeper appreciation of nature, making the experience much more meaningful.

PKN is located in the western region of Thailand, characterized by a series of high mountains that extend along the border of Thailand and Myanmar to the west, sloping eastward toward the Gulf of Thailand. The diverse landforms allow for the visibility of rare animals like the "Panda Crab," a waterfall crab that resides at the summit of Khao Luang Mount in Namtok Huai Yang NP, the "Serow," a reserved wild animal native to Thailand that lives in the limestone hills in Khao Sam Roi Yot NP and "Whale Sharks," gentle giants of the sea that swim gracefully near Talu Island in Ao Siam NP.

These important creatures demonstrate that PKN is an area rich in biodiversity, where unique wildlife contributes to local development. For example, the cooperation between Kui Buri NP and Ban Ruam Thai Community involves Wild Elephants and Gaurs in tourism management under government regulations and mutual agreements. This initiative allows tourists to observe wild animals in their nature habitats while being supported by a local wildlife conservation club. This form of ecotourism is commonly referred to as "Thailand Safari." However, conflicts do arise between humans and wildlife in Kaeng Krachan NP, where Wild Elephants encroach into villages, damaging local properties and crops, which sadly leads to the loss of wildlife. In Kui Buri NP, rangers discovered the remains of an Asiatic Wild Dog trapped in illegal equipment, indicating that prohibited hunting is still a problem. Additionally, irresponsible tourism has caused the Malayan Plover to lose its habitat and breeding grounds on the beaches of Khao Sam Roi Yot NP. This rare bird, found in Thailand, is at risk of extinction due to careless tourists.

The current wildlife situation highlights three crucial problems that need urgent resolution: (1) the conflict between humans and wildlife, (2) the risk of wild species disappearing from natural ecosystems, and (3) the lack of understanding regarding nature and the environment. Existing measures such as law enforcement, remedies, and monitoring have not yet effectively addressed these issues. However, the ecotourism activities in Kui Buri NP, which allows for wildlife observation, have been successful in generating income for local communities and fostering wildlife conservation.

Therefore, tourism serves as a potential solution to wildlife problems. It can create awareness of the importance of wild animals, promote wildlife protection, and reduce human-wildlife conflict. Effective dissemination of information through various channels is necessary to encourage travel, relying on the effectiveness of public relations media. Additionally, tourism innovation must be designed and developed appropriately to increase tourists' exposure to natural wildlife, fostering a greater awareness of nature and environment conservation through collaborative ecotourism services with protected area officers and local communities.

While conflicts between humans and wildlife persist, there remains potential for many more wild species in PKN, beyond just Wild Elephants in Kui Buri National Park, to be promoted through ecotourism. This approach will enhance ecological understanding among both tourists and locals regarding the importance of wildlife and its ecosystem. Such understanding can generate local benefits through ecotourism initiatives. The objectives of this research include (1) exploring and synthesizing essential knowledge, (2) designing and developing creative innovations based on the biodiversity of wildlife in PKN, and (3) evaluating the application of these innovations. The goal is to use these innovations to introduce wildlife species, their ecosystems, and related activities, especially in PKN, which is not yet well-known to tourists. It is anticipated that these innovations will promote wildlife and ecosystem conservation, reduce conflicts between humans and wildlife, and generate income for local communities actively involved in wildlife conservation through ecotourism.

Literature Reviews

WT in PKN

PKN, a province in the western region of Thailand, offers a variety of interesting cultural and natural tourist attractions, such as Hua Hin Beach, Kalok Hill, Phraya Nakhon Cave, Kui Buri Temple, Chong Krachok Hill, Wanakorn Beach, Phra Mahathat Chedi Phakdee Prakat compound, and Talu Island (Department of Provincial Administration, 2022). These protected areas include national parks, forest parks, wildlife sanctuaries, community conservation areas, and marine and coastal protected regions, which serve as habitats for important wildlife and provide opportunities to observe wild animals. WT in the region offers diverse activities, including observing Wild Elephants and Gaurs at Kui Buri NP, feeding Dusky Langurs at Lom Muak Hill, bird

watching in Sam Roi Yot swamp, and snorkeling around Talu Island. Visitors can also encounter Wild Elephant along the roadside in Kaeng Krachan NP, view Fiddler Crab in mangroves of Pran Buri Forest Park and learn about the behavior of Fishing Cat in Baan Koh Phai community. These experiences are often enhanced by indirect WT activities, such as boating in the canals, exploring mangrove ecosystems along boardwalks, listening to local storytelling, and reviewing images captured by camera traps. However, these wildlife activities also demonstrate that PKN is an area where wildlife resources can be harnessed to promote tourism.

WT Model

Wildlife tourism emphasizes observing and interacting with wildlife in their natural habitats while promoting conservation and sustainability. Examples of successful wildlife tourism models include: (1) Kenya Safaris, which provide one of the top travel experiences globally, where expert local guides lead tailored tours to observe the "Big Five" (elephant, lion, leopard, rhinoceros, and buffalo) (Natural World Kenya Safari, 2025), (2) volunteering with animals in South Africa, allowing tourists to work directly with wild and rehabilitated animals in game reserves and with endangered species (Good Hope Volunteers, 2025), (3) the Indian Wildlife and Cultural Tour, which takes tourists to explore tiger sanctuaries and several ancient ruins built by kings (Third Rock Adventures, 2025), and (4) Van Os Photo Safaris, which offers the best outdoor photography experiences in the USA, allowing for deeper exploration and photography of wildlife, wild places, cultures, and architectural treasures (Van Os Photo Safaris, 2025). These models not only promote enjoyment of wildlife but also aim to foster understanding, respect, and conservation of the natural world. Effective management of these models goes beyond simply having wildlife; it also involves integrating all local resources to ensure sustainability.

Ecotourism and Community-based Tourism (CBT) Approaches

Ecotourism is a form of sustainable tourism or nature-based tourism that does not focus on the number of visitors, avoids unnecessary facility development, emphasizes nature and natural attractions to ensure positive environmental experience, encourages local community participation, raises income and quality of life for locals fairly and appropriately, and provides benefits for nature and conservation efforts (Benchachaya, 2006). The main ecotourism activities include hiking/trekking, nature education, nature photography and audio recording of natural sounds, birdwatching, cave exploring, stargazing, boat sightseeing, canoeing/kayaking, and snorkeling/scuba diving (Khamsuk, 2010). These activities take into account the carrying capacity of tourism resources, supporting sustainable tourism without negatively impacting resources (Benchachaya, 2006).

CBT is a type of tourism that prioritizes the sustainability of the environment, society, and culture, with management driven by the community. Communities play a crucial role in ownership and management, creating learning opportunities for visitors (Suansri, 2003). The focus is on knowledge exchange rather than solely generating income for local people (Chiang Mai University, 2005). Community members are actively involved in the CBT processes, including planning, implementation, activity selection, project evaluation and benefits sharing (Sarobol, 2003). Effective management is essential for ensuring equitable income distribution and profit sharing (Kaewsuriya, 2001). Additionally, good management involves selecting quality tourists who are committed to conserving tourist resources and community cultures (Prabphairi, 2002). Income generated from tourism is utilized for community development, maintaining infrastructure, managing impacts, and mitigating risks when capacities are exceeded (Thongma, 2008). Therefore, CBT requires collective determination and long-term dedication from local people, fostering ethics and promoting sound business practices. This can lead to successful community engagements, improved self-esteem, and sustainable income sources for locals (Phanwilai & Chanmaitri, 2007).

Ecotourism and community-based tourism (CBT) play significant roles in promoting sustainable practices that benefit both the environment and local communities. The term "community-based ecotourism" adds a further social dimension to this concept, referring to a form of ecotourism where the local community has substantial control over and involvement in its development and management. Furthermore, a significant portion of the benefits derived from this form of tourism remains within the community (WWF International, 2001). This research focuses on wildlife, which pertains to nature and ecosystems, while also highlighting tourism activities executed by the community. This can be referred to as "Community-based Ecotourism" or CBET.

Innovations in Tourism

Innovation offers potential and efficiency advantages across various activities by adding value that enhances effectiveness. Effective innovation must encompass three important dimensions: Newness, economic benefits, and a combination of knowledge and creativity (Aujirapongpan et al., 2010). Creativity is an essential skill in the 21st century, as it combines knowledge about life, careers, and technology to foster creative work. This, in turn, leads to innovation and new technologies that improve the quality of life for humanity (Worawatanachai, 2022). Innovation stems from creativity, a skill inherent to everyone. However, such exists at different levels, categorized into five types: Invention, change, synthesis, expanding the scope, and plagiarism, each relevant to the arts, science and local wisdom (Sutharat, 2004). These types can lead to new solutions for problems or the creation of valuable inventions that pave the way toward a smarter future. Local stories of White Squirrel on Sichang Island exemplify creative tourism activities. The act of feeding the White Squirrel, combined with linking tourist routes around the island, enhances enjoyment and creates unique tourist experiences. Another example includes local cat stories that are depicted through street art, becoming popular check-in points for visitors eager to engage in community activities (Sustainable Tourism Area Development Administration Organization, 2022). Although creative tourism emphasizes local culture, it is still possible to utilize stories about these animals to create activities that support tourism.

Innovation results from the integrated use of knowledge across various scientific fields to invent and create new products for economic benefit. It consists of three main elements: (1) newness, (2) economic benefits, and (3) creative ideas (ThaiFranchise Center, 2025). For example, wildlife tourism (WT) innovation can be used to promote rare or significant wildlife species (newness) and lesser-known or unpopular wildlife sites along WT routes (creative ideas) to boost tourism (economic benefit) in PKN through accessible online media.

Methodology

This research project is focused on R&D, specifically on creating WT innovations. It begins with a survey and data analysis of information related to WT in PKN. The WT innovation was developed by participatory approach, utilizing data from the survey and knowledge management processes. Following this, the innovation was trialed by an experimental group of tourists, who evaluated the benefits of using the innovation.

Participants

Eighteen key individuals, including officers from protected areas and local community members involved with wildlife, were purposively selected to provide information related to wildlife. Additional key participants were identified through snowball sampling during the survey. Five key representatives from tour agencies in PKN were also purposively selected to offer suggestions on WT. A total of 400 tourists were surveyed to assess their needs regarding WT. Ten participants, comprising community leaders, scholars and villagers were voluntarily selected from each of the nine communities to participate in a knowledge management session. Furthermore, five tourism experts and five representatives from local tour agencies were randomly selected. Five villagers from the target area were also voluntarily chosen, bringing the total to 15 participants involved in WT innovations and tour itinerary design. An additional 15 voluntary participants were selected from the same group, though not the same individuals, to evaluate the suitability of WT innovations and tour itineraries. Thirty tourists were voluntarily selected to participate in the explementary tour using WT innovation. The first group of fifteen volunteers consisted of tourist experienced in ecotourism, while the other fifteen were general tourists, chosen to demonstrate that WT innovations could be easily utilized by anyone. During the tour, the satisfaction of these tourists with the tour operations and the use of innovations was evaluated. Finally, 30 volunteers comprising representatives from academic institutions, tourism businesses, experimental tourists, conservation areas personnel, and local residents were selected to assess the benefits of using WT innovations.

Data Collection

The wildlife target areas were designated based on secondary data searches, participatory observations, and informal interviews, which helped identify attractions featuring interesting wild animals. Forty attractions in PKN were surveyed, resulting in the selection of 22 target areas that host 23 significant wild animal species for further study. Target areas were chosen based on the presence of established wildlife-related tourism management, while other areas remained uncharted. The potential of 14 additional target areas was also assessed. A questionnaire was developed to collect information

on the needs related to WT from 400 tourists traveling in PKN from March to June 2024. The questionnaire was peer-reviewed by research consultants before being administered to gather data for the development of WT innovation. Knowledge management sessions were conducted to explore wildlife-related knowledge and details regarding WT innovation. Subsequently, the WT innovations and tour itineraries were designed and evaluated for suitability by experts. Following this, an explementary tours were conducted for voluntary tourists incorporating the WT innovations; their satisfaction with the tours and its innovations was assessed after each tour. Lastly, the benefits of utilizing WT innovation were also evaluated.

Data Analysis

Content analysis was employed to interpret qualitative information, while quantitative data were analyzed using statistical methods appropriate for social science research. The collected data were organized and analyzed descriptively, with frequency distribution and displayed as a percentage, mean, standard deviation, minimum and maximum values using the Likert scale. (Figure 1)

Results

This research project develops WT innovations aimed at promoting nature and environmental conservation, resolving conflict between humans and wildlife, and generating additional income for local communities.

Survey of Knowledge Required for WT Innovation Development

The project identified 22 target areas in PKN as WT destinations from the 40 surveyed sites, most of which were national parks and forest parks featuring various geographical landforms, from mountaintops to underwater ecosystems. Additionally, 23 important and interesting wild animals were identified to promote tourism, showcasing diverse species, including mammals, reptiles, amphibians, birds, and aquatic and marine animals, thereby demonstrating the biodiversity of wildlife in PKN (Table 1).

The identified 23 wild animals reflect the biodiversity of wildlife, which includes reptiles, birds, amphibians, mammals, freshwater animals, marine animals, and insects distributed throughout the province. The 22 target areas also exhibit a diversity of geographic features, ranging from mountain summits to underwater ecosystems.

There are 16 communities engaged in wildlife-related activities, nine of which are involved in WT. Three wildlife species are directly used to promote tourism: Wild Elephants and Gaurs at Kui Buri NP, and Dusky Langurs at Lom Muak Hill in Wing 5 of Royal Thai Air Force. The remaining species are used indirectly. Some target areas are isolated, while others are located within the same protected area, such as Sam Roi Yot Swamp and Khao Deang Viewpoint, both of which are within Khao Sam Roi Yot NP.

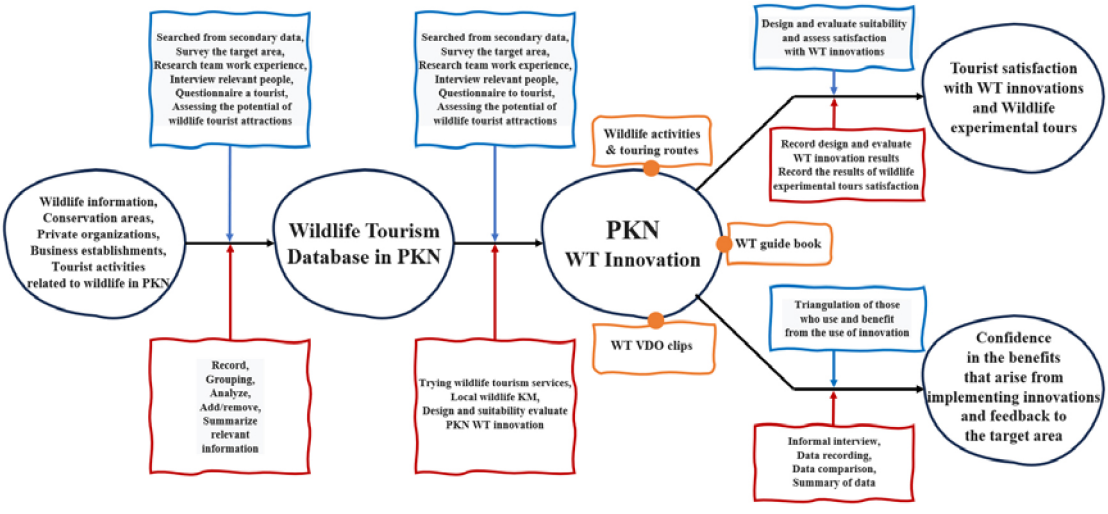


Figure 1 Conceptual framework

Table 1 The attractions in PKN become the wildlife target area

	Target areas	Wild animals seen in the area
1	Lablae Cave Monastery	Cave Dwelling Snake
2	Khao Hub Tao Valley, Kaeng Krachan NP	Wild Elephant
3	Baan Pala-u Noi Village	Brachyura-waterfall Crab
4	Benjapas Hill, Pran Buri Forest Park	Indian Peafowl
5	Sirinart Rajini Learning Center	Common Water Monitor
6	Korum Island, Khao Sam Roi Yot NP	Long-tailed Macaque
7	Bangpu Canal	Fiddler Crab
8	Khao Deang Beach, Khao Sam Roi Yot NP	Malayan Plover
9	Khao Deang Viewpoint, Khao Sam Roi Yot NP	Serow
10	Khao Sam Roi Yot NP. Head Office	White-bellied Sea Eagle
11	Kho Phai Village	Fishing Cat
12	Sam Roi Yot Swamp, Khao Sam Roi Yot NP	Purple Swamphen
13	Kui Buri NP	Wild Elephant Guars
14	Bo Nok Offshore	Bryde's Whale
15	Lom Muak Hill in Wing 5, Royal Thai Air Force	Dusky Langur
16	Khao Luang Summit, Namtok Huay Yang NP	Panda Crab
17	Don Ta Wao Beach	Green Turtle
18	Bo Thonglang Cove	Sea Slug
19	Mae Rampung Hill, Ao Siam NP	Lesser Hornbill
20	Pa Klang Ao Yang Forest, Ao Siam NP	Stingless Bee
21	Pakpid Canal	White-collared Kingfisher
22	Talu Island, Ao Siam NP	Whale Shark

Criteria for assessing WT attractions potential were established using 36 indicators, consisting of 12 indicators for "Areal and Wildlife Resources Potential," 14 for "Activities, Facilities and Interpretation System Potential," 6 for "Wildlife Impact Management Potential" and 4 for "Participatory WT Management Potential." Each indicator has 3 levels, as shown in Table 2.

The WT potential assessment tool was validated by research advisors before being used to assess 14 sites covering the 22 target areas. This evaluation resulted in 4 WT sites receiving a 5-star potential rating, most of which are protected areas, such as Kui Buri NP (Table 3).

Opinions from WT site managers, local residents involved in WT, and WT operators were gathered through interviews compared with the lesson learned from WT in Kui Buri NP. Recommendations for WT management are based on two main components and their subcomponents: (1) Interesting animals which include species that are uncommon, easily observed, and living in nature, forming the "3 Interesting Animals" or "3A"; and (2) Good management, which encompasses clear regulations, quality staff, area zoning, nature-friendly practices, carrying capacity considerations, participatory actions, and benefit allocation, becoming the "7 Good Management" or "7M". Data were compared and analyzed, leading to development of the WT management model for PKN, termed the "Dusky Langur Model" or "3A7M Wildlife Tourism Management Model". It is worth noting that Dusky Langur serves as the tourism mascot for PKN (Figure 2).

The 3A7M Wildlife Tourism Management Model underwent peer review by the research consultant and was then compared to the management practices at 14 WT sites, revealing consistency between the success

Table 2 WT attractions potential criteria

Potential Area	Indicators	Level of each indicator	calculation	Points
Areal and wildlife tourism resources	12	1–3	$[\Sigma D_{1-12}]$ x 40/36	13.33–40
Activities, facilities and interpretation system	14	1–3	$[\Sigma D_{1-14}]$ x 20/42	6.67–20
Wildlife impact management	6	1–3	$[\Sigma D_{1-6}]$ x 20/18	6.67–20
Participatory wildlife tourism management	4	1–3	$[\Sigma D_{1-4}]$ x 20/12	6.67–20
Total	36			33.34–100

Table 3 Potential of WT sites

	Wildlife tourism sites	Potential level					
		(A)	(B)	(C)	(D)	Total	Level
1	Khao Sam Roi Yot NP	35.16	17.94	17.41	18.33	88.84	□□□□□
2	Kaeng Krachan NP (South area)	35.92	17.46	16.30	16.67	86.35	□□□□□
3	Sirinart Rajini Learning Center	31.48	18.73	20.00	16.11	86.32	□□□□□
4	Kui Buri NP	29.52	17.51	17.41	16.67	81.11	□□□□□
5	Pran Buri Forest Park	29.26	15.08	16.30	15.00	75.64	□□□□
6	Namtok Huay Yang NP	29.63	15.08	17.04	13.33	75.08	□□□□
7	Ao Siam NP	30.74	14.13	15.16	13.33	73.36	□□□□
8	Pakpid Canal	25.19	11.75	7.78	16.67	61.39	□□□
9	Kho Pai Village	27.04	10.32	7.04	15.00	59.40	□□
10	Wing 5, Royal Thai Air Force	28.52	10.32	11.85	6.67	57.36	□□
11	Don Ta Wao Beach	25.19	7.94	8.52	13.33	54.98	□□
12	Bo Nok Offshore	25.19	9.37	9.63	6.67	50.86	□□
13	Bo Thonglang Cove	21.85	9.37	7.04	11.67	50.29	□□
14	Lablae Cave Monastery	25.92	8.41	7.78	6.67	48.78	□

Note: (A) Potential of areas and WT resources (40 points), (B) Potential of activities, facilities and interpretation program (20 points), (C) Potential of sustainable management on WT impact (20 points), (D) Potential of participatory management on WT (20 points). The potential level of WT sites: 5-star (very high level) = 80–100 pt, 4-star (high level) = 70–79.99 pt, 3-star (moderate level) = 60–69.99 pt, 2-star (low level) = 50–59.99 pt, 1-star (very low level) < 50 pt.

factors and the potential of WT sites. If sites feature typical wildlife and additional management factors in accordance with the model, they tend to demonstrate higher potential. For instance, Kui Buri NP exhibits very high potential at the 5-star level due to its effective management. In contrast, Lablae Cave Monastery lacks many management factors, resulting in low potential at the 1-star level. A comparison of the 3A7M model with the management in "Thailand's Top Destinations for Wildlife Tourism" (Ranahan, 2021) is shown in Table 4.

The behavior and needs of tourists, along with the opinions of WT site managers, local residents involved in WT, and WT operators were analyzed, resulting in joint demand data that serve as a foundation for developing WT innovation (Figure 3).

Innovations Design and Development

The project involved analyzing information obtained from the survey through a wildlife knowledge management process in the target areas. Subsequently, participatory design and evaluation of WT innovations



Figure 2 Dusky Langur model or 3A7M wildlife tourism management model

Table 4 Comparing 3A7M model with Thailand's top destinations for WT

3A7M Wildlife Tourism Management Model		WT destinations				
		(A)	(B)	(C)	(D)	(E)
3A	Animal which is uncommon species	□	□	□	□	□
	Animal which is easily seen	□	□	-	-	-
	Animal which is alive in nature	□	□	□	□	□
7M	Manage with clear regulations	□	□	□	□	□
	Manage with quality staff	□	□	□	□	□
	Manage with area zoning	□	□	□	□	□
	Manage with nature friendly	□	□	□	□	□
	Manage with carrying capacity	□	□	□	□	-
	Manage with participatory action	□	-	□	□	□
	Manage with benefit allocation	□	-	□	□	□

Note: (A) Kui Buri NP in Prachuap Khiri Khan province (B) Huai Kha Khaeng Wildlife Sanctuary in Uthai Thani province (C) Surin Islands in Phang Nga province (D) Khao Sok NP in Surat Thani province (E) Koh Lipe in Satun province

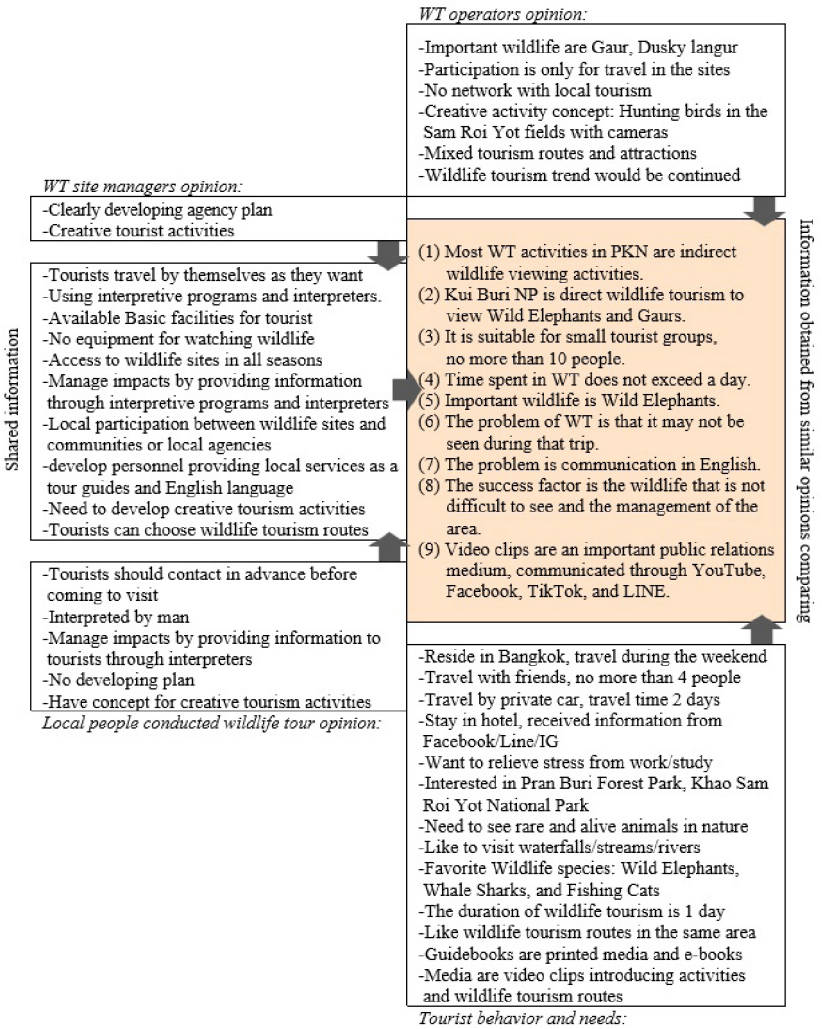


Figure 3 Information obtained from comparing similar opinions

were conducted, resulting in a set of appropriate innovations that could be practically applied to WT in PKN.

Information from the survey was reviewed before utilizing local tour services in 22 WT sites, showing that some were ready to accommodate tourists, while others, though accessible, may not have tourist services. This aligns with the potential identified in the 14 WT sites.

Following the completion of knowledge management, information on the 23 wild animals was used to create a WT guidebook in PKN, which is a pocketbook designed as a WT passport checklist for PKN (Figure 4). Additionally, a map of WT sites in PKN was developed, dividing the sites into four groups for four WT routes: (1) Hua Hin-Huai Sat Yai route, (2) Hua Hin-Pran Buri-Sam Roi Yot route, (3) Hua Hin-Sam Roi Yot-Kui Buri route, and (4) Hua Hin-Bang Saphan-Bang Saphan Noi route (Figure 5). Four WT video clips, each not exceeding five minutes in length, were also produced to promote WT in PKN alongside the 4 wildlife tourism routes (Figure 6). Experts assessed the suitability of the WT innovations, resulting in an average suitability score of 85.47 percent.

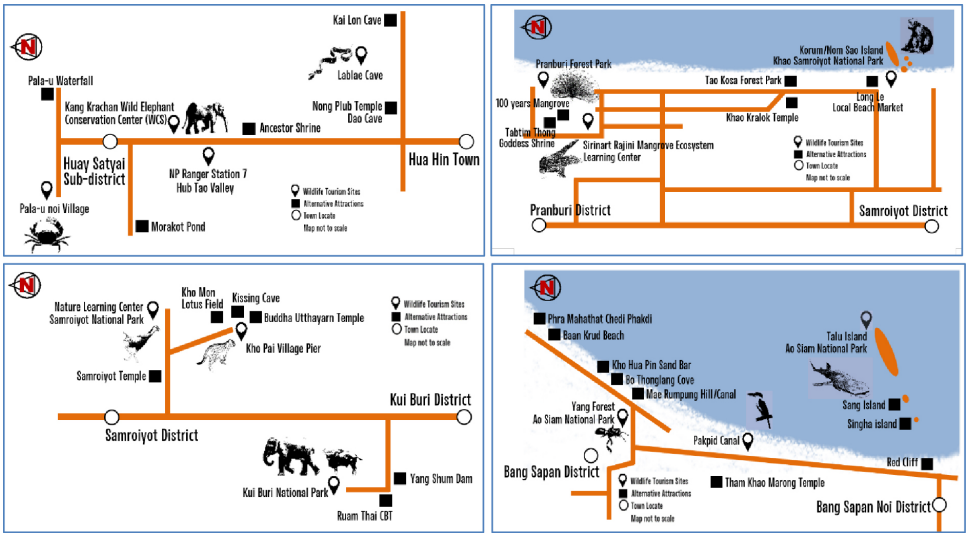


Figure 4 Four WT routes in PKN

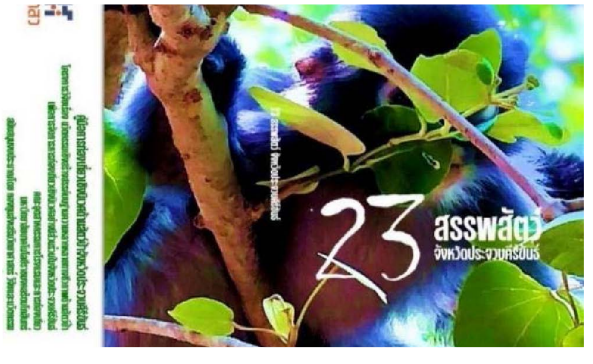


Figure 5 Cover page of WT guidebook



Figure 6 Introduction scene of WT VDO clip

Note: (1) WT routes in PKN link: https://online.fliphtml5.com/tddff/hxeh/#p=1 (2) WT guidebook link: https://fliphtml5.com/tddff/krup/#p=1 (3) Four WT VDO clips link: (3.1) https://www.youtube.com/watch?v=2QghKHrHM3c (3.2) https://www.youtube.com/watch?v=bCeXOIKnYX8&t (3.3) https://www.youtube.com/watch?v=JqcESOIY7DQ&t (3.4) https://www.youtube.com/watch?v=LtbQYRH227g (all WT innovations are in Thai version)

WT Innovations Usability Testing

Four WT itineraries were developed for 1-day trips, beginning from Hua Hin town, including: (1) Hua Hin-Huai Sat Yai itinerary, (2) Hua Hin-Pran Buri-Sam Roi Yot itinerary, (3) Hua Hin-Sam Roi Yot-Kui Buri itinerary, and (4) Hua Hin-Bang Sapan-Bang Sapan

Noi itinerary. Experts then evaluated the suitability of these itineraries, leading to an average evaluation score of 84.17 percent. Following this, four WT tours were conducted for a group of experimental tourists, allowing them to utilize the innovations during their tours. Satisfaction regarding the use of the three types of WT innovations was subsequently assessed, revealing that tourists were 84.33 percent satisfied with the WT innovations and 85.66 percent satisfied with the tour arrangements (Table 5).

Assessment of Benefits from Innovation Use

Thirty individuals from three groups of WT innovations users academics, community representatives, and experimental tourists were interviewed. The results indicated that the average opinion value across all groups was positive. Participants believed that WT innovation benefited users by promoting nature and environmental conservation. However, there were concerns about whether WT innovations would effectively reduce conflicts between humans and wildlife, particularly in Keang Krachan NP and its surrounding communities, due to the geographical characteristics of the area and the distance between the forest border and villages, which differ from those in Kui Buri NP. Additionally, there were doubts about whether WT innovations would generate sustainable additional income for local residents, as tourism is already established in all target areas, making the prospect of additional income seem uncertain (Table 6).

Discussion

In addition to the 23 species of wildlife that are the focus of this research project, many other wildlife species that were not targeted during the survey have yet to be studied or lack data. These species naturally inhabit and feed within the diverse ecosystems of PKN, contributing to the overall diversity of wildlife. This highlights the biodiversity of wildlife in PKN, which can create numerous opportunities for study, research, learning, and tourism. For instance, exploring many caves revealed numerous bats, but classifying the species based on tourism knowledge proved challenging. Banteng, an important

Table 5 Tourist satisfaction with WT innovations and tour arrangement

	Tourist satisfaction	Percentage
	with WT innovations	
1	Four PKN WT routes (12 issues)	86.58
2	PKN WT guidebook (7 issues)	84.14
3	Four PKN WT VDO clips (7 issues)	82.23
	Average percentage	84.33
	with Tour arrangement	
1	PKN WT itinerary 1 (Hua Hin-Huai Sat Yai route)	86.29
2	PKN WT itinerary 2 (Hua Hin-Pran Buri-Sam Roi Yot route)	85.60
3	PKN WT itinerary 3 (Hua Hin-Sam Roi Yot-Kui Buri route)	87.71
4	PKN WT itinerary 4 (Hua Hin-Bang Saphan-Bang Saphan Noi route)	82.89
	Average percentage	85.66

Table 6 Opinion value of those involved with PKN WT innovations

Opinion value (n = 30)	WT routes	WT guide-book	WT VDO clips	Average point	
WT innovations are beneficial to users	+9.00	+9.67	+9.67	+9.45	
WT innovations are beneficial to WT destinations	+9.33	+9.33	+9.00	+9.22	
WT innovations are interesting	+8.67	+9.33	+8.00	+8.67	+8.40
WT innovations create awareness of nature conservation	+8.33	+8.67	+6.33	+7.78	
WT innovations are beneficial to PKN tourism	+7.33	+7.33	+7.33	+7.33	
WT innovations create sustainable income for community	+2.67	+2.67	+2.67	+2.67	+2.39
WT innovations help reduce humans and wildlife conflicts	+2.00	+2.00	+2.33	+2.11	

Note: strongly disagree = (−10)–(−6), disagree = (−5)–(−1), unsure = (1–5) and agree = (6–10)

species in Kui Buri NP, was previously frequently seen grazing alongside Gaurs. As a now rare species, they were not spotted during the survey. Birdwatching is a popular activity in the Sam Roi Yot swamp, where the "Dek Rak Thung" local group continues to pass down knowledge from generation to generation. However, the Kui Buri ham-tailed snake was discovered as a new species in Khao Sam Roi Yot NP (Tarzan Chanel, 2023), while research on amphibians and reptiles in Bang Saphan District (Lerdrungroj & Taksintum, 2018) and frogs (Khamkaew et al., 2020) indicated many other frog species in PKN await exploration. In Hua Hin District, an ethnic group uses stream shells to create lime, which they eat with betel nuts. They also incorporate stories of wild birds into songs that reflect the lifestyles of the Karen ethnic group in captivation manner. In Bang Saphan district, kayaking services to explore the mangrove forest in Khlong Pak Pid offer potential for night kayaking experiences, promoting health therapy through nature immersion, which could also include services for visually impaired individuals, fostering "tourism for all." At the Sirinath Rajini Mangrove Ecosystem Learning Center, an activity involves feeding Common Water Monitor to alleviate disturbances in nearby communities by drawing the monitors away from populated areas; tourists can participate in this initiative. In Kho Phai village, a unique snorkeling activity in the Sam Roi Yot Swamp offers a rare experience that has yet to be replicated in other areas, representing a creative concept with potential for CBT. In Thap Sakae District, the Thap Sakae Conservation Group is advocating for Don Ta Wao Beach to be designated as a protected area for sea turtles to nest. Female Green Turtles return annually to lay their eggs, necessitating monitoring to enhance hatching success and reproductive opportunities. This presents an opportunity to develop volunteer-based tourism activities focused on monitoring Green turtles. These opportunities to enhance WT in PKN can be integrated into local development plans, allowing tour agencies to arrange ecotourism itineraries focusing on wildlife exploration.

Following the experimental tours, tourists expressed the highest satisfaction (87.71%) during the Hua Hin-Sam Roi Yot-Kui Buri itinerary, which included Sam Roi Yot National Park (5-Star), Kui Buri National Park (5-Star), and Kho Phai Village (2-Star). Conversely, the lowest satisfaction (82.89 percent) was noted for the Hua Hin-Bang Sapan-Bang Sapan Noi itinerary, featuring Ao Siam National Park (4-Star), Pak Pid Canal (3-Star), and Bo Thonglang Cove (2-Star), indicating that the potential of WT sites influences tourist satisfaction.

Conclusion and Recommendation

This research project compiled essential information to create WT innovations in PKN, which were tested during tours arranged for experimental tourists to evaluate their satisfaction with the tour management and innovation usage. Interviews were also conducted to assess the benefits of using these innovations. The finding addressed the first research question, "What are the features of WT innovations?" It was determined that the WT innovations in PKN included four tourism routes, a guidebook, and 4 video clips that could support WT in the area. The assessment of the benefits of using the innovations answers the second research question, "Can WT innovation be used to reduce human-wildlife conflicts and wildlife loss?" The results indicated successful applications of tourism to mitigate conflicts between humans and wildlife in Kui Buri NP, while ongoing efforts are needed in Kaeng Krachan NP. Finally, the investigation into the third research question, "Can WT innovations be used to promote environmental conservation and develop a grassroots economic system for the community?" found confidence that innovation could enhance environmental conservation, but uncertainly remained regarding the generation of additional income for locals, as each WT site is already capable of generating income with tourism. Furthermore, WT sites must feature interesting wildlife and effective management consistent with the "3A7M Wildlife Management Model" to succeed, similar to Kui Buri NP. The WT innovations were published on the RMUTR Faculty of Hospitality and Tourism Industry website in the form of an e-book and video clips on YouTube, ensuring accessibility for anyone, anywhere, supporting sustainability and lifelong learning. These WT innovations can be utilized for statistical analysis and monitoring tourist visits to wildlife sites in PKN, serving as instructional media in tourism curricula and providing a foundation for future studies aimed at designing new appropriate innovations.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Exploring K-pop artists' cultural appropriation through the lens of Thai K-pop fans' perceptions

Nasatorn Witayarat

Intercultural Communication, Department of English, Faculty of Liberal Arts, Thammasat University, Pathum Thani, 12120, Thailand

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Abstract

There is currently a heated debate taking place amongst both scholars and fans concerning whether K-pop (Korean pop music) artists culturally appropriate foreign cultures into their music videos. This qualitative study seeks to fill the gap in the literature by examining the approach of Thai K-pop fans relative to this issue. The research draws on online interviews with Thai K-pop fans of various ages, as well as lengths of fandom. The findings demonstrate mixed opinions concerning the issue of cultural appropriation in K-pop. K-pop music is also identified as a new and distinct musical form of hybridity, with artists blending differing cultural elements into a Korean style. The study also examines how the blending of cultures, particularly elements of Black culture, may contribute to the global appeal of K-pop. Additionally, it identifies the failure to credit those aspects taken from Black culture or to acknowledge the related history of racism, including inappropriate behaviour towards other cultures. Thus, this study demonstrates a range of implications from cultural appropriation, in particular the need for appropriate recognition and respect towards other cultures.

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Introduction

Korean pop music (K-pop) is used to reference South Korean pop music, including idol pop music, which is characterised as featuring young and attractive same-sex groups, whose music features catchy refrains and unique dance moves (Yoon, 2018). K-pop has gained in global popularity since the 1990s (Anderson, 2020), while the expansion of social media has allowed its popularity to transcend its country of origin and have a global reach, thus positioning K-pop artists at an international level (Garza, 2021). The transition of K-pop from a local and regional to a global phenomenon has provoked a debate relating to the issue of its artists' use of cultural

E-mail address: nasatorn@tu.ac.th (Witayarat, N.).

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appropriation (Ahn, 2023). To analyze this phenomenon in the context of K-pop, it is important to research its historical background, norms and associated stereotypes. Cultural appropriation refers to the act of taking, or using, aspects of another culture (e.g., cultural symbols, artifacts, and rituals) without sufficient understanding or respect (Cambridge Dictionary, 2023a). The term cultural appropriation was first introduced in the 1980s by scholars discussing issues such as colonialism and the relationships between majority and minority groups involving exploitative and disrespectful acts (Kendall, 2024). The term is often connected with the adoption of elements from non-Western or non-white cultures by Western or white people (Kendall, 2024), reflecting the power imbalance that arises when a culture is sold, shared widely and misrepresented and does not profit financially (Lalonde, 2021). Profit may be derived in several ways, such as by appropriating knowledge, spiritual practices, pieces of objects in museums and styles of art.

Crucially, when appropriation occurs, the marginalized culture is rendered invisible and stereotyped, as its identity is distorted or reshaped by the appropriator. For example, the Navajo Nation, a Native American tribe in the US, has had unique cultural objects appropriated by Urban Outfitters, a global retail company that sells traditional attire and jewellery under the label "Navajo" without having consulted or received consent from the Navajo people. For example, the company sells the Navajo Hipster Panty, Wide Navajo Scarf and Navajo feather earrings. This enables the company to profit from disrespecting the cultural heritage and identity of the Navajo, emphasizing the significance of respecting and preserving marginalized cultures from exploitation. Some challenge this view, arguing that cultural appropriation is rather cultural appreciation blending traditional artifacts using creativity and innovation. However, ultimately what is being discussed is clearly the theft and reproduction of the cultural property of another culture (Lalonde, 2021). Cultural appropriation occurs across a range of fields, e.g., visual art, fashion and music (Kendall, 2024). Recently, the discourse of cultural appropriation has transitioned from academic discourse into popular culture, especially in relation to music, and in this case the adoption of elements of Black culture by K-pop artists (Anderson, 2020). There have been a number of discussions in social media concerning the question of cultural appropriation, but there remains a dearth of empirical studies investigating the attitudes of K-pop fans towards this issue. Thus, this study seeks to fill the gap in the existing literature by focusing on the attitude of Thai K-pop fans towards the debate as to whether K-pop artists can be seen to culturally appropriate other cultures in their music videos.

Research Question

The key research questions are as follows:

(1) What are elements of foreign cultures that Thai K-pop fans notice in K-pop music videos?

(2) Do Thai K-pop fans think that the use of foreign cultures in K-pop music videos is cultural appropriation? And if so, why?

Literature Review

There have been a number of debates concerning the issue of cultural appropriation by K-pop artists, particularly the use of Black music, as well as the wearing of clothes and jewellery identified with Black culture and the use of 'blackface' (i.e., the practice of wearing dark makeup to mimic the appearance of an individual who is Black) (Cambridge Dictionary, 2023b). This has led to accusations of K-pop artists using Black music (e.g., hip-hop, rap and R&B) without appropriate acknowledgement, thus implying it is their own music expression (Myung, 2021). K-pop artists who allegedly culturally appropriate include the Bubble Sisters (a K-pop girl group) in the Bubble Song music video (Han, 2015), Taeyang in the Ringa Linga music video (Kim, 2020), and Lisa (a member of the girl group Blackpink) in her music video "Money" (Lucas, 2021). However, some scholars have argued that Black music has historically experienced a symbiotic relationship with K-pop, due to the presence of African American soldiers in South Korea during the Korean War (Anderson, 2020). This suggests that, due to this deep connection between the two, K-pop cannot be considered to culturally appropriate Black music. Moreover, Black music can be seen to inform Korean music, including in aspects such as vocals, choreography and fashion (Cho, 2022; Kim & Saeji, 2021), as well as inspiring many Korean hip-hop artists, thus reflecting K-pop artists' admiration of the Western musical forms of hip-hop and R&B (Lee & Kao, 2021; Song, 2019). Furthermore, the influence of Black music on K-pop can be seen as due to the recruitment of foreign composers, particularly those of African American descent (Yoon 2018). This suggests that K-pop labels and artists have not appropriated other types of musical genres, since the music itself is influenced (or made) by these Western composers. In addition to the use of Black music in K-pop, there remains the issue of cultural appropriation of Black fashion in music videos, e.g., outfits, jewellery,

and hairstyles (Cho, 2022). Moreover, several studies in the literature have highlighted that some K-pop artists have adopted Black hairstyles, e.g., cornrows, braids and dreadlocks (Cho, 2022; Myung, 2021). This has led a number of Black K-pop fans to criticize this emulation of Black clothing and hairstyles as a form of cultural theft (Ross, 2020), as well as reflecting insufficient awareness of the painful African history of exploitation and slavery (Chatman, 2020; de Luna, 2020). Black hairstyles, in particular, have a sensitive history, as cornrows were used by African slaves to hide rice and grains to enable their survival, while braids were employed to create maps that enabled them to escape (Craig, 2020). Thus, treating these hairstyles as a temporary fashion trend and costume without understanding the relevant history can be considered as an act of cultural appropriation (Chatman, 2020). By contrast, Cho (2022) argued that K-pop artists' emulation of Black clothing and hairstyles is due to an appreciation of Black culture, as demonstrated by the South Korean boy band BTS, whose members spent two weeks in Los Angeles with Black American hip-hop tutors. Finally, there is the issue of K-pop artists choosing to perform in blackface, which, as noted above, is defined as painting the face of a white (or light-skinned) person to portray a stereotypical version of one who is Black (Cambridge Dictionary, 2023b). Blackface can be seen to reflect cultural appropriation on the part of K-pop artists, as a result of their ignorance of the racist connotations of this gesture, thus provoking controversy and leading to a heated debate among K-pop fans (Chatman, 2020). However, Cho (2022) argued that K-pop artists are aware of this being a form of racial discrimination, as revealed by BTS, who showed their support for anti-racist action, particularly the Black Lives Matter (BLM) movement in the US. Furthermore, the fact that both BTS and the band's label have donated a million dollars of support to the BLM movement, suggests that K-pop artists tend to take a positive stand in supporting racial justice (Lee & Kao, 2021). It is notable that the existing literature tends to place an exclusive focus on the use of Black culture and music in K-pop, while paying little attention to other cultures, including that of India, despite the debate among fans about artists' improper use of Hindu religious symbols and Indian clothing. Similarly, criticism has been directed at the wearing of Bindis (a traditional Indian accessory worn only by married women on special religious occasions), and which should not be worn simply for aesthetic purposes (Sanghvi, 2020). Thus, K-pop artists' use of Bindis in their music videos without any knowledge of the religious and cultural implications can be regarded as cultural appropriation of Indian culture (Jha, 2018).

As noted above, this study recognizes the lack of empirical studies investigating the attitudes of K-pop fans towards its artists' use of cultural appropriation. This is primarily due to the focus being primarily on alternative issues, including: firstly, fans' responses to non-Korean members (Ahn, 2023); secondly, Black culture in K-pop music videos outside the scope of cultural appropriation (Kim, 2020); thirdly, gender issues (e.g., Garza, 2021; Song & Velding, 2020); and fourthly, Korean fandom (e.g., McLaren & Jin, 2020; Min, Jin, & Han, 2019; Yoon, 2019). Thus, in order to address the gap in the literature, this current study focuses on the attitudes of Thai K-pop fans towards the issue of cultural appropriation of K-pop artists in their music videos. This is particularly due to Thai K-pop fans being regarded as forming one of the strongest fan bases in Southeast Asia, with Thailand now becoming a major K-pop market (Shoowong, 2023). When it comes to research into K-pop in the context of Thailand, empirical studies tend to direct their attention towards alternative areas, such as: firstly, the influence of Thai idols who become K-Pop artists on the Korean public's perception of Thai people (Butsaban, 2019); secondly, the impact of the popularity of the Korean culture on online social networks in Thailand (Chansanam et al., 2021); thirdly, the consumption of K-pop by Thai fans (Siriyuvasak & Hyunjoon, 2007); and finally, Thai K-pop fan activism (Andini & Akhni, 2021). Arguably, Thai people have limited contact with or knowledge about Black people (Goździak, 2023). This could result in gaps in their understanding regarding what cultural appropriation of Black culture entails, especially in terms of historical exploitation and marginalization. Thus, with limited understanding regarding the cultural appropriation of Black culture, some Thai K-pop fans might interpret the combination of Black cultural elements in K-pop as a source of artistic inspiration, rather than as cultural appropriation. Therefore, their perceptions surrounding this issue are worth exploring.

Cultural Appropriation and its Disagreements

Rogers (2006, p. 474) considered cultural appropriation as consisting of "the use of a culture's symbols, artifacts, genres, rituals, or technologies by members of another culture". Cultural appropriation can apply to situations in which power is either symmetrical or asymmetrical (Rogers, 2006). Cultural appropriation in the form of symmetrical power includes the equal exchange of symbols, artifacts, and rituals between cultures, as well as the flow of music. By contrast,

cultural appropriation in terms of a power imbalance (i.e., asymmetrical power) occurs when those from a dominant/colonising culture take aspects belonging to marginalized/colonized cultures without consent, to use for the benefit of the dominant culture. This power imbalance represents cultural exploitation as the dominant culture treats elements of marginalized/colonized cultures "as a resource to be mined or consumption" (Rogers, 2006, p.486) without giving credit or providing financial compensation. It involves the use of indigenous folk music by Western musicians and companies, or of native American culture to produce commercial objects (Rogers, 2006). This type of exploitation involves the act of stealing or appropriation (Cruz et al., 2024). Cultural exploitation is harmful when it includes the violation of the cultural property rights of marginalized/colonized cultures by those from a dominant/colonising culture, and misrepresents or deeply disrespects marginalized/colonized cultures (Cruz et al., 2024). However, some scholars have argued against the use of music from another culture in K-pop as being cultural appropriation, due to its incorporation of a variety of genres (e.g., rap, hip-hop and R&B), leading to the creation of a new and unique form of hybrid music (Anderson, 2020; Cho, 2022). This current study was therefore undertaken in response to the limited number of previous research studies focussing on cultural appropriation in K-pop, and particularly the attitudes of fans, addressing the issue by exploring the views of Thai K-pop fans.

Methodology

Participants

The participants in this study were all volunteers, consisting of nineteen Thai K-pop fans, aged between eighteen and forty-five, who had been fans for various lengths of time, and who had a variety of occupations (Table 1). Using purposive sampling, the researcher recruited the participants following their consideration of the research questions (Schwandt, 2015), using online K-pop Fan pages on Facebook, i.e., ALL K-POP [Thailand] and EXO Thailand. The participants all followed the largest K-pop Facebook fan pages in Thailand with over three hundred thousand fans exchanging information on K-pop artists, including new music videos and tours. These online groups can be seen as highly active, with a large number of posts and replies generated daily. Moreover, the recruitment of participants was supplemented with a 'snowballing' technique or participant referral technique (Berndt, 2020), so long as the participants satisfied the criteria for participation.

Data Collection

The ethical requirements of this study were approved by the Ethics Committee of the university in Thailand at which this study was undertaken. Firstly, the researcher sent a request to recruit participants to the administrators of the Facebook pages, asking them to pass on information concerning their members. Secondly, those wishing to take part in the study were then able to contact the researcher by means of the researcher's Facebook messenger or Line application, depending on their preference. Thirdly, the researcher sent the participant information sheet to each participant prior to the online interviews, which were conducted through the researcher's Facebook messenger and Line Call. Finally, one-on-one interviews with a semi-structured format were conducted. The researcher collected the data using online interviews, to save travel costs, as well as the ability to schedule interviews at the convenience of

Table 1 Demographic profiles of the participants

Participants	Age	Gender	Occupation	Duration of becoming a K-pop fan (years)
P1	24	Female	Company employee	3
P2	22	Female	Pre-service teacher	10
P3	38	Female	Freelance K-pop writer	19
P4	30	Female	Company employee	14
P5	25	Female	Dental student	12
P6	45	Female	Lecturer	10
P7	41	Female	Freelance K-pop writer	16
P8	31	Female	Company employee	15
P9	37	Female	Company employee	8
P10	18	Male	High school student	4
P11	22	Female	University student	12
P12	26	Female	Company employee	13
P13	25	Female	Company employee	12
P14	18	Female	High school student	10
P15	30	Female	Company employee	17
P16	18	Male	High school student	6
P17	37	Female	Company employee	3
P18	27	Female	Company employee	8
P19	36	Female	Company employee	15

Note: $n = 19$

the participants (Oliffe et al., 2021), due to the majority working night shifts. Prior to commencing the interviews, the researcher conducted an online pilot interview with a participant sharing similar characteristics to the participants taking part in the main study. The pilot interview was carried out to ensure clarity and generate a more focused set of questions (Malmqvist et al., 2019). Once the interview questions had been adjusted, the researcher commenced the main study with warm-up questions intended to put the participants at ease and gain general information concerning their experience of becoming K-pop fans. These were then followed by content questions to determine whether the participants had: firstly, noted any cultural-related elements in K-pop music; secondly, believed that K-pop artists undertook cultural appropriation of foreign cultures and the reasons for such a conclusion; fourthly, observed any negative consequences to K-pop fans of the use of cultural appropriation or positive outcomes of incorporating foreign cultures; and finally, considered any solution to the potential issue of K-pop artists' cultural appropriation. Each individual interview lasted between approximately forty and seventy-five minutes. In addition, the interviews were held in the Thai language, to assist the participants to articulate their thoughts without experiencing any anxiety relating to their fluency in English, e.g., grammatical errors, or limited vocabulary.

Data Analysis

For this study, the researcher employed Express Scribe and Foot Pedal Controls to produce the verbatim transcriptions of the interview data, followed by an analysis using NVivo 12 software. In addition, before undertaking the data analysis, the researcher returned the analysis to the participants for the purposes of validation (McGrath et al., 2019). Furthermore, the researcher employed thematic analysis, described by Terry et al. (2017, p.18) as "a method for identifying, analyzing and reporting patterns (themes) within data". This study employed Thematic Analysis as its main analytical method due to its flexibility in determining themes. The researcher therefore followed the six phases of the analysis: firstly, reading the entire transcripts several times to become familiar with the data; secondly, identifying and labelling important features in the data; thirdly, grouping together similar themes; fourthly, reviewing themes; fifthly, defining and naming themes; and finally, producing the report (Terry et al., 2017). The themes and quotations were then determined by means of Krueger and Casey's (2015) guidelines as follows: firstly, extensiveness (i.e., a theme repeatedly mentioned by different participants); secondly, frequency (i.e., a frequent subject of discussion by participants); thirdly, specificity of quotations (i.e., specific and detailed quotations); and finally, intensity (i.e., themes expressing participants' emotions, enthusiasm, or passion (Krueger & Casey, 2015). The themes and subthemes were identified following a focused reading of the transcripts, with the aim of addressing the research questions.

Results

This study identified the following themes highlighting the participants' attitudes to the debate concerning K-pop artists' potential appropriation of foreign cultures. These include their perception of foreign cultures in K-pop music and their views about using these foreign cultures, as well as whether they believed this to be culturally appropriate. The themes are clarified with direct quotations from the participants, being coded P1–P19.

Blending of Foreign Cultures and K-pop

The participants explained that K-pop is a type of music derived from a mixture of foreign cultures; i.e., Black culture in the form of Black music (hip-hop or rap music), the use of Black hairstyles (cornrows and dreadlocks) and the inclusion of Black fashion (a Durag and oversized t-shirts) in K-pop. Black culture appears in music videos such as "Ringa Linga" by Taeyang (Kim, 2020) and "Money" by Lisa Blackpink (Hsiung, 2023). In addition to the blend of Black culture, participants raised the issue of the use of Indian culture in K-pop, e.g., including a Hindu god, Ganesha statue in How You Like That by Lisa of Blackpink (Begum, 2020) and the song entitled "Fire" in the live performance of a girl group (G)I-DLE (Khaitan, 2021). This integration of foreign cultures into K-pop has led to debates over whether K-pop is culturally appropriate or appreciative of its origin sources. More importantly, there are concerns over cultural appropriation in K-pop, with critics mentioning cultural hybridity, and its unique musical form that combines foreign cultures, particularly Black culture.

Black Culture

Eighteen out of the nineteen participants reported that they found that Black culture frequently appears in K-pop music videos in the form of an imitation of American hip-

hop or rap music. This blend of Black music and K-pop was confirmed by P7.

"I think K-pop has borrowed Black culture ... Like Exo [a Korean boy band] borrow the culture of Black people ... K-pop music borrows rap [music]." (P7)

P8 pointed out that K-pop artists tend to use rap music due to *"being fond of Black music"*, thus suggesting that this tends to stem from a sincere appreciation of Black music rather than being appropriation, particularly in the sense of demonstrating a lack of respect for a different culture (Anderson, 2020). Additionally, some interviewees noted the use of Black hairstyles, with P2 elaborating that *"cornrows were worn by Lisa of Blackpink [a South Korean girl group] in the music video titled 'Money'."* Noticeably, Lisa's hairstyle was not cornrows but box braids, a widely recognized Black hairstyle, as depicted in Figure 1.

Further, participants added that K-pop artists have attempted to resemble American hip hop artists through the wearing of Black hairstyles (e.g., cornrows and dreadlocks), along with a Durag (a piece of cloth worn on the head with long ends tied in the back) (Merriam-Webster, 2023), as well as oversized t-shirts. This, therefore, suggests that Black culture influences K-pop both in relation to music genre and fashion. For example, Taeyang, a member of the K-pop group 'Bigbang', wore a Black hairstyle in a music video (*D*). in a music video, as illustrated in Figure 2



Figure 1 In the music video Money, Lisa is shown wearing box braids
From BLACKPINK. (2021, September 23). *LISA - 'MONEY' EXCLUSIVE PERFORMANCE VIDEO* [Video]. YouTube. https://www.youtube.com/watch?v=dNCWe_6HAM8

Indian Culture

The participants also pointed out K-pop's use of Indian culture. For example, P16 explained that *"there is a controversy about using Ganesha statue [a Hindu god] near Lisa's [a girl group Blackpink] feet in her music video titled How You Like That and some K-pop artists wore dupatta in their music videos."* A Ganesha statue represents a Hindu god, believed to protect humans against obstacles and bring good luck and achievement (Allard, 2020). Such practices provoke controversy among Indian K-pop fans when it comes to the issue of cultural appropriation, particularly as, to denote respect, this statue of a Hindu god is never placed on the floor. Moreover, P16 and P17 also noted that Jennie, a member of the girl group Blackpink, and dancers in a K-pop group, whose group name was not mentioned by P17, wore bindis in their music videos (i.e., a small red dot applied on their foreheads between the eyebrows) (Cambridge Dictionary, 2023c), as well as a dupatta (i.e., a long headscarf worn by South Asian women) (Cambridge Dictionary, 2023d), without referencing any cultural affiliation. This practice has been criticized by Indians as showing a lack of understanding of the cultural significance of Indian attire and its associated rituals (Sanghvi, 2020). Figure 3 illustrates Jennie wearing a bindi in a music video, and Figure 4 depicts Sandara Park, a member of the K-pop group 2NE1, wearing a bindi and Indian attire in her music video.



Figure 2 Taeyang wearing a Black hairstyle in the music video 'Ringa Linga'
From BIGBANG. (2013, November 9). *TAEYANG - RINGA LINGA(링가 링가) M/V* [Video]. YouTube. https://www.youtube.com/watch?v=UJfZ69MSlvY

However, some have also argued that Indian clothes and bindis have recently been used for a number of purposes (i.e., to wear at parties, or as a beauty accessory or cultural fashion statement) without any strict adherence to the requirements of Hinduism (Jha, 2018; Sharma, 2018). It has also been argued that the inclusion of Indian clothing reflects an embracing of Indian culture, which is in line with cultural hybridity in terms of K-pop's mingling of multiple cultures while processing



Figure 3 The music video 'DDU-DU DDU-DU' depicts Jennie, a member of Blackpink, wearing a bindi on her forehead.
From BLACKPINK. (2018, June 15). *BLACKPINK - '뚜두뚜두 (DDU-DU DDU-DU)' M/V* [Video]. YouTube. https://www.youtube.com/watch?v=IHNzOHi8sJs



Figure 4 Sandara Park is shown in traditional South Asian attire, along with a bindi.
From YG ENTERTAINMENT. (2009, August 18). *2NE1 - FIRE(Space Ver.) M/V* [Video]. YouTube. https://www.youtube.com/watch?v=ISEoXdHb4W4

them into forming its own style. As noted previously, there has been a significant degree of discussion in the literature concerning cultural hybridity in K-pop as a result of a combination of Black musical forms (e.g., Anderson, 2020; Cho, 2022; Yoon, 2018), while at the same time paying little attention to other cultures. Thus, this result contributes to the existing discussion by demonstrating that cultural hybridity in K-pop does not only focus on Black culture, but extends to a variety of cultures, including that of India. This study therefore adds substance to the limited literature examining the issue of cultural appropriation in K-pop beyond that of Black culture.

Cultural Appropriation in K-pop

The participants opined that K-pop engages in cultural appropriation for several reasons. First, K-pop fails to acknowledge its use of Black culture, and so can be regarded as stealing from another culture for financial benefit, neglecting the cultural and historical significance of Black hairstyles. Second, the participants explained that some K-pop artists are not adequately well-informed about appropriate ways in which to engage with and respond to foreign cultures, which causes misunderstandings and offense to those from other cultures. These aspects are demonstrated in the music video entitled How You Like That by Lisa of Blackpink (Khaitan, 2021), the single T.O.P. of Shinhwa, a boy band group and Zico from the boy band Block B and the song entitled "I'm Still Fly" (Chatman, 2020).

Absence of crediting indigenous communities

Two participants made several observations concerning the fact that some K-pop artists have failed to acknowledge their use of African culture in their music videos. P14 noted:

"A music label let their artists use African hair braiding or dreadlocks in their music videos without giving any credit to the origins of this borrowed culture. The music label also does not take action to show any awareness of the feelings of people from that culture." (P14)

This correlates with Myung's (2021) view that a lack of information about the cultural origins of Black hairstyles used by K-pop artists can be regarded as resulting in cultural appropriation. This is due to a misrepresentation of the original cultural meaning, which Myung (2021) considered should be reserved for Black people only, but now tends to be used without their permission (Myung, 2021). Arguably, P14's account raises ethical questions about cultural appropriation, as Black hairstyles are being adopted without acknowledgement and used for financial benefit (Lalonde, 2021). Additionally, the use of these hairstyles in K-pop for fashion purposes, or as aesthetic concepts in artists' imagery, misrepresents their origins and meaning, sidelining their historical significance, which is a form of cultural appropriation (Myung, 2021). Moreover, P14 also considered that K-pop's use of hip-hop without crediting its origins in Black culture can also be regarded as cultural appropriation, stating that:

"The way that K-pop artists incorporate hip-hop dance into their music lacks any acknowledgement of the cultural origin of Black people. This is because hip-hop dance belongs to Black people and using it [hip-hop dance] in K-pop simply follows a trend." (P14)

This suggests that these dance forms and techniques need to be properly acknowledged by K-pop artists and labels as belonging to Black people.

Inappropriate behavior towards other cultures

Seven of the participants noted that it was inappropriate to place the Hindu deity Lord Ganesha on the floor, as seen in a K-pop music video, with P16 explaining:

"Placing the god [Ganesha statue] near Lisa's shoes on the floor [in the music video] should have been scrutinized more ... before it was released... The music label knows that this song is going to be popular, and people around the world will watch it. So, people who worship it [Ganesha statue] criticize this and some interpret it as disrespecting their religion." (P16)

However, the Ganesha statue shown on the floor in the music video was later edited out after YG Entertainment, a South Korean multinational entertainment agency managing the girl group Blackpink, received criticism from fans (Lee, 2020). P16's account implies a significant impact of this alleged disrespect for the Deity Ganesha and Hindu culture, as such actions can spread misconceptions relating to the convention of the appropriate approach toward this religious statue for a large number of non-Hindu K-pop fans. The extract from P16 suggests that such an act is culturally appropriate when an individual outside the culture uses a religious artifact without understanding and respect for the origin culture and any spiritual significance. This is regarded as harmful, since the act can profoundly offend those from other cultures (Cruz et al., 2024). Additionally, two participants raised the issue of using the N-word (i.e., a racial slur used against Black people) by some K-pop artists in their songs. However, it can be argued that the N-word is actually pronounced /niga/ and /nega/ for the Korean second person pronoun, and /nɛga/ for the first-person pronoun, and these have simply been misheard as the N-word by English language speakers (Lo, 2021). This suggests that Korean words that sound similar to the N-word in English can create confusion, or be misinterpreted, by English-speaking people. Finally, P15 raised the issue of Mamamoo, a K-pop girl group, who dressed up in blackface in one of their music videos. This implies that, unlike Americans, Koreans tend to be unaware of the implications of blackface, particularly in relation to the history of African American slavery and the use of offensive racial slurs (Cho, 2022; Myung, 2021). Arguably, acting blackface is regarded as a racist performance (Han, 2015) since Blackface is linked to Black people's painful history of racism, when doing so was employed in exaggerated and offensive minstrel shows in the US to ridicule and dehumanize them. Thus, this provokes memories of a painful history and implies a disregard for the associated trauma (Han, 2015). Therefore, Blackface is cultural appropriation, as it ignores the significance of Black people's history, reinforces harmful stereotypes and exploits them for entertainment, profit or artistic use.

Insufficient knowledge of foreign cultures

Three participants criticized K-pop artists for employing Black culture in their music without acknowledging the history of racism. P13 highlighted that:

"... Black hairstyles have a [long] history. In the past, a braided hairstyle helped African slaves escape. So, wearing cornrows is not just fashion, as it's used in K-pop. (P13)

P13's view is supported by Craig's (2020) statement that cornrows were historically used by African slaves to create maps to enable then to escape, so having a greater significance than simply styling. This indicates that K-pop artists using these styles can be regarded as practicing cultural appropriation, due to taking aspects of colonized cultures without consent (Rogers, 2006). Similarly, P14 pointed out that cultural appropriation can stem from insufficient knowledge of the history of Black hairstyles, as "*the African braided hairstyle has a long historical link with slavery, particularly as African slaves hid rice in their [braided] hair."* P14 stressed the importance of having background knowledge of Black hairstyles and criticized the use of such styles by K-pop artists in their music videos simply as a fashion statement. This account is relevant to Craig (2020) and Rose's (2021) proposition that the wearing of braids is closely linked with Black history, i.e., slaves' practice of hiding rice and seeds in their hair to ensure they had enough to eat, and/or would have food when they escaped. This indicates that this aspect could be regarded as cultural appropriation, particularly when K-pop artists wear their hair in braids for the sake of its appearance, so profiting from marginalized groups. For P15, using Black hairstyles in K-pop without acknowledging their historical significance can cause Black people's emotional pain when P15 said: *"When they [K-pop artists] use it [Black hairstyles] as fashion without knowledge of Black people's history of slavery, this act causes immense painful feeling. They [Black people] may think that K-pop steals the hairstyles for entertainment, and these causes offend."* Interestingly, P15 emphasizes the importance of lack of empathy for Black people in regard to the painful experiences of slavery, racism, and marginalization. This is also considered cultural appropriation when K-pop adopts Black hairstyles and treats them as a trend or fashion without considering their cultural and historical

significance. Furthermore, P15's account highlights the notion of exploitation in terms of power imbalances in cultural exchange, as K-pop artists wear Black hairstyles to enhance their appearance to be seen as trendy and unique, distinguishing them from their competition in the entertainment world. This implies that it does not necessarily mean exploitation is occurring between races, but rather that the powerful K-pop music industry as a dominant industry is profiting from a marginalized group without offering recompense.

Arguments Against Cultural Appropriation

Some participants have argued that K-pop does not engage in cultural appropriation for several reasons. First, it is a product of foreign music composers and producers; and so it is unavoidable that foreign music and associated cultures will influence K-pop. Second, participants raise doubts about the ownership of Black culture, as there is no clear legal procedure when asking permission to use Black culture in K-pop or identifying an exact person from whom to seek consent, due to there being a large group of Black people. Third, the participants voiced their opinion that blending American Black music in K-pop brings about a new and unique musical form that can be described as cultural hybridity and that American Black music is considered the dominant culture (Ahn, 2023). This suggests K-pop does not take advantage of or culturally appropriate a less powerful culture. Lastly, the majority of participants illustrated that K-pop may promote Black culture and that some Black people are not offended by the incorporation of their culture into K-pop.

Collaboration with foreign music personnel

Some participants noted that they felt K-pop artists do not culturally appropriate foreign cultures, since their labels tend to hire foreign music composers, producers, and choreographers, particularly from Sweden and the US. Moreover, some K-pop entertainment companies employ foreign choreographers to create new forms of choreography in their music videos. This can demonstrate that K-pop artists are unlikely to culturally appropriate Western musical forms, due to this close collaboration with Western music.

No cultural ownership

Some participants argued that they felt there are no fixed rules concerning the ownership of Black culture, as it also borrows cultural aspects from other ethnic groups. P15 stated: " *there should be an organization to enable people to ask for permission to use Black hairstyles"* and believed that "*it is difficult to give Black people credit for using their hairstyles [as we don't know how to ask]."* P15's statement reflects the broader question of the ownership of culture, since it is not possible to operationalize a consent procedure, particularly when it comes to large groups (Siems, 2019). P1 commented that "*if Asian people cannot have a Black hairstyle, there should be a law against them wearing Black hairstyles."* P1 can be seen to support P15's view that if black culture is owned by a particular group of people, there needs to be a law stating that permission is required for others to use aspects of their culture. However, no such practice can occur, as no single group can claim ownership of Black culture. This therefore demonstrates the right of K-pop artists and labels to incorporate Black culture into their musical performances. However, these accounts do not comply with the historical context of cultural appropriation in terms of the power imbalance between a dominant/colonising culture and a marginalized/colonized culture. This is because wearing Black hairstyles in K-pop fails to acknowledge their origin or cultural significance without giving credit or showing respect and lacks awareness of the African history of exploitation and the discourse that arose due to slavery (Chatman, 2020; de Luna, 2020).

Offering newness through mixture of different musical styles and cultures

Most of the participants in this study emphasized that incorporating foreign cultures into K-pop, and particularly hip hop, resulted in innovation and the subsequent music being unique and distinct from that of other countries. Furthermore, they did not consider that such practices could be seen as cultural appropriation, due to the combination of hip-hop with K-pop music, leading to a new type of music. This can be seen as due to further aspects discussed by the participants, in particular labels' cooperation with foreign composers (i.e., African American music composers), enabling K-pop to adapt other genres of music to become an aspect of its own style, eventually generating a new type of music. The incorporation of American Black music into K-pop thus emphasizes the concept of cultural hybridity (Anderson, 2020; Yoon, 2018). It is significant that this approach is seen as separate from cultural appropriation, as African American is perceived as a globally popular dominant form of American popular culture, rather than as a minority culture (Ahn, 2023). This, therefore, negates the view of K-pop as practising cultural appropriation by taking advantage of less powerful indigenous groups for its own benefit.

Promoting different cultures

More than half of the participants in this study discussed the benefits of using foreign cultures in K-pop, including promoting awareness of the wearing of a dupatta as an aspect of Indian culture. Similarly, they felt that the use of Black hairstyles tended to encourage K-pop fans to take an interest and become more likely to wear styles similar to that of their favorite K-pop artists. Consequently, as stated by P2, this has the potential to promote interest in Black hairstyles. Furthermore, P10 argued that some Black people may not feel offended by this practice, and many are happy to teach non-Blacks how to braid cornrows on YouTube. P3 stated that this could be because "*they [Black people] can overcome their painful memories behind their hairstyles and do not feel offended."* This shows that incorporating these foreign cultures into K-pop can help promote global awareness of various cultures (Sharma, 2018).

Discussion

The study's findings answered the research questions as follows: For the first question, Thai K-pop fans noticed that K-pop incorporates elements of foreign cultures, i.e., Black culture (Black hairstyles and Black fashion) and Indian culture (a Ganesha statue, and the inclusion of Indian rituals and clothing, i.e., bindis, a dupatta). In answer to the second question, the participants expressed two viewpoints on cultural appropriation. Those who think that K-pop engages in cultural appropriation because K-pop artists draw from Black culture without permission (equivalent to stealing another culture) for their financial profit, neglecting the cultural, spiritual and historical significance of other cultures and disrespecting the other culture. This can potentially offend individuals from those cultures, i.e., lack of awareness of the historical pain associated with Black hairstyles, placing a statue of the Hindu deity Ganesha on the floor in a music video. Interestingly, the findings from this study demonstrate a misunderstanding of K-pop artists' racial use of the N-word. This indicates the issue of mishearing or misunderstanding not only among Thai fans, but also international K-pop fans, due to their insufficient understanding of Korean (Lo, 2021). Ironically, instead of stating that their lyrics do not refer to Black people, a Korean record label chose to edit out these controversial words in some K-pop songs (Kelly, 2018). This can be seen as potentially aggravating the situation and causing some K-pop fans to assume the artists actually use the N-word, even when this was not the case.

The participants who questioned cultural appropriation in K-pop opined that K-pop is influenced by the contributions of foreign composers and producers, and that this is unavoidable as Black culture is combined with K-pop. Second, it is challenging to obtain permission to use Black culture in K-pop as there is no specific organization or association to grant such approval. Third, combining foreign cultures with K-pop leads to cultural hybridity and the creation of a new form of music, resulting in K-pop's unique musical style (Anderson, 2020). Concurrently, cultural hybridity in K-pop includes not only Black culture, but also others, i.e., Indian cultural attire is worn. In this regard, cultural hybridity reflects that culture is evolving and prompts creativity (Cruz et al., 2024) as K-pop is driven by combining Korean and Black music elements to form a unique musical form, creating a hybrid sound that appeals to global audiences (Anderson, 2020). Finally, K-pop helps to promote foreign cultures among its international fanbase, and it is unlikely that Black people would feel offended when their cultures appear in K-pop. The findings imply that using foreign cultures in K-pop can be interpreted as racism as with the use of blackface. Furthermore, cultural appropriation in K-pop reflects a power imbalance, not necessarily between whites and blacks, but between a dominant music industry and marginalized cultures who are offered nothing in return.

Views regarding cultural appropriation in K-pop reflect the importance of educating individuals within the music industry about cultural appropriation, particularly regarding religious beliefs, to avoid *being* culturally *disrespectful or* making potentially hurtful mistakes. A possible way for K-pop music labels to avoid a backlash from their fans is to employ cultural advisors who can share their knowledge of other cultures when music videos are being made (Lalonde, 2021). This would help avoid culturally offensive acts, which, even when unintentional, can be observed by viewers worldwide and upset individuals from the culture in question. Additionally, the findings have implications for teachers or university lecturers wishing to broaden students' knowledge of cultural appropriation, particularly the need to give proper recognition and respect to other cultures.

This study acknowledges a number of limitations, including that it did not include Thai K-pop fans under the age of eighteen, in order to explore their views of the issue of cultural appropriation of K-pop artists in their music videos. This author therefore recommends that this could be an age group considered in future studies. In addition, it also recommends that future studies examine

the attitudes of international K-pop fans from other countries, and in particular those who are Black or Indian, with regard to the incorporation into K-pop of hip-hop, rap music and Black hairstyles, as well as Indian cultural symbols and dress.

Conclusion and Recommendations

This study has explored the attitudes of Thai K-pop fans towards the debate surrounding the issue of potential cultural appropriation on the part of K-pop artists. In doing so, it has extended the knowledge in the literature, in particular through a discussion of those aspects that can be potentially viewed as cultural appropriation. This study argues that the attitude of Thai K-pop fans towards the incorporation of foreign cultures into K-pop suggests that, once a culture is open to being exchanged and mixed, it offers the possibility of a new musical form. This enables it to become universal property, so challenging the notion that K-pop artists tend to culturally appropriate foreign cultures. However, it is vital that the incorporation of foreign cultures into K-pop be subject to a consideration of appropriate cultural practices to prevent controversy, in particular a lack of sensitivity towards the religious and racial values of other cultures. This study has the potential to benefit both Thai and international K-pop fans, as well as those who watch K-pop music videos, by raising awareness of the issue of cultural appropriation in terms of appropriate behaviour towards other cultures, in particular insufficient knowledge of such cultures.

Conflict of Interest

The author declares that there is no conflict of interest.

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Factors affecting beliefs in culture and tradition: The alms bowl of the brokenness of villagers in Nakhon Si Thammarat province to enhance current livelihood development

Daycho Khaenamkhaew

Faculty of Humanities and Social Sciences, Nakhon Si Thammarat Rajabhat University, Nakhon Si Thammarat 80280, Thailand

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Abstract

This qualitative study examines the factors influencing beliefs in the culture and tradition of the alms bowl of brokenness and proposes guidelines for resolving conflicts arising from beliefs. Through interviews and observation of 12 key informants, including folk philosophers and Buddhist monks, the research employs interpretive analysis to synthesize the data. The study findings revealed that beliefs are significantly shaped by occult practitioners who employ both white and black magic in rituals intended for healing or harm. These practices include the secretive use of the broken Buddha bowl from temples, which are buried to enact curses. Guidelines for conflict resolution: The study outlines detailed ceremonial procedures essential for resolving conflicts within this tradition. It emphasizes the importance of a sacred venue, such as temples or monasteries, and involves participants skilled in occult and religious rituals. The ceremonies are meticulously planned, incorporating offerings of rice grains and the strategic placement of nails into a Sangkawannon to protect against and dispel negative energies, culminating in the disposal of The Alms Bowl of Brokenness in water. These insights contribute to understanding and managing cultural beliefs and disputes related to this ancient tradition, integrating deep-rooted spiritual practices with community conflict resolution.

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Introduction

Magic is often considered a subject shrouded in mystery that captures the interest and belief of individuals based on personal experiences (Kachshima, 2004). Described as mysterious, exciting, thrilling, unbelievable, or transcending natural laws, belief in magic continues to influence the thoughts and actions of many (Kaewwirat et al., 1988). Magic involves the use of enigmatic powers derived from sacred objects. Both amulets and spells, including those classified as black magic, possess distinct advantages and disadvantages. This dichotomy exists

E-mail address: Daycho_kha@nstru.ac.th (Khaenamkhaew, D.)

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because all scientific endeavors evolve to fulfill human necessities (Khamdee, 1991). Superstitious beliefs manifest as ritual performances, emphasizing Buddhist principles, including belief in both white and black magic within ritual practices. Elements and procedures are incorporated into these rituals, highlighting the significance of performing them with intention and respect to underscore their sacredness (Rattanasippakorn et al., 2017; Sanyavivat & Dhitivatana,1984). This is also a belief that causes black magic rituals that have an impact on southern society and culture. Both good and bad, good impacts include using donations from people's faith that arise from magic to promote education. Building a school provides scholarships to students, such as sustaining Buddhism. In addition, superstitious beliefs and rituals also help promote morality and ethics; for example, they do not offend other people's children or wives. Be grateful to benefactors, etc., for the negative side effects, such as those who use such beliefs to make their minds excited and careless. Sacred objects are traded or counterfeited to deceive the public (Piyakul, 1997).

Southern communities hold deep-rooted superstitious beliefs passed down through generations, forming a core aspect of their cultural heritage. Practitioners of black magic are more connected to local folk than to monks, although some mystical monks may also incorporate it into their practices (Office of the National Culture Commission, 1995). The impact of black magic varies, depending on the practitioner's intent (Khamdee, 1991), and encompasses spells, rituals, and magical rites. One infamous artifact is The Alms Bowl of Brokenness, a symbol of ominous magic. Its presence in a home is believed to cause misfortune, as breaking a monk's alms bowl disrupts the act of giving alms, fostering discord. Misusing such a bowl can intensify resentment and bring suffering to a household.

Nakhon Si Thammarat, a province in Southern Thailand, has long been associated with supernatural beliefs, particularly in relation to the alms bowl of brokenness. The impact of such beliefs on local social structures, particularly in familial disputes, remains understudied. While existing research has explored the broader role of superstition in Thai society (Mulder, 2000: Reynolds, 2019; Thongpan, 2018), there is a lack of comprehensive studies examining how beliefs in the alms bowl of brokenness contribute to intergenerational conflict and community dynamics. Understanding these beliefs is essential for preserving cultural heritage and developing effective conflict resolution strategies within local communities. This study aims to fill this gap by investigating the factors influencing belief in the alms bowl of brokenness and its role in shaping intergenerational conflict management.

Literature Review

Area context: Nakhon Si Thammarat, in Southern Thailand, is steeped in black magic and supernatural beliefs that shape its cultural and social dynamics. These beliefs impact local behaviors and conflict resolution, with a history of rituals conducted by shamans and traditional healers. Locals often wear protective amulets, and sorcerers are both revered and feared. Disputes frequently arise from witchcraft accusations, complicating resolution efforts. To address conflicts, understanding local customs and involving spiritual leaders or respected figures is crucial. Clear communication and the use of neutral mediators familiar with the culture promote effective solutions, blending traditional and modern conflict resolution methods while respecting cultural beliefs (Division of Information and Communication, Nakhon Si Thammarat Provincial Office, 2024; Mulder, 2000; Reynolds, 2019).

Concepts about Beliefs: These are feelings and thoughts that are inherited and influenced by the behavior of individuals and communities, as well as natural phenomena and human beings, and religions that are based on animism believe that ancestors believe in sacred things, such as Belief in Gods and Magics (Dhammabhojo, 2022; Phromket, 2009), as well as notions of hell and heaven (Temcharoenkit, 2018). This classification encompasses beliefs associated with death, such as conducting funerals to honor and seek pardon; health care; prophecy; occupation; loss and recovery; and those pertinent to household or family dynamics (Tamkrong & Vongmonta, 2019).

Concepts about mysterious powers and magic: Kotsupho (2006), and Pantiya (2020). The concept of mysterious power refers to a special, awe-inspiring, and invisible force. Nankhanti (2008) offers insights into these powers, noting that the magic and power of the Triple Gem Buddhist principles are employed to attract good fortune and repel ghosts, demons, and various malevolent entities. Additionally, Supsin et al. (2018) discussed the adherence to Buddhist principles through acts of giving and maintaining precepts (Treesap et al., 2015). Channgam (1988) also categorized the components of black magic into 4 segments: magician, spell, tools for conducting magic ceremonies, and magical rites. Such magical beliefs and rituals influence

societal dynamics and contribute positively to the development of Buddhism and local culture (Wangpan, 2023). Furthermore, Muenrak (2020) outlined various traditional rituals and patterns practiced in religious or magical contexts. The chairperson of the ceremony oversees the event, including its participants and location. Details such as the date, time, equipment, and procedural steps are essential for organizing the ceremony.

General knowledge about the alms bowl of brokenness: The broken Buddha bowl or black magic talisman is exceedingly rare. It is typically stored in temples and not removed, as its presence in a household can bring misfortune (Thongpan, 2018). This curse has been known to perpetuate violence across generations. Residents of such households often experience intense disputes, resulting in division and fatal outcomes. Remedies for the broken bowls include the use of rice seeds from the first rice field ceremony (Na Khwan). Both Sangkawannon nails and ordinary nails have been employed. The recommended procedure is to encase the talisman in a torn robe, dispose of it in a river, and cleanse the site with the first menstruation of a virgin to remove the curse (Thongpan, 2018).

Concepts about culture and the existence of magic: Office of the National Culture Commission (1995). Culture is described as a way of life encompassing patterns of behavior and the expression of emotions and thoughts in diverse situations. Suphap (1975) and Santisombat (1997) defined culture as an expression of human lifestyles, including belief systems, popularity, and knowledge. Wasi (2004) posited that culture fulfills the social and psychological needs of individuals and is essential for societal progress. Kroeber and Kluckhohn (1952); Sawangchot (2016), observed that culture is dynamic, undergoing constant changes and adjustments. Similarly, Kunnamas et al. (2017) reported that cultural elements evolve to better align with societal needs and appropriateness. Cultural persistence involves adaptation and integration (Chootrakul & Haocharoen, 2021). This is particularly evident in the superstitious beliefs and practices of Nakhon Si Thammarat province, which have been transmitted across generations (Office of the National Culture Commission, 1995).

Concept about Community culture: A social concept underscores the distinct characteristics of a place or society, highlighting its unique identity (Ramitanont, 1994; Kaewthep, 1990). This concept stresses adherence to the social structure, conservation, and the transmission of cultural heritage through various religious and traditional rituals (Khongthana, 2024). It epitomizes a simple, self-sufficient lifestyle that fosters prosperity and distinctiveness. Local culture serves as a foundational element, perpetuated across generations. Nakhon Si Thammarat Province, situated in the central southern part of Thailand, is rich in natural educational resources, historical sites, arts, culture, and traditions, representing a valuable way of life (Division of Information and Communication, Nakhon Si Thammarat Provincial Office, 2024).

Methodology

Key Informants

Twelve individuals were selectively recruited, comprising: (1) 3 folk philosophers with expertise in local culture, traditions, and magics; (2) 3 folk philosophers familiar with the general culture and traditions of Nakhon Si Thammarat Province; (3) 3 monks either from within or outside the region who are knowledgeable about Dhammapada 3 or more; and (4) 3 long-term residents (20 years or more) of the area who hold cultural beliefs and practices in black magic.

Research Tools

This qualitative study includes an interview form and theoretical insights derived from books, documents, and related research. A conceptual framework was developed to encapsulate the content and objectives, structured into four parts: Part 1 gathers general information about the interviewee; Part 2 explores factors influencing beliefs in the culture and tradition of The Alms Bowl of Brokenness of Khamdee (1991): Magician, Spell, Equipment for performing magic ceremonies, and Magical rites; Part 3 provides guidelines for resolving conflicts based on these beliefs, include the chairperson of the ceremony, the person performing the ceremony, the participants in the ceremony, the place of the ceremony, the ceremony date and time, the equipment for the ceremony and the steps for the ceremony; Part 4 discusses issues and offers recommendations. The quality of research tools is assessed through expert reviews to ensure the appropriateness of the equipment. Data collection methods include a refined interview form tailored for key informants. Additionally, two observation recording forms are employed: participant and non-participant. Participant observation involves the researcher actively engaging in and observing group activities, while non-participant observation entails observing without direct involvement in the activities.

Data Collection

Examination of documents and relevant research alongside the collection and processing of fundamental information. Initial personal contact with participants by the researcher to elucidate the research's objectives. The procedure involves various stages, including scheduling interview dates and estimating interview durations. Preparatory documents for interviews were appended. Official authorization was sought for data collection from official sources, and protocols were established to gather research data from key informants interviewed regarding factors influencing cultural beliefs and traditions concerning the magic on the alms bowl of brokenness, encompassing magician, spell, equipment for performing magic ceremonies, and magical rites. The guidelines for resolving conflicts based on cultural beliefs and traditions of the alms bowl of brokenness include considerations such as the chairperson of the ceremony, the ceremony conductor, ceremony participants, ceremony venue, date and time, ceremonial equipment, and procedural steps. Data acquisition involved structured interviews with a total of 12 key informants, continuing until saturation (Gill, 2020; Sutheewasinnon & Pasunon, 2016). Data collection was conducted jointly with community leaders during the interviews. Interviews were conducted on weekends or holidays, lasting approximately 30–45 min from 4:00–6:00 p.m., with the informant's residence serving as the interview venue (Cheawjindakarn, 2018). Successful execution of this research hinged on obtaining cooperation and consent from participants, ensuring comprehension among key informants, and securing authorization for video and audio recording during discussions. Informants were apprised that various information, images, and recorded sounds would be captured, with the researcher maintaining data confidentiality. The researcher asked all participants for their consent; this consent was written. The researcher abstained from recording any information against the informants' wishes, mandating strict adherence to instructions. Furthermore, informants were encouraged to report any unusual symptoms experienced during their involvement in the research project.

Data Analysis

Data analysis: Key insights gleaned from structured interviews with 12 key informants were utilized by the researcher to furnish comprehensive insights and contextualize the selected phenomena for study, elucidating unclear concepts (Phongboriboon, 2010). An analytical approach was employed to discern patterns and interconnections. This paper combines, synthesizes, and presents descriptive research findings (Phothisita, 2021).

Results

Nakhon Si Thammarat is deeply associated with black magic and supernatural beliefs, integral to its cultural and social fabric. These beliefs significantly influence local behavior and conflict dynamics, factors affecting beliefs in culture and tradition of the alms bowl of brokenness: Magician, spell, equipment for performing magic ceremonies, magical rites, and guidelines for solving conflicts according to beliefs in culture and tradition of the alms bowl of brokenness: Chairperson of the ceremony, the person performing the ceremony, the participants in the ceremony, the place of the ceremony, ceremony date and time, equipment for the ceremony and steps for the ceremony: Factors affecting cultural beliefs and traditions regarding magic on the alms bowl of brokenness, including magician, spell, equipment for performing magic ceremonies and magical rites:

(1) Magician: The black magician is an expert in dealing with supernatural anomalies using non-modern medical approaches, such as rituals or spells resembling black magic. This expertise is passed down through generations rather than acquired through formal education. The practice requires strict adherence to ethical principles to maintain purity in utilizing occult energies. Training is intensive and involves understanding mystical forces beyond current scientific explanations. Historically, male practitioners dominated due to better access to learning opportunities and societal perceptions of strength. Women were often excluded due to beliefs related to their biological functions, such as menstruation, deemed impure. However, contemporary shifts have seen more women accepted as shamans, reflecting society's movement towards gender equality. Black magicians typically prefer solitude, engaging in intensive spell studies and using tattoos to symbolize their commitment. Daily routines, from eating to sleeping, are infused with ritual significance, aiming to prepare for occult challenges. Central to this discipline is the Wai Khru ceremony, a gesture of respect towards teachers who transmit spiritual knowledge. Belief in mediums and wearing magical objects also play roles in maintaining spiritual balance and warding off harm. Magicians observe dietary restrictions, especially on Buddhist holy days, reflecting their commitment to purity. Abstaining from food at funerals or inauspicious events is believed to prevent

exposure to negative energies, signifying respect for the universal cycle of life and death. Their practices, rooted in both spiritual and ethical values, align with Buddhist principles of non-violence and mental discipline. This lifestyle emphasizes the interconnectedness of ritual practices, personal conduct, and community beliefs, showcasing a deep understanding of life's mystical and cyclical nature.

(2) Spell: The evolution of beliefs in witchcraft and the occult reflects society's adaptation to scientific advancements and rational thinking. Historically, these practices played a central role in daily life and were passed down through generations. While modernity has shifted the focus to empirical evidence, interest in the occult still exists in certain communities. Knowledge transmission often occurs through religious institutions like temples and monasteries, where rituals and spiritual wisdom are preserved. Rituals are performed at auspicious times and secluded locations to enhance their effectiveness. Precision in spell recitation is crucial since words in magic hold significant power, and any mispronunciation can alter the outcome. Practitioners focus on refining their pronunciation and seek guidance from experienced mentors to avoid errors and maximize spell potency. Despite the enduring presence of witchcraft, using black magic for harmful purposes contradicts the ethical principles of many Buddhist communities. Thus, its use for destructive ends is often discouraged, reflecting a complex balance between tradition, morality, and evolving societal values: "Na Tai Mo Chip Hai, Put Ta Kha Jut Kha Jai, Ta La Lai Tai Muay, Ya Chip Hai Bun Lai, Na Chip Hai, Mo Tai Hong, Put Khaw Long, Mo Dub Soon, Ya Sa Lai Kai Pen Din, Aeng Pai Kha Yu, Kha Yu Aeng Pai." Witchcraft related to black magic requires knowledge. Understanding and responsibility for witchcraft is therefore important to have due diligence and understanding of the possible effects on those who are cursed, including the person who performed the curse.

(3) Equipment for performing magic ceremonies: Performing ceremonies utilizing magic spells and associated paraphernalia is rooted in local cultures and traditions that uphold beliefs in mystical powers or the science of magic to achieve destructive ends. However, engaging in ceremonies involving tools and methods aimed at causing harm is deemed inappropriate and can result in severe consequences: Preparation of equipment before the ceremony, such as betel nuts, colored leaves, and broken bowls, symbolizes the commencement of a ritual signifying destruction. Equipment utilized during the ceremony, notably a broken monk's bowl, signifies the desecration of sacredness and the notion of division. Post-ceremony equipment involves burying the broken bowl in the ground, marking the conclusion of a ceremony intended to invoke curses or sow discord. While equipment such as flowers, candles, and colored candles may be procured for ceremonial use, the acquisition of a broken monk's bowl through theft from temples or monasteries is condemned as a violation of moral principles and disrespect for sacred objects. Additionally, attire for the ceremony typically includes wearing a loincloth and amulets, symbolizing purity and an endeavor to shield oneself from black magic or prevent its retribution. Therefore, the utilization of equipment in black magic rituals aimed at causing familial separation or harm to the point of death reflects the perversion of beliefs for malevolent purposes.

(4) Magical rites, this ritual among believers and practitioners of black magic involves the use of negative energies or casting curses upon individuals or places, believing that the destruction associated with broken monks' bowls adversely affects the targeted person or location. The process includes several preparatory steps: (1) The practitioner must ready themselves and gather the required equipment. This begins with the selection of a monk's alms bowl, which is acquired through improper methods, specifically theft from a temple, to enhance the potency of the spells to be cast. Furthermore, the ceremony requires a secluded area, distanced from the community, to ensure privacy and concentration. In preparation for the black magic ceremony, one must first gather and arrange incense sticks, candles, and offerings such as betel nuts and rice (Bay Si). During the ceremony, it is imperative to maintain a calm and focused mindset. Recite the incantations while proceeding to destroy the monk's alms bowl. This can be achieved by throwing it on the ground or striking it with a heavy object to shatter the bowl. Subsequently, bury the broken bowl in the ground beneath the designated area where the intended curse is desired to manifest. Following the conclusion of the ceremony or attainment of its purpose, the practitioner must take precautions against potential repercussions. Employing magic spells to safeguard oneself from the return of black magic is essential to mitigate any adverse effects. These elements and their symbolic meanings significantly;

the role of Magician, influence and social changes, decline and persistence of witchcraft studies, rituals and tools of black magic, and affect cultural beliefs and practices. Understanding these aspects can provide deeper insights into the persistence and transformation of magical traditions in Nakhon Si Thammarat. While emphasizing the cultural significance of the belief in The Alms Bowl of

Brokenness, it is imperative to acknowledge the potential negative ramifications associated with practices related to black magic by striking a balance between highlighting cultural traditions and acknowledging potential harms.

Guidelines for solving conflicts according to Beliefs in Culture and Tradition of The Alms Bowl of Brokenness include the chairperson of the ceremony, the person performing the ceremony, the participants in the ceremony, the place of the ceremony, the ceremony date and time, the equipment for the ceremony and the steps for the ceremony:

(1) Chairperson of the ceremony: This role is typically filled by individuals with prior knowledge and experience in black magic and religious rituals. Such persons often serve as advisors and consultants in conducting ceremonies. They are respected and accepted by the community or group of individuals who adhere to Buddhism, demonstrating leadership qualities and the ability to instill confidence in those participating in the ceremony. The chairperson's role is crucial, as they not only represent the beliefs but also offer guidance and set an example for others.

(2) The person performing the ceremony: A practitioner proficient in black magic and religious rituals typically leads the ceremony, with the number of participants varying depending on its complexity. Typically, there are 3–5 individuals involved, including the officiant and assistants who support the proceedings. The selection of the officiant follows criteria similar to those used for choosing the leader of religious ceremonies, emphasizing knowledge and expertise in black magic, religious rituals, and the casting of magical spells aimed at counteracting curses.

(3) The participants in the ceremony: Individuals with expertise in black magic, such as shamans, mediums, or those skilled in performing ceremonies and utilizing magic spells, play crucial roles in these rituals. It is essential for individuals with familial ties to the afflicted individuals or households to partake in the ceremony, including family members affected by the curse. Additionally, community figures such as monks, village elders, or leaders may participate, adding significance and support to the proceedings. The number of participants typically ranges from 3–5 individuals or more, with most directly connected to the problematic events or seeking assistance.

(4) The place of the ceremony: The ceremony typically takes place in a temple, monastery, or teacher's office, esteemed locations revered by the community. The details are as follows: Preparation of the venue precedes the ceremony, ensuring cleanliness and orderliness to accommodate participants conveniently. Properly preparing the location contributes to establishing a sacred and authentic ambiance for the proceedings. During the ceremony, a group table is arranged with essential items, including incense sticks, candles, flowers, betel nuts, rice offerings, desserts, khao sib song (a selection of sweet and savory foods), white liquor, and tobacco (cigarettes in the local dialect). These items serve ceremonial purposes and enhance the sanctity of the occasion. Upon completion of the ceremony, a farewell ritual is conducted, and the ceremonial items are washed and cleansed. This act symbolizes the removal of negativity and biases, purifying the space for success in the desired outcome of the ceremony.

(5) Ceremony date and time: It is crucial to consider the day and time allocated for the ceremony due to religious and cultural beliefs associated with selecting the suitable timing for conducting it. Typically, preparations for various ceremonies are categorized into suitable periods and auspicious timings, such as mornings or afternoons, or based on auspicious times believed to hold significance. Adequate preparation is vital to ensure a smooth and effective ceremony. The preparation entails arranging the ceremony venue beforehand, adhering to the designated timeframe, and ensuring the availability of necessary equipment as prescribed. In the event of an error regarding the specified day or time for the ceremony, adjustments and rescheduling to other suitable times or days are made. These adjustments must take into account the auspicious timing and all relevant circumstances to uphold the significance and success of the ceremony. If it is not feasible to proceed on the scheduled day, one must await the identification of a suitable auspicious time on future occasions to fulfill the ceremony as intended.

(6) Equipment for the ceremony and steps for the ceremony: Equipment used for dispelling black magic holds symbolic importance in warding off malevolent forces and eliminating negative energies. Key items include rice seeds, symbolizing prosperity and used to dispel malevolence, strategically placed around a home to protect and bring good fortune. Sangkawannon nails, imbued with spiritual power, are hammered into house pillars or doors to repel ghosts, negativity, and enemies. Robes are ritualistically cast into rivers to cleanse households of malevolent influences and restore peace. The first menstrual blood of a virgin is believed to have the power to purge evil spirits from a home. Magic spells, along with the alms bowl of brokenness, are used to counteract curses and negate dark forces, promoting household harmony: "Put Tho Tam Hai Loot, Tam Mo Tam Hai Dub, Sung Kho Tam Hai Dub, Sung Kho Tam

Hai Soon, Sa Nead Jun Lai Jong Hai Pai Doi, Na Mo Put Ta Ya, Ya Ta Put Tho, Put Tho Tam Hai Loot, Tam Mo Tam Hai Dub, Sung Kho Tam Hai Soon, Sa Nead Jun Lai Jong Hai Pai Doi, Na Mo Put Ta Ya, Ya Ta Put, Mo Na Put Tho Tam Hai Loot, Tam Mo Tam Hai Dub, Sung Kho Tam Hai Soon

Sa Nead Jun Lai Jong Hai Pai Doi, Na Mo Put Ta Ya, Ya Ta Put Mo Na." Before beginning the ceremony, an auspicious time must be chosen. The practitioner should ensure proper timing and suitability. Several preparatory steps are required, including regular prayer to enhance concentration and connect spiritually with the ceremony. Cultivate mindfulness and focused intention. Develop empathy and understanding for oneself and others. Enhance the ceremony's effectiveness through moral practice. Sacred bath and parental respect, dispel negative energies and seek blessings for safety. During the ceremony, the ritual aims to dispel black magic curses. Key procedures include rice seeds, scattered around the house to bring auspiciousness. Sangkawannon Nails, hammered into house pillars, windows, or doors after the Patimokkha ceremony to repel negativity. Broken alms bowl, wrapped in robes and cast into a river to neutralize disharmony. Finally, float or submerge the bowl and seek forgiveness from Mother Earth and Mother Ganga to release the curse and bring peace. The use of a virgin's first menstrual period is rare, as it is believed to cause perpetual suffering, discouraging its practice.

The findings indicate that cultural beliefs in Nakhon Si Thammarat are deeply rooted in historical traditions and religious influences. The survey responses reveal that the majority of participants consider cultural heritage as a significant aspect of their daily lives. Key themes emerging from the data include the influence of Buddhism and animism, the role of local folklore in shaping community practices, and generational differences in cultural perceptions. In particular, respondents aged 50 and above demonstrated a stronger adherence to traditional beliefs compared to younger generations, who showed a tendency to reinterpret cultural practices within modern contexts. Additionally, the data highlight the role of religious institutions and local leaders in preserving and transmitting cultural knowledge. The results also reveal a shift in attitudes due to globalization and increased connectivity, with younger individuals expressing a growing openness to external cultural influences while still valuing their heritage.

Discussion

Factors affecting cultural beliefs and traditions regarding Magic on The Alms Bowl of Brokenness: This finding is consistent with the study of Channgam (1988). Magician, who provide treatment using methods that are not modern medicine but use rituals such as magical spells and herbs (Kachshima, 2004; Kaewwirat et al., 1988; Pratum, 2019). They are skilled in both healing and destruction or white magic and black magic (Channgam, 1988; Rattanasippakorn et al., 2017). Knowledge passed down from generation to generation, not through the normal education system and special training in rituals, requires a pure mind. The role of shamans in reflecting social changes varies across cultures and history (Chootrakul & Haocharoen, 2021). The phenomenon involves unique personality traits and characteristics. Individuals lead a secluded lifestyle, engaging in activities such as tattooing, paying homage to teachers, wearing talismans, and connecting with spirit power through mediums. Moreover, there is a belief in witchcraft and the practice of protection from black magic. Additionally, adherence to strict morality or the observance of the 5 precepts is emphasized (Office of the National Culture Commission, 1995; Piyakul, 1997; Rotcharoen et al., 2020; Supsin et al., 2018). It is required to train one's mind through prayer, and abstaining from certain foods (Tamkrong, & Vongmonta, 2019). The study of witchcraft has experienced a slight decline over time. Nonetheless, interest in this subject persists among certain groups (Khamdee, 1991; Sangthong, 2021). Knowledge of witchcraft is traditionally transmitted through religious institutions. Moreover, the effectiveness of black magic spells hinges on the clarity of pronunciation, as each word possesses specific powers. Incorrect pronunciation can result in undesired or hazardous outcomes. Particularly, the black magic spell known as the alms bowl of brokenness may have adverse effects and should be utilized with caution (Sangthong, 2021). The ceremony involving black magic for the broken alms bowl employs various tools, including betel nuts, betel leaves, colored leaves, and broken alms bowls, acquired by stealing monk alms bowls from the temple (Thongpan, 2018). This action contradicts moral principles and lacks reverence for sacred items. The utilization of black magic aims to cause harm or discord within families (Salguero, 2016; Tambiah, 1989). The objective is to cast a curse or inflict harm using a broken monk's bowl while establishing a suitable location for the ceremony. Typically, secluded areas away from the community are chosen, and essential

items such as betel nuts and leaves are prepared to facilitate the black magic rituals, aiding in concentration. Subsequently, incantations are recited, and the monk's alms bowl is shattered, often by throwing or striking it with a heavy object. Upon completion of the ceremony, the broken bowl is buried in the ground. To safeguard against potential repercussions, the black magician employs protective spells to ward off curses or the return of black magic (Salguero, 2016; Tambiah, 1989).

Guidelines for solving conflicts according to Beliefs in Culture and Tradition of The Alms Bowl of Brokenness: This is a process that reflects a combination of spiritual beliefs and the need to preserve rituals in the local community (Temcharoenkit, 2018). The study's findings indicate a significant role in imbuing rituals with meaning. Consistent with Muenrak's (2020) research, the ceremony's leader is recognized as a representative of beliefs and culture. Their role entails providing guidance, serving as a role model for participants, and influencing the creation of a conducive atmosphere for ceremonies, drawing upon expertise and experience in black magic and religious rituals (Kotsupho, 2006; Nankhanti, 2008; Supsin et al., 2018). Proficiency in black magic is essential for the successful completion of the ritual. Participants, including family members or close associates of those afflicted by the Magic of the alms bowl, play a supportive role and engage in the prescribed ceremony. Conducting black magic ceremonies serves not only as a cultural expression but also as a means of upholding reverence for sacred matters within the community (Kroeber & Kluckhohn, 1952; Wasi, 2004). This is particularly related to communities with prevalent superstitious beliefs, such as those in Nakhon Si Thammarat province (Division of Information and Communication, Nakhon Si Thammarat Provincial Office, 2024; Office of the National Culture Commission, 1995). Contemporary progress and livelihoods necessitate a delicate balance between cultural beliefs and societal needs (Kaewthep, 1990; Kitiarsa, 2014; Ramitanont, 1994; Santisombat, 1997; Suphap, 1975; Wangpan, 2023). Ceremonies typically take place in temples or monasteries, regarded as sacred spaces within the community. Prior arrangements ensure the location is tidy and organized (Pratum, 2019). A communal table is arranged with symbolic items like incense sticks, candles, flowers, and betel nuts. After the ceremony, a farewell ritual clears the space of malevolent influences. Meticulous planning of the ceremony's date, time, and location is essential for its success, preserving its sanctity, significance, and cultural heritage.

Various tools and rituals are employed to address the Magic of broken bowls, such as rice seeds for farming, Sangkawannon nails, or ordinary nails. Additionally, the use of a virgin's first menstrual period and monk robes requires careful consideration. The ceremonial process commences with selecting an auspicious time (Reynolds, 2015), followed by paying homage to one's parents and seeking their protection for the participants of the ceremony, accompanied by earnest prayers (Supsin et al., 2018). To enhance focus and align the mind with the ceremony, rice grains are utilized along with Sangkawannon or ordinary nails to dispel curses and shield against malevolent forces. Subsequent to the completion of the ritual aimed at curing the black magic associated with broken bowls, the bowl is either floated or weighted down in water to cleanse it of negativity, while apologies are offered to Mother Earth and Goddess Ganga to facilitate the cessation of the bowl's magic. The utilization of black magic tools and rituals for treating black magic aims to purge homes or families of evil and negative influences, aligning with cultural beliefs and inherited traditions within the community (Kunnamas et al., 2017). This serves as a means for community members to understand and uphold local customs and culture, thereby contributing to the preservation and propagation of cultural heritage. Moreover, comprehending fundamental beliefs and practices related to black magic facilitates knowledge-sharing, fostering a connection with tradition and culture (Treesap et al., 2015). Such beliefs and traditions can also serve as a framework for resolving conflicts and promoting sustainable coexistence within society and culture.

These findings align with previous studies on cultural continuity and adaptation, emphasizing the dynamic nature of traditional beliefs. The prominence of Buddhism and animism in shaping local customs is consistent with the work of Tahara et al. (2023), who argue that religious syncretism plays a crucial role in sustaining cultural identity in Southeast Asia. The generational gap observed in this study reflects broader societal trends, as noted by Haux et al. (2021), where younger populations engage with heritage differently due to digital exposure and education. This shift suggests an evolving cultural landscape rather than a complete decline in traditional beliefs. Furthermore, the role of local leaders and religious institutions remains vital in maintaining cultural practices. As highlighted by Mccloud (1995), and Sanmee (2024), community leaders act as intermediaries between tradition and modernity, ensuring cultural transmission while allowing for necessary adaptations. Overall, the results underscore the resilience of cultural beliefs in Nakhon Si Thammarat

despite external influences, highlighting the importance of intergenerational transmission of cultural knowledge in fostering both preservation and innovation.

Conclusion and Recommendation

The magic of the alms bowl of brokenness is deeply rooted in cultural traditions and involves using rituals, and spells as alternative methods to modern medicine. Practitioners, skilled in both healing and harm, are categorized into white magic and black magic users.

They gain knowledge through ritual training and a morally disciplined mindset rather than formal education. Shamans who perform these rituals lead secluded lives, adorned with tattoos, talismans, and engaged in spiritual practices. Strict adherence to the five precepts and mental disciplines like prayer is essential to ensure purity in these practices. Spells such as The Alms Bowl of Brokenness are potent and must be performed accurately, as errors can cause unintended harm. This ritual involves stealing a monk's bowl from a temple, breaching sacred boundaries, and potentially leading to familial conflicts. Protective spells are necessary afterward to prevent backlash from the negative energy released. Conflict resolution through these rituals integrates spiritual beliefs, local customs, and community cohesion. The ceremony leader's role is crucial, guiding participants with proficiency in both black magic and religious rituals. Rituals are held in sacred community spaces like temples, carefully planned with auspicious dates and symbolic items such as incense, candles, flowers, and betel nuts. The process includes paying homage to ancestors, performing protective spells, and concluding with rituals to dispel negative energies. By blending traditional beliefs with modern social needs, these practices maintain cultural heritage and offer a structured approach to conflict resolution, reinforcing the community's identity and cohesion.

Conflict of Interest

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare absence of conflicting interests with the funders.

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The swear word "Anjing" as a tool of dehumanization: A study of Indonesia football supporters' behaviour

Faridhian Anshari[a,*], Irwan Martua Hidayana[b,†]

[a] *Department of Communication, Faculty of Communication Science. Universitas Pancasila. Jakarta 12640, Indonesia.*
[b] *Department of Anthropology, Faculty of Social and Political Sciences. Universitas Indonesia. Jakarta 16424, Indonesia*

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Abstract

The relationship between humans and animals in the context of sports reveals intriguing insights into human behaviour. Dogs, once a symbol and a mascot, have now experienced a troubling shift. They are subjected to swearing by Indonesian football supporters, expressing emotions during matches using the swear word "Anjing" (meaning "dogs" in English). This study aims to analyse the meaning and impact of such swearing on supporters' behaviour. Applying the theory of Dehumanization and Ethnography of Communication, this research employed participants observation, in-depth interviews, and document studies. Observing supporters' behaviour during twenty-one football matches from January 2022 to June 2023, and interviewing five football supporters, the study explores the meaning behind swearing behaviour. The findings revealed that the swear word "Anjing" represents a form tool of dehumanization indicating diverse characteristics adaptable to various subjects. The primary intention is to dehumanize opposing supporters. This choice of swearing target can degrade human subjects compared to animals, particularly in Indonesia, where dogs are associated with uncleanliness and thievery in religious and cultural contexts. Using "Anjing" in swearing may incite verbal retaliation and potential escalation to violence. A novelty from this study shows that animals can become objects of profanity, serving as a tool form of dehumanization. Especially in Indonesia, dogs, which are associated positively elsewhere, are transformed into derogatory objects to demean humans. In conclusion, this study sheds light on the complex implications of employing "Anjing" as profanity, highlighting the intertwining of sociocultural beliefs with sporting expressions and its impact on supporter behaviour.

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* Corresponding author.
E-mail address: faridhian@univpancasila.ac.id (Anshari, F.).
† Co-first authors.

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Introduction

The present study centres on Indonesia, where the phenomenon of swearing and cursing constitutes a subject of inquiry with diverse objects that metaphorically exemplify such expressions. These objects, ranging from adjectives and verbs to nouns, prominently manifest in Indonesian discourse, with the use of animal-based metaphors being a prevailing means of spontaneously conveying emotional responses (Heider, 2021). The employment of animal objects as swearing metaphors reflects their symbolic significance, grounded in widespread social perceptions regarding these creatures (Tambunsaribu, 2020). Notwithstanding, such linguistic choices might engender multifaceted negative connotations, potentially influencing unfavourable interpretations of the objects in question.

Within the purview of this research, the focus lies on football supporters in Indonesia, who frequently resort to employing a diverse array of objects for swearing (Firdaus & Trilia, 2020). In the context of football, which accentuates human physicality, the selection of animal objects as vehicles of emotive expression during match-watching is deemed apropos. This choice is informed by the broader social construction of these animals, as embedded in folkloric narratives and shared cultural understandings that have persisted through generations. Furthermore, religious aspects play a role in shaping perspectives toward certain animals, positioning them either as objects of veneration or aversion. Social perspectives, intertwined with cognitive patterns, behavioural norms, and intergenerational transmission, significantly contribute to the varying interpretations surrounding the objects (Lafreniere et al., 2022).

In Indonesia, dogs (they are commonly referred to as "Anjing") hold a dual role as both a domesticated animal closely associated with human companionship and a symbol of impurity. This symbolic duality arises from the perception of dogs' saliva, which is considered ritually impure (haram) within Islamic teachings. This context is particularly significant given that the majority of Indonesia's population adheres to Islam, comprising approximately 87.51 percent of the population (Forth, 2019). Thus, because "Anjing" is perceived to embody negative traits, it can transform into a term used to express emotions related to an object or subject. This term can be employed both individually and collectively, as seen in groups or communities, such as football supporter groups.

As a sport highly cherished by the populace in Indonesia, football surpasses badminton and boxing to stand out as a prominent athletic pursuit (Harjo, 2022). Nonetheless, its presence is somewhat decorative due to the limited number of accolades achieved. Despite this, the unwavering support from the Indonesian supporters as a community, manifested in fervent supporters, engenders the nation's identity as a football-centric entity within the regional realm of Asia (Fuller, 2015). Being a part of the supporters is endowed with significance, signifying affiliation with a larger community united in endorsing football clubs or teams aspiring to achieve remarkable distinction (Nakpanom, 2020).

The identity of a supporter is pervaded by emotional investment and the longing for continuous excellence from the favoured clubs or teams. This emotional involvement, in turn, engenders inner turmoil among supporters who perceive themselves as integral constituents of the teams they passionately advocate (Hollanda & Busset, 2023). Consequently, in Indonesia, when a football club represents a specific locality (e.g., Persija FC symbolizing Jakarta), a defeat in a match can lead the supporters, to experience a sense of disgrace and blandishment on behalf of their city (Fuller, 2015). This deep-rooted sense of belonging constitutes a crucial element in the cognitive and behavioural aspects of Indonesian supporter culture.

The enduring support extended by individuals and supporter groups toward their cherished clubs or teams becomes an intrinsic activity ingrained in their psyche, conduct, and daily lives, thus fostering the development of a distinctive supporter culture (Nakpanom, 2020). This emergent culture also gives rise to various rituals practiced by fans to assert their identities as dedicated supporters (Besnier et al., 2018). Examples of such rituals encompass the physical presence of supporters in stadiums during matches and their active involvement in fervent confrontations with fans of rival clubs. Remarkably, these rituals often involve manifestations of support that may not be visually evident, such as vocal expressions conveyed through chants and taunts (Firdaus & Trilia, 2020).

Swear words, as a linguistic phenomenon, encapsulate emotive and affective dimensions conveyed indirectly by the uttering subject. Their communicative content may encompass expressions of support, derision, affirmation, or even intimidation, thereby eliciting manifold significations and perceptions directed toward the targeted interlocutors (Stapleton et al., 2022). Within the milieu of football supporters, invective functions as a medium of communication, fostering connections between supporters and players, as well as antagonistic relations with rival supporters (Ahmad et al., 2023). Such

communicative acts are predicated upon articulating latent or heightened emotions and enduring experiences (Knapton et al., 2018). The performative process of invective enunciation is further facilitated through the strategic use of metaphors, a linguistic practice that resonates prominently within Indonesian culture, where animalistic figures, including "Anjing", are frequently deployed (Forth, 2019).

The word "Anjing" which means "dogs" in English, as the principal target of invective in colloquial discourse across Indonesia is underpinned by an intricate interplay of social, cultural, and religious contextual forces. Socio-culturally, specific segments of Indonesian society construe dogs as emblematic of thievery (Forth, 2019). From a religious vantage point, adherents of Islam, constituting most of the Indonesian populace, ascribe ritual impurity to dogs, rendering them objects of avoidance (Kharputly, 2020).

The amalgamation of these socio-cultural and religious perspectives engenders a distinct set of assumptions and perceptions, characterizing dogs as inferior and repulsive creatures, thereby precluding their legitimate ontological parity with other animals, especially humans. As a discursive strategy, the promulgation of such perceptions seeks to effectuate the dehumanization of interlocutors or targeted subjects (Firdaus & Trilia, 2020), through the instrumentality of invective employing the swear word "Anjing". By deploying such linguistic weaponry, swear words producers endeavour to inscribe perceptions of their recipients as thieves and repugnant entities (Stephens et al., 2022), irrevocably relegated to an inferior ontological status bereft of commensurability with the human.

Consequently, the use of "Anjing" as a metaphoric object of a swear words articulated by football supporters in Indonesia has coalesced into a deeply entrenched tradition (Ahmad et al., 2023), evincing distinctive contours vis-à-vis analogous expressions of invective adopted by supporter communities in other national settings (Firdaus & Trilia, 2020). The employability of "Anjing" as a lexical resource in this capacity diverges due to the non-universality of the socio-cultural and religious perspectives on dogs in other cultural contexts, where canines are extolled instead. Therefore, the act of invective enacted by football supporters using swear words (Stapleton et al., 2022), with "Anjing" as its principal lexical signifier can be construed as an instance of verbal dehumanization vis-à-vis fellow human subjects.

Considering the foregoing, the present inquiry endeavours to undertake a comprehensive analysis of the semiotics and meaning of the swear word "Anjing" used by Indonesian football supporters as a metaphoric object, encompassing a multi-dimensional perspective that spans the social, cultural, and religious realms. By this comprehensive inquiry, the research outcomes are poised to evince that swear words deployed by football supporters may be aptly classified as a form of verbalized violence, fundamentally predicated upon the degradation of fellow human subjects, therein assuming the features of dehumanization.

Literature Review

Swearing serves as both a medium and a message, influencing people's behaviour (Hostetter & Rascon-powell, 2022). It can shift individuals from calmness to emotional intensity. Swear words are often metaphorical and may convey various meanings and emotions, such as intimidation and dominance. This oral tradition plays a significant role in language and communication, allowing senders to convey messages effectively. In a broader context, conveying a message involves four interconnected steps (Loic, 2020). Firstly, the message is produced and made public. Then, it is organized for effective communication with the intended audience. This phase emphasizes specific language, including swearing expressions. After achieving communication goals, the message can be further modified using linguistic and cultural elements. The final step is delivering the message to the recipient, who interprets it positively or negatively based on how it was conveyed during communication.

In the process of conveying a message, several vital elements come into play to ensure effective communication and understanding between individuals. According to Dell Hymes (2004), these key components include the genre, which represents the type of activity or medium used for expressing the message. The topic remains central to the message, ensuring its relevance and coherence. The purpose of the message determines its intended direction, whether for the general public or specific individuals. Context setting involves considering factors like location, time, age, and duration to maintain the message's relevance and appropriateness. The key component emphasizes the tone and tempo, conveying the emotions of the communicator. Participant characteristics, such as age, gender, ethnicity, social status, and relationship, are considered to target the message effectively.

The form, encompassing both verbal and non-verbal aspects, employs suitable language for the intended audience. The content constitutes the core information

of the message, conveyed with literal meaning to avoid ambiguity. The art of sequence ensures a well-organized message delivery, preventing overlaps and considering the quantity of information transmitted. Interaction involves observation and attention to details surrounding the subject or object to enhance the message's contextual relevance. Lastly, interpretation acknowledges that the recipient's understanding of the message is influenced by their knowledge and cultural background, ultimately shaping their perception of its meaning (Hymes, 2004).

Football supporters' behaviour, which includes expressing both support and insults towards their idols or opponents, reflects emotional impulses conveyed through swearing activities (Anshari et al., 2023). While swearing shares similarities with other related words in a language, the focus lies on asserting dominance and demeaning the target (Hostetter & Rascon-powell, 2022). This is linked to the concept of dehumanization, in which ideologies aim to degrade individuals. Swearing also manifests as verbal violence, demonstrated through language and spoken communication (Knapton et al., 2018). Emphasizing freedom of expression and emotional release through words can lead to interpretations that cause intimidation or marginalization of the target (Lafreniere et al., 2022). In football, supporters are often associated with instigating violence, leading to conflicts (Hollanda & Busset, 2023).

The ideology of dehumanization in football supporter behaviour and violent actions is rooted in three interconnected factors. Firstly, emotional release through aggressive actions, fuelled by misrepresentation and misinterpretation (Charles & Rah, 2019). Supporters engaging in violence or demeaning others mistakenly believe themselves to be part of the competing party, driven by a desire to outdo the opposing side. The second factor is related to expectations, where unexpected results can trigger emotions leading to aggressive behaviour. Lastly, the social aspect, motivating supporters to engage in violent actions to feel a sense of belonging to a group and be recognized for their existence, shaping their identity as supporters and being part of the community (Knapton et al., 2018).

Sports activities are closely intertwined with human actions, behaviour and habits, forming a distinct culture over time (Besnier et al., 2018). Human body movements, including both visible and unseen gestures originating from the sensory organs, such as the five senses, contribute to this cultural aspect. Verbal communication, accomplished through speech, particularly through the mouth, plays a key role in sports. It facilitates the exchange of messages among actors, such as athletes, players, clubs, and supporters (Hollanda & Busset, 2023). Understanding these messages is essential as it determines the subsequent responses of the recipients. Misinterpretation of messages can lead to undesirable outcomes, which can give rise to discourses resulting in vandalism, violence, or even genocide (Charles & Rah, 2019).

Methodology

This study adopts a qualitative approach, prioritizing an in-depth examination of the subject matter through the researcher's interpretive lens, thereby establishing the researcher as the primary instrument for data collection (Heider, 2021). The research primarily adopts the method of ethnography, supplemented by in-depth interviews and the retrieval of pertinent archives and documents to augment the data acquisition process. This methodological approach allows for geographical flexibility, as observations are not confined to a singular locale but are extended to various football stadiums within the regions of Java and Bali. The duration of the observation period spanned 18 months, commencing in January 2022, and culminating in June 2023. Throughout this period, the study encapsulated 21 football matches, encompassing three distinct tiers of competition involving the Indonesian national team.

To provide a clearer overview of the observational context, the football matches included in the fieldwork are summarized below. These matches represent the primary sites of ethnographic observation conducted throughout the research period. Table 1 shows the list of football matches observed during the study.

The observation endeavours to comprehensively capture the multifaceted dynamics of supporter behaviour by adopting a meticulous observational process divided into distinct phases: pre-match, in-match, and post-match observations (Besnier et al., 2018). The pre-match phase is dedicated to capturing the diverse gamut of emotions and pivotal moments among football supporters as they converge upon the stadium, their collective anticipation fuelled by the tangible prospect of triumph. The subsequent in-match phase assumes the form of a discerning lens, keenly attuned to documenting the supporters' expressions of elation or disillusionment in response to their favoured team's performance. In parallel, the post-match phase signifies a critical juncture, characterized by the manifestation of supporter behaviour reflecting contentment or discontentment with the outcome of the match.

Table 1 List of observed football match

No	Date	Opponent	Venue	Agenda
1	01/ 27/ 2022	Timor Leste	Bali	FIFA Match Day
2	01/ 30/ 2022	Timor Leste	Bali	FIFA Match Day
3	06/ 01/ 2022	Bangladesh	Bandung	FIFA Match Day
4	09/ 14/ 2022	Timor Leste	Surabaya	Qualification Asia Cup U-19
5	09/ 16/ 2022	Hongkong	Surabaya	Qualification Asia Cup U-19
6	09/ 18/ 2022	Vietnam	Surabaya	Qualification Asia Cup U-19
7	09/ 24/ 2022	Curacao	Bandung	FIFA Match Day
8	09/ 27/ 2022	Curacao (2nd Leg)	Bogor	FIFA Match Day
9	12/ 23/ 2022	Kamboja	Jakarta	AFF Cup
10	12/ 29/ 2022	Thailand	Jakarta	AFF Cup
11	01/ 06/ 2023	Vietnam	Jakarta	AFF Cup
12	02/ 17/ 2023	Fiji	Jakarta	Friendly Match U-20
13	02/ 19/ 2023	New Zealand	Jakarta	Friendly Match U-20
14	02/ 21/ 2023	Guatemala	Jakarta	Friendly Match U-20
15	03/ 25/ 2023	Burundi	Bekasi	FIFA Match Day
16	03/ 28/ 2023	Burundi (2nd Leg)	Bekasi	FIFA Match Day
17	04/ 11/ 2023	Bhayangkara FC	Jakarta	Friendly Match
18	04/ 14/ 2023	Lebanon	Jakarta	FIFA Match Day
19	04/ 16/ 2023	Lebanon (2nd Leg)	Jakarta	FIFA Match Day
20	06/ 14/ 2023	Palestina	Surabaya	FIFA Match Day
21	06/ 19/ 2023	Argentina	Jakarta	FIFA Match Day

The analytical framework governing the investigation of the subject's behaviour is rooted in the "speaking" approach (Hymes, 2004). Through this comprehensive lens, the ethnocentric movements of the supporters in the act of swearing are deemed a nuanced communicative process, where intricate exchanges of messages with diverse interlocutors transpire within the stadium milieu during the unfolding of matches. To supplement the primary data, the research adopted an in-depth interview technique, involving the selection of specific subjects who exemplified the quintessential football supporters passionately endorsing their teams by attending matches in person. The chosen informants, totalling five individuals aged between 21 and 40, were selected based on their active involvement in the context of match attendance, irrespective of gender, as the primary focus remains resolutely fixed on unravelling the intricate tapestry of supporter conduct during the live proceedings. Notably, the informants were astutely observed during the matches by the researcher, where instances of verbalized invectives utilizing the term "Anjing" as an emotive outlet were meticulously documented.

This study applies the framework of linguistic ethnography to investigate the semantic transformation of the term "Anjing" within the context of Indonesian football supporter culture. Initially denoting a literal animal, "Anjing" has evolved into a derogatory symbol, functioning as a tool for dehumanization aimed at rival supporter groups. This shift in meaning is not merely linguistic but is intricately linked to broader social dynamics, where the word becomes a marker of social distinction and an expression of rivalry.

The observation focused on understanding the use of the term "Anjing" in football supporter interactions by selecting high-stakes matches and strategically observing both in-stadium and outside interactions. Data collection involved non-interventionist methods such as direct observation, audio-video recordings, and contextual photographs, capturing the term's usage during emotional moments like conflicts, chants, or dramatic outcomes. Observations spanned various supporter groups and match intensities to identify patterns in frequency, emotional intensity, and targets of the term. Combined with post-observation interviews, this approach validated findings, revealing the term's evolving meaning and role as a tool of dehumanization within football supporter culture.

Additionally, the research explores the implications of these linguistic changes within the framework of social studies, emphasizing how language reflects, reinforces, and shapes social power relations and collective identities. By situating these findings within the broader context of cultural and social change, the study highlights the intersection of language, identity, and power, offering critical insights into how language can function as both a mirror and a tool of societal transformation.

Post-observation, the researcher assiduously approached the informants, seeking their informed consent to engage in interviews. The selection of

informants, originating from five distinct locales aligning with the match venues (namely, Jakarta, Bandung, Bekasi, Bogor, and Surabaya), was strategically executed to illuminate the variances in cultural understandings associated with the concept of "Anjing" as a swear word or an animal.

To provide an overview of the interview participants involved in this study, the following table summarizes the football supporters who took part in the interviews. The participants were selected from several locations corresponding to the match venues in order to capture variations in cultural interpretations of the term "Anjing." Table 2 shows the list of interview participants included in this study.

The criteria for selecting informants to strengthen the primary observational data include individuals who are members of national football supporter groups, with valid membership cards. They must have attended at least 10 live matches, demonstrating an understanding of the stadium atmosphere and the role of supporters. Additionally, informants must reside in different regions, particularly in cities that have hosted national team matches. A key criterion is that they have used the word "Anjing" as an insult during matches, relevant to the study's focus. Informant selection is not based on gender, age, religion, or education level. Snowball sampling was employed, with informants selected based on recommendations from previous participants. In the end, five informants were selected, meeting the criteria.

The interview process took place in different time sessions, in the period January to May 2023. In parallel to the primary data, the research harnesses supplementary materials in the form of academic literature, encompassing scholarly journals, as well as popular texts that chronicle media reports, and various cases that record the behaviour of football supporter.

Table 2 List of interviews with football supporters

Interviewee	Name	Age	Place of origin	Date of Interview
1	Ridwan	24 years old	Bandung	January 6th, 2023
2	Fandy	35 years old	Jakarta	February 19th, 2023
3	Agus	40 years old	Bekasi	March 12th, 2023s
4	Joni	31 years old	Surabaya	April 2th, 2023
5	Safira	21 years old	Bogor	May 27th, 2023

Results

The present study centres on Indonesia, where the phenomenon of swearing and cursing constitutes a subject of inquiry with diverse objects that metaphorically exemplify such expressions. These objects, ranging from adjectives and verbs to nouns, prominently manifest in Indonesian discourse, with the use of animal-based metaphors being a prevailing means of spontaneously conveying emotional responses (Heider, 2021). The employment of animal objects as swearing metaphors reflects their symbolic significance, grounded in widespread social perceptions regarding these creatures (Tambunsaribu, 2020). Notwithstanding, such linguistic choices might engender multifaceted negative connotations, potentially influencing unfavourable interpretations of the objects in question.

Within the purview of this research, the focus lies on football supporters in Indonesia, who frequently resort to employing a diverse array of objects for swearing (Firdaus & Trilia, 2020). In the context of football, which accentuates human physicality, the selection of animal objects as vehicles of emotive expression during match-watching is deemed apropos. This choice is informed by the broader social construction of these animals, as embedded in folkloric narratives and shared cultural understandings that have persisted through generations. Furthermore, religious aspects play a role in shaping perspectives toward certain animals, positioning them either as objects of veneration or aversion. Social perspectives, intertwined with cognitive patterns, behavioural norms, and intergenerational transmission, significantly contribute to the varying interpretations surrounding the objects (Lafreniere et al., 2022).

The particular use of Anjing' as the swearing word and the focal point of this investigation is attributed to its frequent utterances by football supporters during matches. Its selection is perceived as aptly capturing the emotionally volatile nature of such enthusiasts, contingent upon the unfolding circumstances on the field. The spontaneous nature of swearing practices bolsters the notion that the term "Anjing" is well-suited to encapsulate diverse emotive moments during a match (Anshari et al., 2023). Importantly, this choice is discerned vis-à-vis alternative animal objects, such as 'Babi' (Pig) or 'Monyet' (Monkey), contingent on prevailing societal perceptions surrounding the selected fauna.

"... Swearing using 'Babi' is not as appealing, as not everyone has encountered or seen a pig. Most people associate pigs only with Christians. Consequently, when

someone uses 'Babi' as a swear word, individuals of other religious beliefs will not relate to it!" (Fandy, 2023).

"... 'Monyet' is rarely employed as a swear word during matches, as it is associated with mocking players with dark skin. It is often linked to racist actions. We do not condone racism; our intention is solely to express our emotions." (Ridwan, 2023).

In accordance with the perspectives shared by the informants, it is evident that the choice of animal-based swear words is subject to nuanced considerations based on social and cultural perceptions. The two animals discussed, namely, 'Babi' (Pig) and 'Monyet' (Monkey), elicit distinctive reactions from the supporters in terms of their appropriateness for swearing purposes. The first informant points out that 'Babi' is not a preferred swearing object due to its limited universality. The animal's association primarily with Christians creates a potential disconnect for individuals from other religious backgrounds when exposed to this term as a form of expletive. Such concerns highlight the significance of shared cultural understandings and religious connotations that underscore the reception of specific swear words.

Similarly, the second informant notes that 'Monyet' is seldom employed as a swearing word during football matches. This reluctance is attributed to its connotation with racial mockery, commonly associated with demeaning players with dark skin. The informants emphasize the collective disapproval of racist actions among the supporters, signifying their conscientiousness regarding the potentially harmful implications of animal-based metaphors.

These insights reflect the broader intricacies underlying the adoption and avoidance of animal-based swearing in football discourse. The choice of animal objects as vehicles for expressing emotions necessitates an awareness of their cultural symbolism, historical associations (Harjo, 2022), and implications for diverse audiences (Tambunsaribu, 2020). The avoidance of terms showcases the supporters' cognizance of fostering a more inclusive and respectful atmosphere amidst the fervent emotions surrounding football events. This multifaceted examination of animal-based swear words within the football context contributes to the understanding of linguistic practices, cultural dynamics, and social sensitivities.

Based on rigorous observations, augmented by in-depth interviews with diverse subjects, the rationale behind the selection of "Anjing" as the object of swearing can be attributed to its frequent usage and linguistic evolution entrenched in the subjects' vernacular from early developmental stages. Subsequently, a comparative analysis was conducted, contrasting "Anjing" with other animal referents such as 'Babi' and 'Monyet', wherein the latter two were deemed less appropriate for profane usage in the football context.

The adoption of "Anjing" as a swearing object is considered to encompass a broad spectrum of emotional expressions, owing to its universal recognition and familiarity among all parties involved (Hostetter & Rascon-powell, 2022). The implications of such linguistic choices are intrinsically tied to social perspectives, which are further nuanced by religious and cultural facets. From a religious vantage point, the majority-Muslim composition of Indonesia shapes perceptions of dogs as impure creatures, rendering them forbidden to be touched. The doctrinal underpinning of this perspective is derived from authoritative Islamic texts, most notably the Quran and supplementary sources like Hadith (Kharputly, 2020).

Moreover, beyond religious considerations, the subjects' social cognitions surrounding dogs as a profane object are informed by prevalent cultural portrayals. In Western societies, dogs are commonly regarded as loyal and cherished pets, whereas in Indonesia, they are more frequently associated with stray animals, precluding their suitability for human companionship (Forth, 2019). This discernment is reinforced by the observation that dog ownership predominantly occurs within more affluent socioeconomic strata (Halonen & Laihonen, 2021), whereas the football supporters resorting to "Anjing" as a profane term typically hail from lower to middle socioeconomic backgrounds. Consequently, this social perception construes dogs as unsuitable for domestication within lower socioeconomic communities.

The multifaceted rationale behind the selection of "Anjing" as a swearing object encompasses linguistic usage, religious beliefs, and social perceptions. This empirical inquiry sheds light on the intricate interplay of linguistic practices, cultural values, and religious influences. By delving deeper into the complexities of emotive expressions within diverse social settings, this academic investigation paves the way for further explorations into the broader implications of animal-based swearing in the realm of sports and sociolinguistics.

The prevailing negative perceptions concerning dogs, characterized by their existence without ownership and their feral nature, contribute significantly to their widespread depiction as unclean animals. These views are intricately intertwined with religious considerations (Islam), where dogs' saliva is symbolically associated with impurity (Kharputly, 2020). Such perceptions underscore the justification for their prohibition and

subsequent avoidance of Islamic religious practices. Moreover, dogs scavenging behaviour, subsisting on refuse and occasionally pilfering food from various sources, further reinforces the perception of dogs as thieving animals, prompting their exclusion and repulsion from human habitation. These culturally constructed beliefs, transmitted through generations, foster the prevailing conception that dogs are inherently impure creatures, unfit for close association with human society.

"... fundamentally, the reason why I swear using "Anjing" is because, in my opinion, dogs are considered animals forbidden in Islam, and I am a follower of Islam. So, when I call someone 'Anjing,' it means that person should be avoided..." (Safira, 2023).

"... The reason is simple, in my region, stray dogs often steal food from people's homes, making them perceived as mischievous creatures. So, when I use the word 'Anjing,' it implies that the person I refer to is dirty and should be cast away from society..." (Agus, 2023).

In the context of supporters who employ the swear word, the informant from Bogor revealed that the choice of "Anjing" is deeply rooted in religious convictions. For her, "Anjing" is considered a suitable expletive due to its association with the prohibition of dogs in Islam. Likewise, an informant from Bekasi explicated the simplicity behind using "Anjing" as a profanity, grounded in the prevalent societal portrayal of dogs as unclean creatures engaged in scavenging activities. Consequently, the use of "Anjing" serves to stigmatize the individual being referred to, likening them to stray dogs causing disruptions in human communities.

The interpretations provided by the football supporter subjects tend to converge upon the notion that dogs are animals associated with the concept of "haram" or religious prohibition, indicating the restriction of proximity to dogs due to inherent qualities. The contextual understanding of dogs as creatures to be avoided also gives rise to the belief that dogs do not possess an equal standing with humans (Tambunsaribu, 2020). This religious perspective engenders a hierarchical differentiation, placing humans above dogs in the societal stratum.

Moreover, the comprehensive cultural viewpoint, widely embraced within society, encompasses the portrayal of dogs as unclean and feral animals, rendering them unsuitable for domestication and on par association with humans. The social context further underscores the prevailing perception of dogs as primarily belonging to the middle to upper-middle economic strata (Halonen & Laihonen, 2021), thus diverging from the football supporters in Indonesia, who predominantly hail from lower to middle socioeconomic backgrounds. Figure 1 below illustrates a concrete example of this phenomenon within the stadium setting, depicting Indonesian national team supporters directly expressing their reactions during the match. In response to various moments on the field, supporters frequently swear or shout the word "Anjing" as a form of spontaneous verbal outburst directed at players, referees, or match situations



Figure 1 Supporters used "Anjing" as an object of swearing during football match

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The selection of dogs as profanity reveals a perception of these animals as inferior to humans. Consequently, dogs are deemed unworthy of coexistence with humans, which in turn perpetuates the notion that their existence should be eliminated from society. This framework closely aligns with the understanding of dehumanization (Charles & Rah, 2019), which originally posits the exclusion of certain individuals or groups from equal standing with others, thereby justifying their eradication (Kharputly, 2020). In this context, dogs, symbolizing entities deemed unworthy of existence, can serve as objects of dehumanization that may be directed towards other individuals or groups as targets of expression.

Discussion

This section of the discussion further explores the role of "Anjing" as an object of insult in both individual and collective behaviour and perspectives among football supporters in Indonesia. The focus shifts from the

background of selecting the word "Anjing," as discussed in previous sections, to a deeper examination of its evolving meaning and role as a tool of dehumanization, which aligns with the study's main findings.

The collective perspectives of the football supporters exemplify the intricate interplay between religious, social, and cultural factors that shape their conceptualization of the relative position of dogs in relation to humans. These perspectives have potential ramifications for the treatment of animals and shed light on the manifestation of dehumanizing tendencies towards specific individuals or groups within society. Therefore, Figure 2 below illustrates the foundational background behind the selection of the word "Anjing" as a preferred object of swearing, explaining the meaning, objectives, and emotional reasoning that underlies its use as a dehumanizing expression within supporter discourse.

The present discourse delves into the semiotic significance of profane expressions, particularly the derogatory use of the swear word "Anjing" in the context of football supporters. The study seeks to elucidate how such profanities function as vehicles for the dehumanization of certain subjects, thereby perpetuating a hierarchical distinction between self and others within the football spectatorship realm. The swear word "Anjing" assumes a dual role in this context, serving both as a pejorative expression and as a mechanism of dehumanization. When employed by football supporters, it predominantly fulfils the primary purpose of demeaning and debasing individuals or groups they perceive as adversaries or disruptors within the context of the game. Not merely confined to mere insult, the application of this derogatory term is more insidious, as it denies the targeted subjects the fundamental equality as fellow human beings.

In the milieu of football stadiums, where emotions run high, football supporters utilize the profanity "Anjing" as an emotive outlet in response to various occurrences during the match (Anshari et al., 2023). To comprehend the underlying motivations and implications of employing "Anjing" as a profane object of dehumanization, this study focuses on the targets of such profanities. These targets encompass various actors engaged in football matches, including players from the supported or opposing teams. Moreover, opposing supporters often serve as primary recipients of these derogatory utterances, given their role as fitting adversaries in the verbal exchanges among rival fanbases. Furthermore, the scope of such profanities may encompass referees, coaches from both teams, and other stakeholders, such as federation officials, organizing committees, and security personnel, whose transient physical presence on the field is contingent upon situational exigencies (Ahmad et al., 2023).

This study draws upon observational findings to elucidate a compelling aspect concerning the objectives behind profane invectives, particularly the dehumanizing demeaning use of profanity "Anjing" in the context of football fandom. Remarkably, the dehumanization objectives are observed to be predominantly directed towards opposing supporters, perceived to be comparable in status or standing. This differential treatment can be attributed to the shared identity of subjects as fellow supporters, both those employing the profanity and those subject to it, thereby justifying the targeted application of profanity "Anjing," considering the substantial numbers of opposing supporters, often numbering in the hundreds to thousands, in contrast to other actors, whose presence may be limited to mere tens.

Upon closer examination, the usage of the "Anjing" profanity by football supporters, with a specific focus on dehumanizing or demeaning opposing subjects as animal and denying them human equivalence, appears to be selectively reserved for a singular target - namely, the opposing supporters. The employment of the "Anjing" profanity against other actors, such as players, referees, or coaches, seems to be predominantly driven by emotionally charged expressions stemming from sentiments of disappointment, satisfaction, or anger,

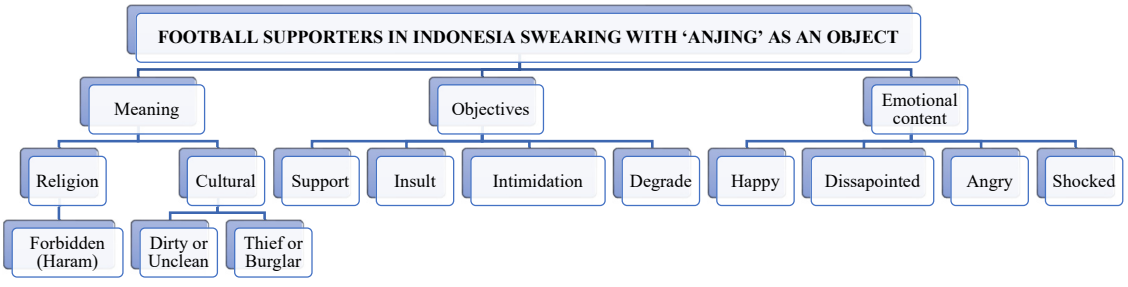


Figure 2 The background of Indonesian football supporters using "Anjing" as a swear word

often contingent upon situational occurrences, rather than being geared towards dehumanization.

The discernible emphasis on distinct objectives in deploying the "Anjing" profanity against target actors underscores the multifaceted nature characterizing its application by football supporters. This multifaceted context is rooted in the complexity of the meanings and intentions underlying the use of the "Anjing" profanity, leading to diverse perspectives regarding its choice of targets. Such intricacy is bolstered by several factors, including the prevailing notion that opposing supporters share a common identity as devoted fans, steadfastly dedicated to championing their respective teams' triumphs, while engaging in confrontations with perceived impediments. Furthermore, the quantity of opposing supporters, perceived as proportional to the target subject's capacity, may play a pivotal role in evoking uncontrollable reactions, thus necessitating a commensurate response from supporters.

The use of the "Anjing" profanity within the context of football supporters manifests a multifaceted landscape, wherein dehumanization primarily targets opposing supporters, while other actors are subjected to invectives driven by emotionally charged responses to situational events. A comprehensive comprehension of the underlying dynamics and factors influencing the selection of profane targets yields invaluable insights into the intricate dynamics of supporters' culture and the multifarious nature of profane language within the sporting milieu.

"…the use of "Anjing" directed at opposing supporters is a part of intimidation. We will continue to shout "Anjing" in the hope of making them feel inferior. However, our intention is solely directed towards them, as we consider it an 'apple to apple' comparison..." (Joni, 2023).

The selection of the target subjects, i.e., opposing supporters considered to be on par in status, engenders varied reactions that trigger distinct situational and contextual outcomes. From a philosophical standpoint, the act of swearing serves dual purposes, encompassing both internal and external dimensions. When directed inwardly, toward oneself or the subject, swearing serves to vent emotions associated with sensory experiences, such as observable circumstances or auditory stimuli (Stephens et al., 2022). Conversely, external employment of swearing, directed at individuals or groups, aims to deliver a message of emphasis, solidifying the subject's positioning vis-à-vis other actors (Loic, 2020).

In this light, the use of the swear word "Anjing" against opposing supporters seeks to assert the superior standing of the swearing faction over the targeted subjects. Underlying this act is the notion that employing "Anjing" as a profanity reinforces the hierarchical positioning of the opposing supporters as subordinate to the swearing group. This conveyed message embodies an aura of intimidation, reflective of deeply ingrained group culture and fervent loyalty to the supported team (Nakpanom, 2020). Moreover, the derogatory employment of "Anjing" intends to depict the opposing supporters as unclean, and undeserving entities.

The intertwined attributes of intimidation and insult inherent in swearing align with the facet of demeaning, constituting a distinct dimension of dehumanization. The contextual demeaning, overtly expressed through the articulation of "Anjing" systematically devalues the opposing supporters by regarding them not as humans but rather as animals. Consequently, the rationale underlying the selection of opposing supporters as the profanity's target subjects, premised on their comparable positioning at the same hierarchical level, proves incongruous. To further clarify this dynamic, Figure 3 below illustrates the purposes behind the use of the word "Anjing" as a swear word among Indonesian football supporters. The figure demonstrates that the act of swearing and the selection of this particular term are not arbitrary; rather,

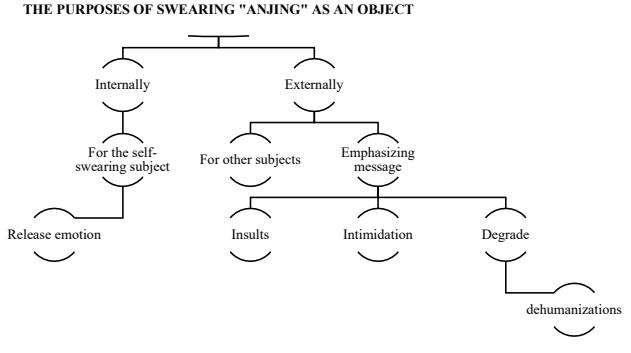


Figure 3 The purposes of using "Anjing" as a swear word by Indonesian football supporters.

they are shaped by both internal motivations and external motivations.

The intertwined attributes of intimidation and insult inherent in swearing align with the facet of demeaning, constituting a distinct dimension of dehumanization. The contextual demeaning, overtly expressed through the articulation of "Anjing" systematically devalues the opposing supporters by regarding them not as humans but rather as animals. Consequently, the rationale underlying the selection of opposing supporters as the profanity's target subjects, premised on their comparable positioning at the same hierarchical level, proves incongruous.

The verbal manifestation of dehumanization by profane utterances, specifically targeting the object "Anjing" represents a form of behaviour aimed at denigrating and negating the existence of the subject. In this context, "Anjing" is perceived as a derogatory reference to animals, tainted with notions of debasement, impurity, and avoidance. The complex interplay of cultural beliefs is further complemented by religious influences, particularly within Islam, wherein the saliva of dogs is deemed impure and to be shunned. This cultural and religious backdrop shapes the perception of "Anjing" as an animal, with contrasting perspectives observed elsewhere, where dogs are often revered and kept as cherished pets.

The core of dehumanization is embodied in the viewpoint of football supporters from one of the competing teams, who employ "Anjing" as a profanity to vent their emotions in the heat of the moment. The intensified usage of "Anjing" as a derogatory expression encapsulates negative emotions such as disappointment and anger, directed explicitly towards the opposing supporters. From the perspective of the swearing supporters, the recipients of the profanity are transformed from human beings to mere animal beings, specifically dogs. This transformation embodies a clear intention to demean, solidifying a hierarchical positioning whereby the swearing faction asserts its dominance over the targeted subjects.

Conclusion and Recommendations

A central focus and novel aspect within various studies pertaining to supporter behavior lie in the utilization of swear words as derogatory language to debase rival supporter cohorts. Such language serves as an emotional conduit and concurrently functions as a tool for intimidation, notably discernible through the selection of the objects of swear words. This research spotlights a compelling case study, notably in Indonesia, in the context of football supporter's culture, wherein the phenomenon of selecting animals, particularly dogs, as objects of derision becomes conspicuous. Dogs, conventionally associated with commendable attributes and classified as friendly animal in diverse cultural contexts, undergo a transformation into symbols for the denigration of others.

In accordance with empirical observations, the word "Anjing" demonstrates a multifaceted nature, signifying its capacity to convey varied connotations contingent upon the intended target. When employed as a means of emotional catharsis, whether directed towards individual actors such as referees and players affiliated with the supported team, it does not inherently encompass dehumanizing attributes. Consequently, the utilization of the term "Anjing" with the explicit intent to derogate and dehumanize another party is principally reserved for instances where it is specifically aimed at opposing supporters.

This phenomenon finds its roots in the social milieu, where dogs are linked with thievery and a feral existence on the streets. Furthermore, religious underpinnings contribute to the creation of distinct associations. In the context of Indonesia, where Islam constitutes the predominant faith, dogs are portrayed as negative entities due to their impure and unclean salivary characteristics, rendering them religiously proscribed. The deliberate selection of dogs as the focal point for swear words, voiced against rival supporters, underscores a pervasive practice of dehumanization. This practice seeks to demean and dispossess opposing supporter factions of their human identity. It manifests as an ingrained belief that rival supporters are akin to unclean animals, necessitating avoidance and rendering them unfit for the society.

The manifestation of dehumanization depicted through the expletive "Anjing" is often accompanied by a series of accompanying gestures, including the display of the middle finger, the rendition of chants and songs intended to mock and intimidate the opposition. Additionally, dehumanization is reinforced through the deployment of various instruments such as posters, banners, and flags, all of which symbolically depict opposing supporters as unworthy of being recognized as fellow humans within the football context. The objective of these actions is to instill fear and discomfort among opposing supporters, ultimately compelling them to vacate the stadium premises. Ultimately, this phenomenon disrupts their capacity to offer support, consequently rendering the home team supporters the

focal point of attention.

The consequences of this dehumanization through swearing and the series reaction that follow, underline the profound impact it exerts on the dynamics of supporter's culture. The progression from verbal insults to physical violence underscores the imperative of addressing and mitigating the dehumanizing within supporter culture to foster a more harmonious and inclusive football environment. Policymakers, governing bodies, and society need to work collaboratively to cultivate an atmosphere that values respect, empathy, and understanding, promoting a sense of unity and shared sportsmanship among football enthusiasts.

The study's sample size presents several limitations, including a small number of informants, which may restrict the generalizability of the findings and not fully represent the diversity of experiences among Indonesian football supporters. If most informants come from specific regions or groups, the findings may not reflect the broader social and cultural contexts of supporters nationwide. The study may face response bias, with informants offering socially acceptable answers instead of genuine reflections, and its focus on the term "Anjing" might overlook broader patterns of verbal dehumanization or other insults, while the limited data collection period risks missing changes in language use and social context over time.

Despite these limitations, the findings have important implications for social policy, particularly in education and sports culture. Educational programs should raise awareness about the role of derogatory language in reinforcing stereotypes and dehumanization, promoting more inclusive and empathetic communication. In sports, the findings suggest the need for anti-hate speech policies by football clubs and stadium authorities, including stricter regulations and educational initiatives to address the social impacts of abusive behaviour. Further research could explore cross-cultural comparisons of insults as tools of dehumanization and investigate the connection between derogatory language and aggression in large crowds, enhancing the understanding of collective behaviour and informing strategies to reduce conflict and promote inclusivity in both sports and broader society.

Conflict of Interest

The author declares there is no conflict of interest.

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Policies for developing and promoting income-generating occupational groups for the elderly Case Study of Sakon Nakhon Municipality, Thailand.

Piyanoot Ruangpon†, Thitawan Insaad*

Faculty of Liberal Arts and Management Science, Kasetsart University Chalermphrakiat Sakon Nakhon Province Campus, Sakon Nakhon, 47000, Thailand

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Abstract

This study examined the management of elderly occupational groups and the implementation of policies aimed at improving their quality of life by promoting employment. It also proposed guidelines to enhance policy implementation. A qualitative research approach was used, collecting data via in-depth interviews, observations, and focus group discussions. The findings showed that municipalities supported the formation of elderly groups to produce and sell goods. However, several challenges were identified, including the lack of cost accounting systems, absence of permanent sales locations, and limited marketing networks. Policy implementation through hierarchical structures resulted in reactive rather than proactive approaches by staff. Although municipalities provided materials and budgets, the lack of sales facilities hindered long-term sustainability. Despite some progress in promoting elderly employment, centralized policy frameworks created gaps in meeting the specific needs of elderly groups. To bridge these gaps, the study proposed guidelines focused on improving group management, strengthening policy implementation, and developing vocational training programs. This study also suggested encouraging collaboration among stakeholders, addressing implementation challenges, and supporting the sustainability and income-generating capacity of such groups.

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Introduction

The global demographic shift toward an ageing population is a major 21st-century challenge. Improved health systems, socio-economic policies, and reduced fertility have boosted life expectancy, increasing the elderly population to 1.109 billion (14%) in 2023 (UN DESA, 2023). This global trend has national and local

* Corresponding author.
E-mail address: thitawan.i@ku.th (Insaad, T.).

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implications, as seen in Thailand, now a complete ageing society, with 20.4 percent of its population classified as elderly in 2024 (Department of Older Persons, 2024). In response to this demographic transformation, the Thai government has implemented policies aimed at addressing the social and economic needs of its elderly population. The Thai Elderly Act of 2003 highlights the importance of promoting employment for the elderly through vocational training, job placement, and occupational support. Municipalities, as the primary local administrative units, are tasked with creating and implementing plans to enhance the elderly's quality of life by promoting employment and reducing economic dependency. In Sakon Nakhon Municipality, for example, the elderly population constitutes 20.1 percent of the total population, with many residents possessing the health and willingness to work but lacking access to sustainable employment opportunities (Bureau of Registration Administration, 2023).

Despite municipal efforts to establish occupational groups focused on such occupations as recycling crafts, sweet fermented rice production, and natural indigo-dyed fabric production, these initiatives face significant challenges. Limited knowledge, insufficient skills, and a lack of market access hinder the sustainability of these groups. Additionally, many elderly individuals face socio-economic vulnerabilities, including insufficient income and social isolation. These challenges highlight the urgent need for more effective municipal policies that address structural, operational, and resource-related gaps in supporting their employment.

This study of a suitable policy implementation framework is grounded in Chandarasorn's (2011) framework, which emphasizes the importance of organizational capacity, skilled personnel, adequate budgets, and appropriate resources in achieving policy objectives. The research also draws upon foundational human capital theory (Becker, 1964; Schultz, 1961), which views the accumulated experience and skills of elderly individuals as valuable assets that can be leveraged to enhance their economic and social well-being. Building on these frameworks, the study integrates insights from research on elderly occupational groups (Kitatron et al., 2017) to propose practical guidelines for policy implementation.

While the Thai government and local municipalities have made strides in addressing elderly employment through policy initiatives, several critical gaps remain. First, there is a lack of detailed understanding of the management structures and processes governing elderly occupational groups. Existing studies have largely provided broad overviews, without offering in-depth analyses of internal dynamics such as leadership roles, resource allocation, or decision-making mechanisms (Kitatron et al., 2017). This study addresses this gap by critically analysing how these groups are organized and managed in Sakon Nakhon Municipality. Second, there is a limited body of research that applies established policy implementation models, such as Chandarasorn's (2011) framework, to municipal-level interventions for elderly employment. Although previous research has highlighted the importance of factors such as organizational capacity, personnel skills, and resource sufficiency, there has been insufficient exploration of the procedural aspects of policy implementation in practice. This study seeks to bridge this gap by examining how policies aimed at promoting elderly employment are translated into actionable programs at the local level, identifying misalignments between policy objectives and their operational realities. Third, despite the availability of recommendations for policy development at the national or regional level (Higgins et al., 2017; Siriwan, 2024), there is a notable absence of localized, practical implementation guidelines tailored to the socio-economic and cultural contexts of municipalities like Sakon Nakhon. While elderly occupational groups are a promising mechanism for promoting economic and social well-being, previous research has not provided sufficient evidence-based practical recommendations to enhance their sustainability. This study fills this gap by proposing clear, context-specific guidelines that municipal policymakers and practitioners can use to improve the quality of life of, and occupational opportunities for the elderly.

Building on the policy implementation framework and elderly occupational groups, this research focuses on analysing municipal policies and programs aimed at improving elderly employment opportunities. Specifically, the study addresses the following objectives:

1. To analyse the structure, processes, and challenges in managing elderly occupational groups in Sakon Nakhon Municipality.

2. To examine the implementation of policies for improving the quality of life of, and promoting occupational opportunities for, the elderly in Sakon Nakhon Municipality.

3. To propose guidelines for implementing policies to improve the quality of life of, and promote careers for, the elderly in Sakon Nakhon Municipality.

Literature Review

Policy implementation is the process of putting policies into action to achieve intended outcomes and benefit the public. It serves as a critical phase that connects policy formulation with practical application. Researchers emphasize the need to examine this process to ensure that policies are effectively carried out and meet their objectives.

This study adopts Chandarasorn's (2011) policy implementation model, which builds on concepts from Elmore (1978). The model highlights key factors for effective implementation, including a clear organizational structure, efficient decision-making, and strong communication systems. It also emphasizes the importance of skilled personnel, sufficient budgets, modern equipment, and accessible locations in order to support operations.

In addition, this study is grounded in human capital theory, introduced by Becker (1964) and Schultz (1961), which emphasizes the role of investing in education, skills, and health to enhance productivity and earnings. Applied to the elderly, this theory views their accumulated knowledge and experience as valuable human capital. Leveraging this capital through appropriate policies can enhance the economic and social well-being of elderly populations. However, challenges arise in utilizing and recognizing this capital in later life, which underscores the need for structured support programs.

A practical mechanism for promoting elderly employment is through elderly occupational groups, as described by Kitatron et al. (2017). These groups consist of community members collaborating to produce and sell products, sharing common goals, and operating within stable organizational structures. They emphasize collective learning, shared responsibilities, and sustainable practices in order to promote economic and social stability. This framework integrates policy implementation models and elderly occupational groups to examine how municipal policies can better support elderly employment. It guides the evaluation of organizational capacity, resource allocation, and operational systems, helping to identify gaps and propose strategies to improve implementation at the local level. Figure 1 shows the research framework used to study the implementation of policies aimed at promoting and developing occupations for the elderly to generate income in Sakon Nakhon Municipality.

Research on elderly employment and occupational programs increasingly emphasizes the role of municipal-level interventions and local policy implementation, particularly in Thailand and more broadly in Southeast Asia. These studies highlight the importance of structured programs to promote sustainable employment, social inclusion, and economic security for elderly populations.

In Thailand, Phukamchanoad (2024) examined municipal programs in Bangkok supporting elderly occupational groups. The study highlighted that income generation through community-driven product production and sales was facilitated by active community participation. These programs not only promoted economic sustainability but also strengthened social integration. The present research builds on Phukamchanoad's findings by investigating how local-level policies in Thai municipalities can further support elderly employment and improve livelihoods.

At the ASEAN regional level, Makapol (2018) conducted a study across six ASEAN countries examining job satisfaction factors in 239 elderly individuals. The findings revealed that work enjoyment, social engagement, and financial rewards significantly enhanced the elderly's

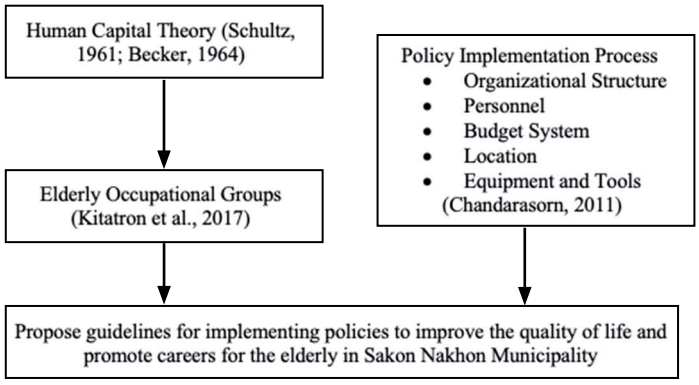


Figure 1 Research framework

quality of life and happiness in retirement. These results underscore the economic and social benefits of elderly employment, reinforcing the need for local-level policy implementation to address employment challenges and promote well-being. This study seeks to extend these insights to policy implementation at the municipal level in Thailand.

In addition, Higgins et al. (2017) analysed elderly employment policies in Singapore and South Korea. Singapore's age-friendly workplaces and South Korea's Elderly Job Bank emphasized structured programs that focus on skill-matching, job placement, and workplace adaptability. These models provide frameworks for sustainable employment which the present study adapts to address elderly employment challenges in Thai municipalities. Siriwan (2024) further examined South Korea's local government strategies, which focus on matching elderly workers with community-based jobs aligned with their skills and local needs. These strategies highlight the importance of developing tailored programs to enhance employment opportunities for elderly populations. This study applies similar principles to explore strategies for supporting elderly occupational groups in Thailand, particularly in Sakon Nakhon Municipality.

Methodology

Research design

This qualitative research used purposive sampling to select five elderly occupational groups with ongoing production activities that have been supported by Sakon Nakhon municipality. These groups were chosen because they represented active community enterprises with formal organizational structures and demonstrated economic sustainability through continuous production.

Participants

This study included 29 key participants divided into two groups: 25 members of elderly occupational groups and 4 government officials. The study involved five groups, each consisting of five participants, for a total of 25 participants. These groups were selected from elderly occupational groups specializing in the following crafts: Natural indigo-dyed fabrics,

Souvenirs, Thai cemetery flowers, Brooms made from recycled plastic bottles, and sweet fermented rice. These groups were chosen because they represented diverse products and operational models, offering a comprehensive perspective on elderly occupational group management. Participants were specifically selected based on their roles as leaders or active members actively engaged in the groups' operations and management, ensuring their ability to provide informed insights into group dynamics, challenges, and development needs. The second group consisted of four government officials, including one executive and three staff members from the municipality's Social Welfare Department. These officials were chosen for their direct involvement in overseeing policy implementation and program management related to elderly occupational groups. Their expertise and responsibilities enabled them to provide valuable insights into operational processes, barriers, and strategies for improving policy execution and supporting elderly occupational initiatives.

Research instruments

Three instruments were used for data collection: semi-structured interviews, observations, and focus group discussions. Semi-structured interviews were conducted to gather data in three key areas: group management, focusing on organizational structures, processes, and challenges in managing elderly occupational groups; product cost analysis, examining production processes, product details, and cost-efficiency aspects; and policy implementation, analyzing how policies are executed in practice. Observations, both participant and non-participant, were used to collect data on production activities, workflows, sales processes, and training programs. Finally, focus group discussions were employed to generate ideas and propose guidelines for improving policy implementation, with the goal of enhancing the elderly's quality of life and promoting their employment.

Reliability and Validity Measures

The data were verified using multiple strategies to ensure reliability and validity. Triangulation techniques (Cresswell, 2017) were employed by cross-checking data from interviews, observations, and focus group discussions to confirm accuracy and identify patterns. To ensure content validity and alignment with the study's objectives, the research instruments were reviewed by three experts—two in public administration and one in business administration—who confirmed that the tools were appropriate, relevant, and suitable for addressing the research goals. The experts achieved an

80 percent inter-rater agreement, indicating a high level of consistency in their evaluations. Participant checking was also conducted by presenting findings to participants for review, ensuring the results accurately reflected their perspectives and enhanced reliability and validity. Table 1 shows the coding and indexing procedures used to analyse the data, including the categorisation of themes, structure of conclusions, and validation through expert review to ensure reliability and validity.

Research procedures

ethical approval obtained from Kasetsart University (KUREC-CSC66/042) to ensure adherence to established research guidelines. Next, research instruments, including interview guides and observation protocols, were developed and validated by three experts to ensure their reliability and validity. These tools were carefully designed to capture meaningful data relevant to the study's objectives.

Data collection and engagement activities began with an initial training session on Occupational Development Training for Elderly Groups, conducted

Table 1 Analysis of data and reliability and validity checking

Research Objective	Coding & Indexing	Structure Conclusion	Validation and Practicality Assessment
1. To analyse the structure, processes, and challenges in managing elderly occupational groups in Sakon Nakhon Municipality.	1. Pre-coding: Categorized data into operations and challenges/ obstacles. 2. Defined indexes based on relevant issues. 3. Field Notes: Recorded specific themes and patterns	Categorized data into themes, such as management and product distribution channels. Summarized findings focusing on gaps like local vs. online sales. Provided supporting quotations: "Our group focuses on direct sales because online platforms are not set up yet." – Thai cemetery flowers Group.	Expert Review: Three experts, 2 in Public Administration, 1 in Business Administration, reviewed the indexes for accuracy and consistency. Revised data based on feedback to ensure reliability.
2. To examine the implementation of policies aimed at improving the quality of life and promoting occupational opportunities for the elderly in Sakon Nakhon Municipality.	1. Pre-coding: Statements organized into factors affecting policy implementation and obstacles. 2. Defined indexes based on relevant issues. 3. Field Notes: Recorded specific themes and patterns	Categorized data based on policy implementation and challenges. Summarized findings emphasizing personnel competency and barriers to training and oversight. Supporting quotations: "There are not enough officials to oversee programs, leading to gaps in follow-up." – Head of Community Development Division.	Proposed data review by the group members, staff, director and relevant officials to verify accuracy and completeness. Presented findings in a meeting to gather feedback, suggestions, and additional input for revisions and improvements.
3. To propose guidelines for implementing policies to improve the quality of life and promote careers for the elderly in Sakon Nakhon Municipality.	1. Pre-coding: Indexed problems - Index of Problems and Obstacles in Management of Occupational Groups and Implementation of Policies and Index of Solutions to Implementation of Policies 2. Define indexes based on relevant issues problems, and 3. Field Notes: Recorded specific themes and patterns.	Categorized data into problems, obstacles, and solutions. Structured a development plan emphasizing online marketing strategies and targeted training. Supporting quotations: "Training on pricing and marketing strategies would reduce losses." – Member of Souvenir Group.	1. Proposed guidelines for implementing policies to promote occupations, with suggestions for improvements from focus group participants. 2. Focus group participants approved the proposed guidelines. 3. Executives included strategies for participatory monitoring and evaluation in the 2025 local development plan.

The research was conducted in a series of sequential steps to ensure a structured and thorough investigation. First, the study area and participants were chosen using purposive sampling, focusing on elderly occupational groups and relevant stakeholders. Ethical considerations were prioritized throughout the research process, with

by four government officials. Following the training, the officials participated in individual semi-structured interviews lasting 10–15 minutes each, during which they provided insights into five key aspects: organizational structure, personnel, budget, materials and equipment, and facilities. Afterward, the 25 participants engaged

in their respective groups to produce and manage their crafts. Approximately 2–3 weeks after the training, semi-structured interviews and observations were conducted individually with each participant, also lasting 10–15 minutes, to assess their progress, challenges, and group dynamics. Once the production phase was completed and the participants began distributing their products, focus group discussions were held. These discussions included two members from each of the five groups (10 participants in total) and two government officials. The focus groups were designed to explore in-depth perspectives on the processes, challenges, and potential improvements in the operations of elderly occupational groups. Finally, the collected data were systematically coded to identify patterns and themes. These patterns were categorized to enable the researchers to draw conclusions and interpret findings based on the participants' experiences and the operational context of the elderly occupational groups.

Results

Structure, Processes, and Challenges in Managing Elderly Occupational Groups in Sakon Nakhon Municipality.

In order to answer Research Question 1, the findings are discussed in five key areas: group structure and establishment, production processes, marketing practices, financial management and product costs, and the challenges of elderly occupational groups.

Group Structure and Establishment

The elderly occupational groups in Sakon Nakhon Municipality were initiated and supported by the municipal Social Welfare Department in line with the municipality's policy for elderly development. These groups adopted a flat organizational structure aimed at promoting collaboration and shared decision-making among members. Key roles included those of the president, vice president, treasurer, marketing coordinators, and committee members, ensuring clear task distribution and operational efficiency. This structure emphasizes equal participation and collective management, which supported group sustainability while reducing reliance on centralized authority.

Production processes.

The production processes of these groups utilized a combination of traditional skills and newly acquired techniques from training programs facilitated by the municipality. Members employed existing skills, such as indigo dyeing, fermented rice-making, and crafting souvenirs, while also learning new techniques like pattern design for indigo fabrics, broom-making from plastic bottles, and crafting cemetery flowers.

"The provided tools are unsuitable for making brooms, so we must purchase specialized wire-cutting pliers ourselves, increasing production costs."
(Chairperson of the Plastic Bottle Broom Group, That Dum Community, April 30, 2024)

This approach reflects the integration of lifelong learning and continuous skill development to sustain economic activities while addressing practical challenges such as tool shortages and cost inefficiencies.

Marketing practices

In terms of marketing practices, product distribution relied heavily on direct sales channels through community markets, municipal events, and study visits organized by the municipality. However, the absence of online marketing platforms limited opportunities to expand market reach and boost sales. These findings emphasize the need for training in online marketing and digital tools to modernize sales approaches and expand market access beyond local events.

Financial management and product costs

The findings reveal that elderly occupational groups share profits from sales among members. However, there is no systematic record of product costs, and cost summaries are prepared only after sales occur. Pricing decisions rely on estimations and competitor comparisons before finalizing prices. Regarding accounting practices, no clear system is in place. Analysing the production costs and profitability of the groups shows that the Thai cemetery flower group demonstrates the highest profitability, with a net profit margin of 10.1 percent based on production costs and 52.4 percent on net sales. This indicates low production costs and high value-added products. The Khao Mak, Souvenirs, and Natural Indigo-Dyed Fabric groups show moderate profitability levels. Their net profit margins based on production costs are 89.6 percent, 42.9 percent, and 21.7 percent, respectively. All three groups generated adequate income and profits. The Broomsticks from Plastic Bottles group, however, experienced the highest losses, with a net profit margin of -64.2 percent based on production costs and -179.0 percent on net sales.

"We need more advanced training topics, such as pricing strategies and cost-profit analysis, as the current

sessions repeat basic content."

(Member of Khao Mak Group, Nongsanom, April 30, 2024)

Challenges of Elderly Occupational Groups

The study identified several challenges in the management of elderly occupational groups. One major issue is budget constraints, as there is insufficient funding to support group activities and further development. Additionally, the groups face a lack of technological knowledge, limiting their ability to utilize modern tools and platforms essential for business operations. Another significant challenge is the lack of advertising and online sales channels, which restricts their ability to reach broader markets and attract more customers. Furthermore, the groups do not have permanent sales locations, forcing them to rely heavily on trade fairs or fulfilling special orders, which affects their consistency in generating income and sustaining growth.

Implementation of Policies to Improve the Quality of Life and Promote Elderly Occupations in Sakon Nakhon Municipality

This section addresses Research Question 2, which examines the implementation of policies aimed at improving the quality of life of, and promoting occupational opportunities for, the elderly in Sakon Nakhon Municipality. The findings focus on key areas of implementation, including organizational structure, personnel, budget allocation, materials and equipment, and facilities. These aspects highlight both strengths and challenges in policy implementation, providing insights into gaps and areas for improvement.

Organizational Structure

The Social Welfare Department oversees municipal policies aimed at improving the quality of life and promoting elderly occupations under the Local Development Plan (2023–2027). The structure includes four departments: social welfare promotion, community development, social work, and general administration. The Community Development Department handles elderly occupational promotion, supervised by the division director. The hierarchical system ensures oversight but limits decision-making flexibility among operational staff.

"The staff responsible for occupational promotion are insufficient, leading to oversight of some tasks or lack of close monitoring."

(Head of Community Development, 12 February 2024)

Personnel

Personnel are divided into three levels: executive, management, and operational. Executives supervise and monitor policy implementation, managers plan and develop elderly occupational groups, and operational staff handle training and evaluation. However, limited numbers of staff, strict regulations, and overlapping responsibilities hinder proactive approaches, data collection, and innovation.

Budget

The budget revealed that the Social Welfare Division received a budget of 230,000 baht for the year 2023 to organize vocational training programs, such as indigo dyeing, fermented rice production, souvenir crafting, and broom-making from plastic bottles. However, the allocation process had to be conducted under strict governmental regulations. Most of the budget was allocated for speaker fees, refreshments, and training day materials, which had to strictly adhere to predefined expense categories. As a result, the budget could not be used for other purposes related to the development of occupational groups, limiting its use exclusively to organizing training sessions.

"The budget disbursement regulations, which clearly define the scope of budget usage, require officials to plan activities and projects in strict compliance with these regulations. This lack of flexibility makes it difficult to address the specific needs of occupational groups, such as organizing new activities."

(Social Welfare Division official, Sakon Nakhon Municipality, April 30, 2024)

Materials and Equipment

The Social Welfare Department provided basic materials and tools for training programs. However, groups had to fund replacing consumable materials by themselves, and some equipment, such as certain broom-making tools, were unsuitable, negatively impacting productivity.

Facilities

Training facilities were divided into two levels. At the municipal level, multi-purpose buildings and elderly centres supported training, visitor receptions, and product sales 2–3 times per month. At the community level, local homes, pavilions, and learning centres were used for production and storage. While these facilities were accessible and adequate, the lack of permanent sales locations limited opportunities for ongoing product sales.

"The lack of permanent sales locations remains a major obstacle, limiting sales opportunities to special events or municipal fairs."

(Municipal Administrator, 2 April 2024)

Policy Implementation Analysis

The findings reveal gaps between policy design and implementation. Although the policies provide a comprehensive framework, challenges include limited numbers of personnel dedicated to the elderly occupational programs, insufficient budgets to support training expansions and post-training activities, and a lack of consistent monitoring and evaluation systems to track progress and identify areas for improvement.

Guidelines for Implementing Policies to Improve the Quality of Life and Promote Careers for the Elderly in Sakon Nakhon Municipality

This section addresses Research Question 3, which focuses on proposing guidelines to improve policy implementation for promoting occupational opportunities for the elderly in Sakon Nakhon Municipality. The findings are organized into three key areas based on data collected through the focus groups and interviews with the elderly participants and municipal staff.

Development of Elderly Occupational Group Management Systems

Enhancing sales channels and marketing.

Elderly occupational groups expressed the need for better sales opportunities to increase their income levels. Recommendations to address this included establishing a product distribution centre at the Elderly Quality of Life Development Center to serve as a central hub for showcasing and selling products. Additionally, organizing Elderly Markets 1–2 times per month at the centre would provide regular opportunities for sales and community engagement. To further support income generation, launching a *Mentor Shops* program was proposed. This program would offer advisory services and consignment sales areas, enabling elderly groups to receive expert guidance while expanding their market reach.

"If the municipality helps set up permanent sales spaces, it will increase the income and make our products more widely known."

(Focus Group Participant, March 1, 2024)

Strengthening network organizations.

To reduce costs and improve collaboration, the elderly groups proposed forming a network organization under the brand name 'Sakon Nakhon Municipality Elderly Occupational Groups', with clearly defined roles and responsibilities. This network would promote partnerships between related groups, such as using indigo-dyed fabric from one group to produce souvenirs in another, allowing them to share raw materials and lower production costs while enhancing efficiency and productivity.

"If our group can collaborate with others, such as that using indigo fabric to make souvenir bags, it will lower material costs."

(Focus Group Participant, March 1, 2024)

Improving cost and profit management.

The elderly groups emphasized the need for financial management systems to accurately track profits and costs. Recommendations included developing templates for cost logs and profit-and-loss records to standardize financial tracking. Additionally, it was recommended that training sessions should be provided to ensure groups can effectively use these templates. To further support implementation, it was proposed to assign support staff to assist with financial tracking and provide ongoing guidance to maintain accurate and transparent records.

Organizational Capacity Development

Budget management efficiency

The municipal budget was mainly allocated to instructors and refreshments, resulting in insufficient funds for materials and post-training support. Recommendations included reallocating budgets to prioritize essential materials and tools, as well as reducing non-essential expenses to improve funding efficiency and better support elderly occupational programs.

Enhancing staff capacity

Municipal staff operated reactively due to limited data

and planning tools. Recommended strategies to improve efficiency included collecting data on group incomes, management, and skills in order to inform policies using a Data-Driven Strategy. Additionally, it was recommended that implementing After Action Reviews (AAR) could help refine plans and training programs based on lessons learned, ensuring continuous improvement and better outcomes.

Equipment and material support.

Groups faced challenges with unsuitable equipment and material shortages, which limited productivity. Recommendations included developing request forms to specify equipment needs, conducting annual surveys and focus group meetings to assess requirements, and delivering customized equipment tailored to each group's needs in order to improve efficiency and outcomes.

Development of Elderly Vocational Training Programs

Current training programs relied heavily on lectures rather than hands-on activities, limiting skill development and income generation. Participants requested more practical training to address these gaps. Recommendations include conducting needs assessments to design targeted training, shifting focus to practical workshops, and partnering with experts and universities through MOUs to provide specialized training and mentorship. Additionally, monitoring outcomes is suggested to evaluate training effectiveness and guide improvements.

"If we receive training on marketing and pricing strategies, it will help us a lot. Currently, we just estimate prices ourselves, which sometimes leads to losses."

(Focus Group Participant, March 1, 2024)

The proposed guidelines emphasize practical strategies to improve policy implementation for occupational development for the elderly in Sakon Nakhon Municipality. These strategies focus on enhancing sales channels, building networks, improving financial management, reallocating budgets, strengthening staff capacity, and modernizing training programs. By addressing gaps identified through qualitative data, the recommendations provide a localized framework tailored to the needs of the elderly. These steps aim to enhance income generation, promote career development, and support sustainable livelihoods for municipal occupational groups for the elderly.

Discussion

This study provides a comprehensive analysis of the policies and implementation aimed at developing and promoting income-generating occupational groups for the elderly in Sakon Nakhon Municipality. By examining the findings across key areas, namely, group structure and establishment, production processes, marketing practices, financial management, and challenges, this section discusses how these results align with existing frameworks and literature on policy implementation and employment of the elderly.

Management of Elderly Occupational Groups

The grouping of elderly occupational groups in Sakon Nakhon Municipality is promoted by the municipality itself. The operational structure emphasizes grouping elderly individuals to produce and sell handicrafts and locally made products such as fermented rice (*khao mak*), indigo-dyed fabric, brooms made from plastic bottles, and sandalwood cemetery flowers. These elderly occupational groups adopt a horizontal organizational structure focusing on production, marketing, finance, and production costs under the supervision of the municipal Social Welfare Department. Despite the progress in implementing policies to improve the quality of life and promote elderly employment, several challenges remain. These include a lack of formal production cost accounting, the absence of clear bookkeeping practices, no permanent sales locations, and insufficient marketing and sales networks (Jaengsawang et al., 2023; Pimtha et al., 2023).

Policy Implementation for Elderly Employment Promotion

Sakon Nakhon Municipality implements policies based on Thailand's national development strategies, which focus on promoting elderly employment. The municipality follows a top-down approach, where the policies of the Ministry are implemented through annual action plans or function–area plans. Although the elderly employment promotion policy has shown progress, with elderly groups continuing production, gaps persist in efficiently translating policy formulation into implementation. The hierarchical organizational structure restricts the decision-making power of frontline personnel, resulting in reactive rather than proactive actions. Project monitoring is inconsistent,

budget allocation is imbalanced, and comprehensive support for occupational groups is lacking. Additionally, there is no permanent marketplace for selling products. Chandarasorn (2012) highlights that organizational structures, budget constraints, personnel capabilities, and the adequacy of resources and facilities affect policy implementation. The top-down approach often fails to align with the specific needs of elderly groups, as noted by Wattho (2020). Thai policies emphasize developing new skills for elderly workers and promoting group-based productivity, whereas international approaches focus on utilizing existing skills and tailoring programs to local contexts. For instance, Japan empowers local authorities to design and implement plans in collaboration with communities, ensuring that policies effectively address localized needs. Similarly, Singapore promotes elderly employment through structured programs that encourage workforce participation and the utilization of seniors' existing skills. Likewise, South Korea operates an 'Elderly Job Bank' scheme, where local governments match elderly individuals with suitable jobs within their communities, enabling seniors to continue contributing based on their prior experience and expertise (Higgins et al., 2017; Siriwan, 2024). Although Thai municipal operations do align with central policies, they fail to address localized needs effectively.

Recommendations for Policy Improvement

To bridge the gap between policy design and implementation, a bottom-up approach should complement the existing top-down approach to promote elderly employment (Karim, 2023). The resulting *Hybrid Implementation Policy* (Elmore, 1985) encourages collaboration across administrative levels, balancing central directives with local needs. Proposed strategies include strengthening organizational management structures and accounting systems through group management development, improving communication between central authorities and local officials to increase decision-making flexibility as part of policy implementation enhancement, and providing training programs aligned with elderly skills and local market demands through vocational training activities. The municipal Social Welfare Department can integrate these strategies into local development plans and annual operational plans. This approach reduces gaps in policy implementation, ensuring integrated public policy design while supporting elderly occupational groups at the grassroots level.

Conclusion and Recommendations

This study examined the management of elderly occupational groups and the implementation of policies aimed at improving their quality of life and promoting employment. The findings highlight that forming occupational groups offers both economic and psychological benefits by generating incomes and fostering a sense of pride and self-worth in elderly individuals. These initiatives empower participants and enhance their overall well-being. However, this study faced limitations in fully evaluating the long-term impact of policy implementation on career promotion due to time constraints, which restricted data collection to a single fiscal year.

Despite the progress made, challenges remain in policy implementation, including limitations in group management, vocational training programs, and access to sustainable resources. Addressing these issues requires greater flexibility in policy design and implementation, ensuring alignment with local needs and contexts. Collaboration with educational institutions and the private sector can further strengthen the sustainability and effectiveness of these initiatives.

The municipality has promoted the formation of elderly occupational groups through a Top-down policy approach, focusing on group activities to produce goods and generate income. However, this centralized approach created a gap between policy formulation and implementation, as it failed to reflect the actual needs of the elderly. At the occupational group level, challenges in management undermined group sustainability. At the municipal level, limited staff decision-making authority and a focus on meeting policy indicators, rather than initiating innovative activities, hindered effective support. Additionally, the absence of permanent sales locations deprived the groups of consistent product distribution channels, leading to unsustainable income.

To address these challenges, the study recommends adopting a Hybrid Approach, integrating Top-down and Bottom-up strategies. This approach would allow the elderly to actively participate in project design, decision-making, implementation, and monitoring processes, ensuring that policy execution aligns with the specific needs of the target groups and enhancing the effectiveness and sustainability of elderly occupational groups.

Policy Recommendations

The Ministry of the Interior should empower local

administrative organizations to play a more active role in designing plans, projects, and performance indicators that directly address the specific needs of local elderly occupational groups. Decentralized planning will ensure policies are responsive to local contexts and priorities.

Practical Recommendations

Local administrative organizations should adopt participatory approaches, enabling elderly individuals to actively contribute to shaping programs and activities that support elderly employment. Encouraging collaboration with educational institutions and private sector partners can enhance vocational training and create sustainable income-generating opportunities.

Research Recommendations

Future studies should focus on policy evaluation, particularly analyzing the economic impacts of initiatives promoting elderly employment and improving the quality of life. These studies should provide evidence-based insights to further refine and enhance policies and practices. This integrated approach ensures that policies are practical, inclusive, and sustainable, ultimately fostering the well-being and income-generation potential of elderly occupational groups.

Conflicts of Interest

There are no conflicts of interest to declare.

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Development of TANGGUH Gamification (Traditional Games in Indonesian Historiography) in Indonesian cross-cultural courses and its impact on the growth of national identity awareness

Joko Sayono[a,*], Didin Saripudin[b,*], Zulkarnain[c], Lutfiah Ayundasari[a], Wahyu Djoko Sulistyo[a], Gedhe Ashari[a], Mellina Nur Hafida[a]

[a] *Department of History Education, Faculty of Social Science, State University of Malang, Malang, Indonesia*
[b] *Department of History Education, Faculty of Social Science, Universitas Pendidikan Indonesia, Bandung, Indonesia*
[c] *Department of History Education, Faculty of Social Science, Yogyakarta State University, Yogyakarta, Indonesia*

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Abstract

This research develops the gamification of TANGGUH (Traditional Games in Indonesian Historiography) as a learning medium to increase student involvement in history learning, cross-cultural understanding, and preservation of local wisdom in Indonesia. This gamification integrates traditional games in Indonesian Cross-Cultural courses to strengthen students' national identity. This research uses the Research and Development (R&D) method with the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. In the Analysis stage, the needs of students in understanding the value of local history and culture are identified. The Design stage produces a learning media design that combines traditional games with gamification elements to create an interactive learning environment. In the Development stage, the TANGGUH application was validated by material and media experts with high feasibility results, obtaining a score of 4.53 for material validation and 4.46 for media validation. In the Implementation stage, the trial with 21 students based on 10 indicators resulted in an average score of 4.21 showing very high effectiveness. The findings of the study show that the integration of traditional games as teaching materials in the context of history, culture, and local wisdom significantly enriches the learning experience of students. The results of the questionnaire showed an increase in national identity awareness from 3.12 to 4.27, with an N-gain score of 1.15, signaling a significant change. Therefore, TANGGUH gamification has proven to be effective and worthy of use in history learning and contributing to strengthening national identity and appreciation of Indonesia's cultural heritage.

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* Corresponding author.
E-mail address: joko.sayono.fis@um.ac.id (Sayono, J.).
† Co-first authors.

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Introduction

Education is an important instrument in forming awareness of national identity among students. History is a subject that has an important role in introducing the identity and cultural richness of a region to future generations. Indonesia is rich in cultural diversity and local history, understanding and strengthening national identity is very important (Albantani et al., 2018; Chattopadhyay, 2011; Soedarsono, 2013). One approach that can be used to achieve these goals is through changes that are applied to the learning process (Barton & Levstik, 2004). The reconstruction of historical values as a whole and thoroughly built through history learning aims to understand national identity (Hudaidah et al., 2021). The process of learning history that teaches stories about the homeland, starting from the habits or traditions of the people's lives, culture, and ideology, is expected to create a sense of pride in the country (Brata, 2023; Manning et al., 2024). This condition, especially in learning Indonesian cross culture courses, is often faced with challenges such as the lack of student involvement and interest in learning local history and cultural material (Bhavana, 2010; Sulistyo et al., 2023).

Limited resources and conventional teaching methods are often unable to motivate students to understand and appreciate their nation's cultural and historical heritage (Susanti et al., 2021; Susanti & Miftahuddin, 2021). In the era of advances in information technology, universities as pillars of academics must keep pace with the growing demands of the world and globalization (Altbach et al., 2009; Terentieva, 2018). Currently, the use of information technology in history learning is not only needed to facilitate the delivery of material and align it with the characteristics of students, but also to prepare them to acquire skills as a standard achievement for graduates. The Department of History, State University of Malang specifically accommodates these needs through a scientific vision that has been established. This vision mandates the implementation of history education that is innovative, adaptive and has integrity as a response to the development of history education in the 21st century. The aim is to strengthen character development based on Local Archipelago Wisdom while contributing to the development of science and technology in the context of adaptive and innovative history education. provide solutions to various historical, societal and local wisdom problems of the archipelago, supporting the implementation of history education in the 21st century (Hasan, 2019; Sandhu, 2019).

The 21st century approach emphasizes skills in using technology. The requirements that must be mastered in 21st century learning are the 4Cs of Critical Thinking, Communication, Creative Thinking, and Collaboration (Sujarwo et al., 2022).This skill becomes a provision in implementing learning using technology, one of which is history learning. Not many people have studied local history in history learning. One form of local history is traditional games (Hanipah, 2023). These problems emphasize the importance of developing innovative teaching strategies such as using technology to package traditions and traditional games as teaching media in local historical and cultural contexts. Traditions and traditional games are an integral part of Indonesian culture and can be a powerful tool for teaching and strengthening awareness of national identity (Aisyah et al., 2019; Iwandana et al., 2018; Setyawan & Dopo, 2020). Indonesia is a country rich in cultural heritage, with diverse traditions, languages, and beliefs (Lan, 2011). This is a real challenge amidst the onslaught of modernization and globalization (Zarbaliyev, 2017). Utilizing traditions and traditional games as teaching materials is an effective way to introduce students to the diversity of Indonesian culture (Counsell, 2011; Sulistyanto et al., 2023; Yuniasih et al., 2023). This allows them to understand and appreciate the rich culture that exists in the country.

Traditional and traditions games provide opportunities for students to be actively involved in the learning process. In these traditions, they are not only the audience, but also the main actors. This helps to increase their involvement in the educational process, making them more enthusiastic about learning (Ritzko & Robinson, 2011). History is often perceived as a dry and boring subject (Chapman, 2016). But the use of traditional games related to history can help bring the material to life.

Students can learn about historical events through practical experience, making it easier to understand and remember. Introducing students to traditional traditions and games helps them feel a sense of pride in Indonesia's cultural heritage. This can strengthen the nation's identity and make them more willing to preserve and pass on the culture to future generations. In addition, the concept of gamification has also proven to be effective in increasing student engagement and motivation (Karapakdee & Wannapiroon, 2023; Zainuddin et al., 2020). Through the development of learning media that combines elements of tradition, traditional games, and gamification, an interesting, interactive, and immersive learning environment can be created (Landers, 2014; Lin et al.,

2018). However, there has not been much in-depth research on the development of this learning media in the context of Indonesian cross culture courses, and its impact on students' awareness of national identity. From the description above, it can be seen that gamification can generate enthusiasm for learning. In addition, traditional games are very relevant to be used as learning material content that can develop a national identity. Therefore, this research aims to research and develop knowledge and explore the potential of utilizing traditions in traditional games with the concept of gamification to strengthen the national identity of students in Indonesia. The product that will be developed in this research is the TANGGUH application (Traditional Games on Historiography) as gamification in history learning.

Literature Review

TPACK

Technological pedagogical and content knowledge (TPACK), which has developed rapidly, has become an important aspect of learning, one area of which is history learning (Harris & Hofer, 2011). The TPACK model is an effective approach in integrating technology, pedagogy and learning materials to increase student understanding and engagement (Schmidt et al., 2009). TANGGUH gamification in the context of learning is an innovation strategy that is useful for building national awareness. The TPACK model combines three main aspects of learning, including technology by utilizing technology in the development of digital-based gamification (Koehler, 2013). Pedagogy, related to strategies in interactive learning that actively involve students. Content contains an understanding of historical material, cultural values contained in traditional games. The TPACK approach used in TANGGUH gamification is designed not only to convey historical material conventionally. But it also provides an immersive learning experience through traditional Indonesian games that are studied in national historiography.

Gamification

Gamification is a powerful strategy in education, one of which is integrating game elements to increase engagement and learning outcomes. Gamification in its application is useful for increasing student engagement, motivation and learning experience (Ružic & Dumancic, 2015). Elements used in gamification include points, challenges, rankings, rewards, and interactive narratives. The application of gamification in the context of history learning is important to help overcome the stigma of learning that is considered boring (Barghani, 2020). Game elements, learning experiences are made interesting and interactive to encourage students to engage in the learning process (Kiryakova et al., 2014). In the context of historiography and the development of national identity, gamification plays an important role in making history more accessible, interactive, and relevant for students. TANGGUH gamification contains traditional Indonesian games to strengthen national identity awareness in the Indonesian Cross culture course. The concept of gamification is in line with the approach used, namely, TPACK, which is used for pedagogical strategy and historical content. Gamification transforms the learning experience of learning, into immersive and interactive engagement. The integration of traditional games in Indonesian historiography ensures that cultural heritage is preserved.

Traditional Games

Traditional games are part of cultural heritage that has historical, social and educational values. Traditional games are a characteristic of identity in a certain region or country (Parlika et al., 2018). In the current modern era, where digitalization is rampant, traditional games are increasingly rarely played and are almost extinct (Rianto & Yuliananingsih, 2021). There are changes in lifestyles, technological developments and the lack of preservation and introduction of traditional games in the education system (Husein, 2021). This research seeks to integrate traditional games in gamification. The traditional games presented include, (1). Dakon or congklak, the game that is most often played by people on the island of Java. The game is played using a perforated board and grains that are used as playing tools. (2) Rangku Alu is a game originating from East Nusa Tenggara, played using four bamboo sticks that are moved rhythmically, players in this game have to jump between the bamboo gaps. (3) Balogo, is a game originating from South Kalimantan that is played using coconut shells thrown to hit the target. (4). Groups, this game comes from Sulawesi which comes from a wooden log rolled to reach the finish line (Mulyana & Lengkana, 2019). These traditional game elements are packaged in the form of gamification, to reintroduce these games through interactive digital media. This approach will not only introduce traditional games but also an understanding of the cultural values contained in them.

National Identity

National identity is defined as a nation's collective awareness of cultural values, norms, and history that are unique characteristics that are different from other nations. According to Anderson, (2016) national identity is formed through *imagined communities* where individuals feel they have similarities in their lives, history and national aspirations. National identity is the awareness of individuals or groups as part of a nation (Billah et al., 2023). This awareness is manifested by active efforts in inheriting culture, history, and achieving common goals and ideals. Referring to this explanation, it can be concluded that national identity is not only manifested in the form of a feeling of belonging and claiming to be part of a nation (Triandafyllidou, 1998). However, these feelings and claims must be expressed in the form of real actions. The real action of this feeling of belonging and claim in various case studies shows different forms. The formation of national identity takes place through historical, social and cultural processes that differ in each country so that each nation has its own unique way of building a sense of belonging to its national community and culture (Mayanti et al., 2023). For example, in Indonesia, the nation claims to have an identity that distinguishes it from other nations in the world, namely, Pancasila and Bhineka Tunggal Ika. National identity is formed from the existence of common races, ethnicities but also common historical experiences, the will to live together and cultural heritage that continues to be passed down from generation to generation. National identity includes cultural symbols, national myths, and traditions that are the foundation for the formation of citizens' characters (Brata, 2016). One form of cultural heritage that can be used to strengthen national identity is traditional games.

Methodology

The research method used in the development of Gamification through Project Learning in the course of Indonesian Cross Culture to Strengthen National Identity follows five stages called ADDIE. The ADDIE method stands for Analysis, Design, Development, Implementation, and Evaluation (Branch, 2009). It is a systematic approach used in learning design and development, especially in the context of learning design and curriculum development (Adán et al., 2020; Sugihartini & Yudiana, 2018). ADDIE method helps learning designers, curriculum developers, and instructors to design, develop, and evaluate effective learning programs.

In the first stage, namely, Analysis stage, researchers collected data through filling out questionnaires and interviews with respondents consisting of students and lecturers. The analysis carried out includes analyzing the needs when in the classroom; the analysis is carried out by filling out a questionnaire, the conclusion of interview transcripts. The results of data analysis will be followed up by developing products according to the needs of the respondents. The results of data analysis showed several main needs. First, students need interactive learning media to facilitate understanding in the context of historical research. Second, based on learning style analysis, students tend to have kinesthetic and visual styles. Third, lecturers need supporting media to achieve Course Learning Outcomes (CPMK) and stimulate student productivity. The second analysis is based on observations from the curriculum, the CPMK Course Learning Outcomes compiled by the curriculum team of the Department of History, State University of Malang, Indonesian Cross Culture Course. The third analysis relates to the analysis of potential, data from literature studies and analysis of the results of questionnaires related to the development of games as learning media.

After the Analysis stage, the research continued to the second stage, proceeded to the Design stage, where material design, prototype design, product usage design (flowchart), and testing design were designed. The research chose CPMK as the basis for content development because it is in accordance with the course objectives and has the potential to strengthen national identity. The results of the Analyze stage became the basis for designing various aspects of gamification content development.

The third stage is Development. In this stage the development of material designs, prototypes, and flow charts is developed into concrete products. The research used Unity software in this process. In addition, the test design is also detailed with activities such as material and media validation. The fourth stage is Implementation, the stage of applying the gamification product in the actual context. Implementation is carried out using the Pedagogical Content Knowledge Technology (TPACK) approach. In this case, this stage involves product testing which is carried out twice with the test subjects of Malang State University history students who are currently taking the Indonesian Cross Culture course in a small group trial with 8 randomly selected students. Furthermore, the implementation stage includes testing on a large group

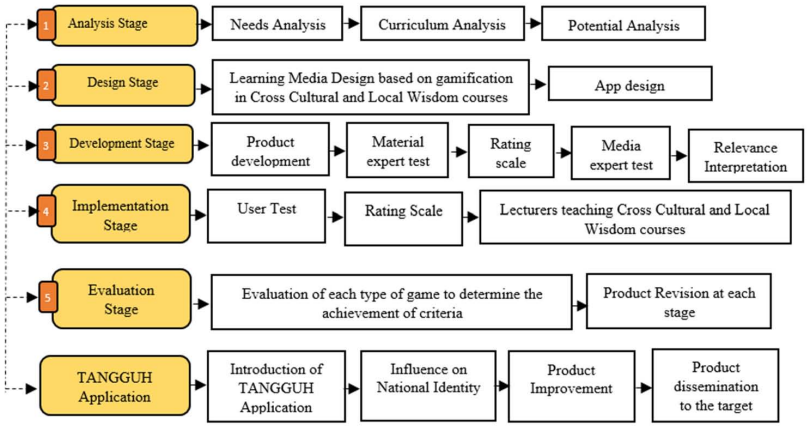


Figure 1 ADDIE research type and design

(field trial) involving 21 purposively selected students. Test group criteria: Currently taking Indonesian cross culture courses in the archipelago. A clear picture of the steps in this research can be seen in Figure 1

Standard criteria for determining at the validation and product implementation test stages use the interpretation scale formula in Table 1.

Finally, the fifth stage is Evaluation. At the evaluation stage, the developed product will be evaluated and assessed, including material and media validation, as well as test results with student groups. The results of this stage of evaluation will be the basis for refining and developing further gamification products if needed. The evaluation also includes an analysis of the product's impact on increasing students' national identity awareness, which is the main objective of this research. By following the AADIE stages, this research seeks to produce innovative and effective learning media products that can strengthen students' national identity through a gamification approach in the Indonesian cross culture course. In principle, the method in this research uses coherent logic as shown in Figure 2.

Table 1 Attainment rate conversion (Koyan, 2012)

No.	Score Range	Classification
1.	4.01 < x 5.01	Very good
2	3.33 < x 4.01	Good
3	2.66 < x 3.33	Good enough
4	1.99 < x 2.66	Not good
5	0.99 < x 1.99	Very Not Good

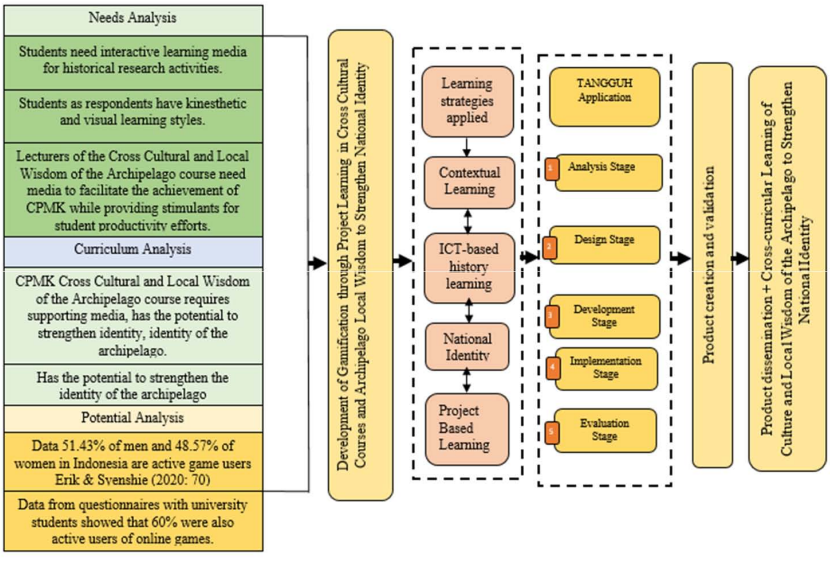


Figure 2 Researcher's problem-solving logic

Results and Discussion

National identity refers to individuals' awareness of their attachment and identity as citizens of a particular country or nation. National identity is very important in strengthening the sense of loyalty to the country (Uberoi, 2018; Van der Meer, 2020). National identity is part of the concept of multiculturalism that provides an overview of how governance and diverse cultures are formed (Walters, 2020) The purpose of national identity, then, is to strengthen the solidarity of a country. National identity not only includes elements such as language, culture, history, values, symbols, and shared experiences that form unity but also a sense of solidarity within a society or nation, as well as the enforceability of laws (Arianto, 2023; Sugeng et al., 2023). In addition, national identity also serves as a foundation to form and maintain national unity and integrity (Sandhu, 2019) .

Strengthening national identity is important because it builds unity, maintains peace, increases legal compliance, promotes development and faces external challenges. Awareness of Indonesian identity among the community, the younger generation has declined, which is due to the poorly understood concept of state defense. Multiculturalism is conventionally recognized as a privilege concerning race, culture, and ethnicity. Multiculturalism in Indonesia has become a major discourse and influences policy practice. The grand design concept of national identity comes from national defense, as a concept of building identity awareness among the younger generation. The importance of learning history in the context of CPMK Silang Budaya dan Kearifan Lokal Nusantara is to deepen the understanding of Indonesia's national and cultural identity and to ensure that students have a strong knowledge base to shape a better future for their country.

Development of Gamification through Cross-Cultural Project Learning and Archipelago Local Wisdom to Strengthen National Identity through the needs analysis stage is a crucial first step. The results of the needs analysis using a questionnaire can be seen in Table 2 below:

This analysis concerns three main aspects, namely, awareness of national identity which shows low achievement at 55 percent, so it is important to develop it. The potential of gamification in history learning received a high response, at 97 percent, which shows that gamification has potential and is needed in learning. Lastly is the importance of traditional games where respondents access whether the content is very relevant and minimally utilized.

Table 2 Result of needs analysis for students

Awareness of National Identity	The potential of gamification in history learning	The importance of knowledge of traditional games
55%	97%	92%

Second, is needs analysis by interviewing respondents consisting of students and lecturers. Interview transcripts with respondents revealed several main needs. First students need interactive learning media to facilitate understanding of historical research activities. Second, analysis of learning outcomes shows that students have kinesthetic and visual learning styles. Third, lecturers in the Indonesian cross culture course need supporting media to achieve Subject Learning Outcomes (CPMK) as well as to provide stimulus to students' productivity efforts. The results of this analysis are basic for developing products that meet respondents needs.

The next stage of analysis is curriculum analysis, which aims to determine the urgency of this development from a complete learning aspect (Levander & Mikkola, 2009). At this stage, researchers determine Subject Learning Outcomes (CPMK) as the basis for content development. CPMK was chosen according to what was determined by the UM History Department Curriculum Team and is the main learning objective in the Indonesian cross culture course. The selection of courses and CPMK is based on respondent data, which shows that supporting media is needed and has the potential to strengthen students' national identity.

The third analysis relates to potential analysis, data from literature studies and analysis of questionnaire results related to game development as learning media shows 51.43 percent of men and 48.57 percent of women in Indonesia are active users of games (Lobel et al., 2017).Data from filling out questionnaires with students, obtained the results that 60 percent are also active users of online games. The data obtained from the literature study and questionnaires showed a potential, namely, the development of games as learning media. This potential can be maximized by displaying interesting and interactive features in it, so that users (in this case students) are able to construct their knowledge optimally (Wijaya et al., 2017).

Previous research data show great potential in developing games as a learning medium. Data show that most students are active users of online games. This potential can be maximized by displaying interesting and interactive features in gamified learning content. Thus, users (students) can construct their knowledge optimally.

The results of the needs analysis become the basis for designing various aspects of gamification content development, including material design, prototype design, product use design (flowchart), and test design.

TANGGUH Gamification Design (Conceptual Desing)

TANGGUH gamification designs contain applications designed using Unity software. Cognitive features in the development of TANGGUH gamification include: Instructors present teaching materials and explain the benefits of digital technology in learning activities. The instructor asks students to install the app. Students are presented with information and procedures for using the application (in the form of a guidebook). After opening the application, after opening the initial menu, students are required to open the Subject Learning Outcomes (CPMK) menu and understand the contents. Furthermore, students are asked to open the profile menu as a means to better recognize the developer's profile. When students open the CPMK menu and Developer Profile, the instructor creates the class as a database to store answers and set rankings on the leaderboard.

Reading CPMK here aims to make students aware of the purpose of presenting TANGGUH gamification in learning. CPMK here is a benchmark for success in learning. The next step, after finishing reading the CPMK and Developer Profile, students are asked to log in by filling in their personal data. Especially for class data, students must fill in such according to the name given by the instructor. This is because the class name is the code that becomes the database to store answers and to organize rankings on the leaderboard. When they log in, students will be presented with a 3D character animation display that invites them to go around various traditional games in Indonesia. Then after the animation is finished, students are presented with a mission display to complete all stages containing various traditional games in Indonesia. There are three stages in TANGGUH gamification, including: the traditional game of Dakon/ Congklak, the second stage of the Rangku Alu game, and the third stage of Balogo. This game was selected.

Design of the first stage traditional game of Dakon/ Conklak

In the first stage, students were shown animations about the traditional game Dakon/Congklak (Figure 3). The first stage contains about; a. Materials, b. Games, c. Quizzes, d. Historiography. In the material submenu, students are presented with a display in the form of a motion graph containing illustrations related to the content of the material. In addition, several types of audience information are also presented to accommodate differences in learning styles. The information viewer that will be entered into the app includes videos and audiobooks. When in the submenu, students are required to read all the material to the end. If they do not finish reading, then students cannot access the other menus in front. When students read all the materials presented, a navigation button will appear as a guide to the next menu. If the navigation button appears, students are directed to the stage 1 menu to select the game menu.

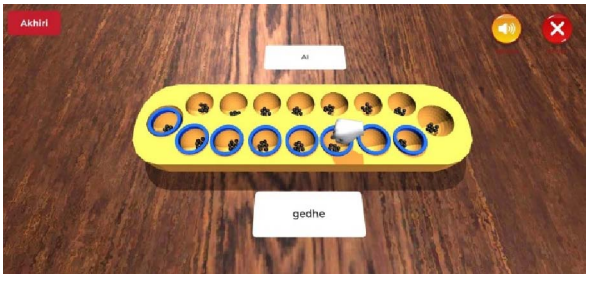


Figure 3 Traditional game Dakon/Congklak

In the first game that appears is information about the history of the traditional game that has entered this stage 1 game. Furthermore, students read and understand information related to the history of traditional games. Students are then presented with information on how to play it. In this section, every detail of the rules of the game will be displayed along with illustrations. After students understand the game instructions that have been presented, then the game can begin.

The design of the second stage traditional game of Rangku Alu

At the beginning of stage II of the Rangku Alu game (Figure 4), students are required to start from the material first. After students select the menu, a display containing motion graphics will appear around the



Figure 4 Traditional game of Rangku Alu

content of the material. In addition, several types of audience information are also presented to accommodate differences in learning styles. The information viewer that will be entered into the app includes videos and audiobooks. Then after finishing reading the material, students will be directed to the next section, namely, the information menu containing the history of the Rangku Alu game. After reading and understanding information related to the history of the traditional game of Rangku Alu, students were then presented with information on how to play it. In this section, every detail of the game rules will be displayed along with illustrations.

The third stage design traditional Balogo game

In this section, students will be presented with material related to the traditional game of Balogo (Figure 5). The concept of the Balogo game incorporated into this application is inspired by several Golf games on the Google Playstore. When starting the Balogo game, students will be presented with an initial display that contains, a. Material, b. Games, c. Quizzes, d. Historiography.

In this section, information about the game procedure (guide) which contains explanatory text and illustrations is presented. When students have finished reading the tutorial, they will be directed directly to the game settings. Before starting, a pop up notification will be displayed explaining that students have been given pen paintings and ink of various colors. After that, students are asked to choose one of the logos with the shape and engraving they like. The logo that has been selected is then colored. Logo coloring must be done as a means of introducing traditional arts to students.

At each stage of gamification, TANGGUH strives to present gamification as a form of teaching. When using this gamification, students will be presented with some information related to local and cross-cultural wisdom in the archipelago and equipped with interesting traditional games. The position of the traditional game is currently experiencing extinction. This is due to modernization and transformation to modern games even though traditional games teach many wise aspects and values. Among them are teaching physical, motor, cognitive, socio-historical skills and national identity. There are messages, advice conveyed by parents in ancient times, which are expressed through traditional games. These three games were chosen because of their almost extinct existence, so TANGGUH gamification is designed to introduce, provide information and practice how to play through virtual spaces. The three games chosen in this stage, namely, congklak/dakon, and rangku alu, are not only important for cultural preservation, but also to develop the character and skills of students, strengthen national identity and to bridge different generations.

TANGGUH Gamification Development (Validation and Implementation Test)

Material designs, prototypes, and flowcharts are developed into real products using Unity software. In addition, product testing planning is also carried out by material validation, media validation, small group trials and field trials. In developing Gamification through Project Learning in the Cross-Cultural and Local Wisdom of the Nusantara, Nusantara to Strengthen the Nation's Identity, a number of important values are the basis for creating meaningful learning experiences. First, a sense of belonging is key to making students feel like they are an integral part of Indonesian society. By using gamification, the learning experience becomes inclusive and motivates students to feel emotionally connected to Indonesian culture and history. In addition, nationalism is the main focus in content development. The prototype of the TANGGUH game application was successfully developed according to the design and specifications of the product, see Figure 6 below,

Through gamification, content development must be able to encourage students' understanding and appreciation of national values. Elements that reflect



Figure 5 Traditional game Balogo



Figure 6 The first menu display of the TANGGUH App

the spirit of nationalism can be incorporated into games and learning materials to motivate students to feel more connected to their country. The ideal representation of Indonesian identity is also important in this context, where gamification must reflect the nation's positive values and aspirations such as unity, diversity and the spirit of achieving common goals. In addition, national background and consensus need to be considered in content development. The learning experience should create an environment that stimulates students to feel that their cultural background is valued and that they have something in common with fellow students in line with the national consensus on Indonesian values, history, and culture,

Content development must ensure that the learning experience reflects the views agreed upon by the Indonesian people at large. By integrating these values in gamification, the learning experience becomes more meaningful, reinforces students' national identity, and awakens a spirit of patriotism.

Furthermore, the prototype of the TANGGUH game application is assessed by experts through validation activities. This activity is to provide an assessment of elements including validity in terms of content or materials (Figure 7) and in terms of packaging and/or media (Figure 8). Material validators are selected based on criteria, including understanding of local history materials, local wisdom, and history learning. The validator of the material in this study is Dr. Dewa Agung Gedhe Agung, M.Hum as a history lecturer at the State University of Malang. Lecturers for material validation are selected based on the group of expertise. The validators of this material are experts in the field of cultural preservation and local wisdom. Material validation aims to assess the content of the material in TANGGUH gamification as feasible and valid. Validators have the right to assess according to existing criteria, provide suggestions and comments. In the validation process, a process of improvement will be carried out by the researcher, in accordance with the suggestions of the material validator. Furthermore, after the material is declared feasible, it is continued with media validation.

The media validation process is carried out to find out whether TANGGUH gamification is feasible and valid for use or not, based on the criteria that are already available. Media validation is carried out by media experts in the field of history learning. The media validator in this study is Aditya Nugroho Widiadi, S.Pd., M.Pd., Ph.D. The field of expertise of media validators is history learning innovation, history learning technology and learning media. After the assessment, the researcher will revise until the TANGGUH gamification media is suitable for use as a history learning medium. The results of the material and media validation activities can determine whether the product is valid or not, so that it can be continued to the next stage, namely, implementation and evaluation (Sugiyono, 2013).

Data from the results of material validation showed a number of 3.85, which showed good and excellent validity, while media validation showed 4.7, which showed very good validity according to the reference category interval. Based on the results of material validation, criteria related to contextual aspects were obtained, namely, material relevance, material clarity, and games that met the research criteria, namely, good and excellent. Advice from material expert validation: In the future, the material presented can be updated so that more information is presented. The duration of the presentation of the material in learning.

The data from the results of media validity include 3 aspects, namely: The structural aspect reached 4.7, the learning design display reached 4.6, and visual communication reached 4.1. The results show an average media quality of 4.5, which means it is included in the very good criteria. Validation by media experts provides suggestions related to product innovation being good,

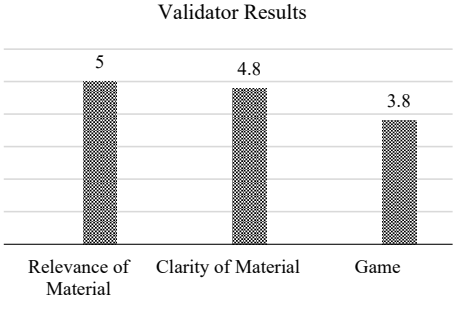


Figure 7 Graph of material expert validation results

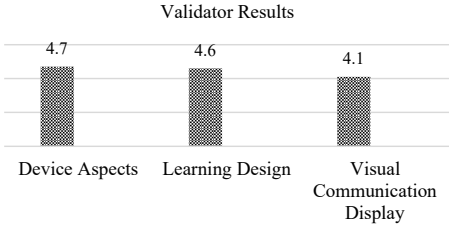


Figure 8 Graph of media expert validation results

but it is necessary to think about the sustainability of the application by updating features, storage capacity and ease of access not only through Android but other devices. The next step is for the research team to make improvements according to suggestions and comments from the material and media validators. This is done to improve the quality of gamification products until they are declared feasible and valid for use in learning. After being declared feasible and valid to be used as a medium in learning local and cross-cultural wisdom courses, the next stage is to test prospective student users who are taking the course.

The next stage is a small group trial involving 8 randomly selected students. The results of the small group trial were used as a tool to evaluate TANGGUH's gamification products regarding effectiveness and practicality. Furthermore, the researcher made revisions according to the suggestions and comments of potential users. After being declared effective and practical, researchers conducted a large group trial. Meanwhile, testing in large groups (field trials) involved 21 students who were selected using purposive sampling. This stage is part of the implementation of the product to determine its quality and suitability (Gall et al. 1996; Putra et al., 2020). The results of the product use trial and user recapitulation can be seen in Table 3,

The results of the gamification media implementation trial combined with traditional games (Dakon/Congklak, Rangku Alu, Balogo, Golong-Golong) based on student participation showed a range of 4.27, which indicates that the assessment of the TANGGUH application is very high. The student admitted that he was happy, the application was easy to use, very helpful in the process of understanding the local culture and wisdom of the archipelago through the visualizations presented. However, to install this app, storage space is required. The indicators of implementation results show the enthusiasm of students to explore, solidify ideas and strengthen their understanding of learning materials. At a later stage, the product will be applied in real-life situations. The research and development of the TANGGUH Application has the potential to support 21st century learning with technology that can help the student learning process. The development of this application accommodates a learning approach with the TPACK (Technology Pedagogy Content Knowledge) model, a collaboration that is able to accommodate the use of technology and applications, teaching with new models and content created to introduce the identity and local wisdom of the archipelago to strengthen the national identity.

Conclusion and Recommendation

The application of gamification in Indonesian cross cultural courses by involving digital games that include traditional Indonesian games is an interesting step to increase interest in learning and strengthen students' understanding of local culture. Gamification in learning is the first step to encourage the implementation of technology-based learning. This is appropriate in encouraging 21st century learning which requires the use of technology. The learning model using gamification in courses is able to encourage lecturers to integrate knowledge, pedagogy and content with technology. This form of teaching is called Technology Pedagogical Content Knowledge (TPACK) as a learning technique that emphasizes technology and applications.

Research on cultural content development and product development in the form of applications as learning media in the Indonesian cross cultural courses provide opportunities to disseminate cultural products and local wisdom widely in the public domain. The application of gamification in learning provides a positive opportunity to learn about local culture and wisdom in Indonesia, as a form of gratitude for the diversity of the Indonesian people. In this way, it is hoped that a sense of pride and love for national identity will emerge. This research and development produces a product in the form of the TANGGUH application. Products are developed, not only based on existing problems, but also based on the results of needs and curriculum analysis. The results show that it is necessary to develop game applications for history learning that utilize traditional game content. Products that are successfully developed undergo the next stage, namely validation. The material and media validation test results obtained a feasibility level of 40.01–4.8 with very high validity according to the interval. In the temporary implementation phase, 21 users received a rating of 4.27 with very good qualifications. The TANGGUH application with a gamification model is effectively used in history learning in the subjects of Culture, Local Wisdom of the Indonesian Archipelago and is suitable for use as an educational medium in public spaces.

However, this research is still limited to the implementation of four traditional games only, while there are many other traditional games that have the potential to be included. Future research can expand its scope by including other traditional games to enrich the cultural learning experience. By including a greater variety of games, this application can provide a more comprehensive representation of Indonesia's cultural

heritage. Furthermore, a wider implementation trial will be conducted to measure the development of national identity through gamification of history learning with the TANGGUH game. The TANGGUH application can be used as a learning media in Indonesian cross-cultural courses and can be a reference for further research on gamification in history education, cultural preservation, and digital learning media.

Conflict of Interest

The authors have no competing interests to disclose.

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Analysis of the Buddhist philosophy of Phra Panya Nantha Phikkhu to innovative art on the subject of dharma puzzles

Somporn Turee[a,*], Ditawat Innupat[a], Pattana Chinnasot[b]

[a] *Department of Art Education, Faculty of Fine and Applied Arts, Rajamangala University of Technology Thanyaburi, Pathum Thani 12110, Thailand*

[b] *Department of Visual Communication Design, Faculty of Fine and Applied Arts, Rajamangala University of Technology Thanyaburi, Pathum Thani 12110, Thailand*

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Abstract

This research and analysis focus on the Buddhist philosophy of Phra Panya Nantha Bhikkhu and its influence on innovative art dealing with the mystery of Dhamma. The objective is to analyze the Buddhist philosophy of Phra Panya Nantha Bhikkhu from Wat Chonlaprathan Rangsarit and the murals from the reign of King Rama IV in terms of style, content, beliefs, artistic elements, and symbols expressing mystery. This analysis aims to generate knowledge for the creation of innovative art centered on Dhamma puzzles, foster interaction among people involved in the work, and raise awareness of the Buddhist philosophy of Phra Panya Nantha Bhikkhu. This awareness aims to inspire faith in Buddhism and serve as a moral and ethical foundation for youth and society. From the analysis and interpretation of the Buddhist philosophy of Phra Panya Nantha Bhikkhu and the murals from the reign of King Rama IV, the creation of innovative art emerges. These mysterious stories incorporate a new structural component that reflects both the form of reality and the content of Phra Panya Nantha Bhikkhu's Dhamma teachings, representing mystery in a way that encourages viewers to ponder and interpret their meaning, thus affecting their perception of beauty.

The results of this innovative artistic creation demonstrate the process of developing 2D paintings into 3D realistic works. The presentation of AR (augmented reality) techniques enhances the perception of dharma mysteries through four works, contributing to the creation of knowledge and innovative art processes while promoting arts and cultural tourism.

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* Corresponding author.
E-mail address: somporn_t@rmutt.ac.th (Turee, S.)

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Introduction

Phra Panya Nanda Bhikkhu was known for preaching the Dhamma and spreading Buddhism through village sermons and newspaper writings, starting in Chiang Mai Province. A significant supporter, Chao Chuenchi Nairot, helped by constructing a banana leaf roofing shed in the village (Wat Umong) to focus on Dhamma lectures. Phra Panya Nanda Bhikkhu followed the Buddha's teachings, emphasizing precepts and activities beneficial to society. On May 20, 1960, he became the abbot of Wat Cholprathan Rangsarit, where he prioritized reforming religious ceremonies to promote intelligence, orderliness, simplicity, economy, and benefit. He taught Dhamma in an accessible yet profound manner, based on the Triple Gem, morality, kindness, and leading the teachings of Buddhism. Known as "the reformer of Thai Buddhist rituals," his teachings are now widely accessible, offering guidance such as living like a winner, solving problems with intelligence, embracing the inevitability of death while valuing work, giving to receive more, living happily with Dhamma, letting go of suffering, maintaining a stable mind, being aware of others, recognizing that chaos arises from immorality, and avoiding attachment to anything.

Murals are created from abstract concepts to appear as complete works of art, rich with aesthetics (Song & Qin, 2019). These works result from the diligence and power of inspiration of ancient craftsmen. A focused mind is essential for creativity, fostering concentration and imagination (Na Songkhla, 1992). These murals are creative works born from the strong faith in Buddhism held by ancient craftsmen (Behrendt, 2019). They are beautiful and unique to the people in each locality, imbued with beliefs, principles, and teachings, as well as mechanical techniques influenced by the Central Royal Court technicians (Na Songkhla, 1992). The mysterious images in the murals indicate their value and aesthetic beauty, reflecting arts, culture, traditions, beliefs, and content. They inspire faith in Buddhism and serve as evidence of the history, society (McCargo, 2004), way of life (Kachru, 2020), wisdom, and thinking of ancient craftsmen in creating Thai paintings.

An analytical study on the Buddhist Philosophy of Phra Panya Nanda Bhikkhu at Wat Chonlaprathan Rangsarit encompasses aspects such as history, beliefs, principles, teachings, and an analysis of period murals. The study examines four aspects: format, content, technical techniques, and symbolic expressions, including the mysteries and aesthetic value of such information. This study aims to create innovative works of art for the Wonderland of Dhamma room at Wat Chonprathan Rangsarit in Nonthaburi Province. It aligns with modern communication technology by photographing paintings that reflect the teachings' content, allowing people to interact with the works using AR programs (Bozzelli, et al., 2019). This approach enhances perception and faith in Buddhism and promotes the creation of Buddhist art in temples, communities, and society.

The study highlights the Buddhist philosophy of Phra Panya Nanda Bhikkhu and the concealed mysteries and Dhamma teachings within the artworks (Carreño, 2022). These elements serve as educational tools for youth, society, and communities, fostering faith, wisdom, and liberation through the beauty and truth depicted in the paintings. These works are recorded as a national heritage of Thailand, continuing the legacy and propagation of the Buddhist philosophy of Phra Panya Nanda Bhikkhu and teaching Dhamma to society and the community. As Professor Phraya Anumanrajathon stated, "Art is a high thing that may lull people's minds away from low thoughts. A harsh and stubborn person becomes the opposite. The coward becomes brave. Lazy people become diligent because of the power of art as a tool of persuasion. Art is the best tool for training the mind and educating citizens to have goodness in one's heart." Historical records indicate that Buddhism's spread to Suvarnabhumi in each period brought with it art and skilled technicians who taught the native people, enabling them to create their own art (Thaksin Case Studies Institute, 1986). Therefore, the researcher utilizes the Buddhist philosophy of Phra Panya Nanda Bhikkhu and Dhamma teachings to create new works that express the mysteries, beliefs, and faith in Buddhism.

Literature Review

The concept of Buddhist philosophy in this research refers to the doctrine of knowledge and truth concerning humans and the world, according to Buddhist principles. This doctrine is studied and analyzed for its philosophical underpinnings, including the principles of Buddhist practice aimed at reaching the highest goal. The doctrine encompasses both epistemology (the study of knowledge) and metaphysics (the study of the nature of reality) as outlined in Buddhist teachings.

Theory Used in Research Art Composition Theory (Nimsamer, 1991) is employed to create unity in the artworks. This theory helps in establishing a new structural framework by expressing the overall form

in a dynamic and lively manner. The goal is to convey the meaning of religious puzzle images cohesively, ensuring a seamless connection between thought forms, expressions, and shapes.

Perception Theory (Thaothong, 2010) posits that each individual's perception is unique and shaped by their personal experiences. Perception is not uniform and may vary significantly, leading to different interpretations and depths of understanding. This theory emphasizes the importance of practice and a thorough grasp of analytical principles to develop expertise in perception. It is crucial to comprehend and apply these principles correctly and consistently to appreciate the value, beauty, and hidden meanings in works of art. The depth of understanding and appreciation depends on the individual's level of visual perception.

Methodology

1. Survey and study related documents and local sources relevant to creative research and artistic innovation, including: concepts and theories used in research; the study area includes Wat Bowonniwet Ratchaworawihan and Wat Boromniwat.

2. Analysis; analysis of the Buddhist philosophy of Phra Panya Nanda Bhikkhu (Dharma principles) in terms of content, principles, teachings, beliefs, and artistic elements, including symbolic expressions.

Analysis of mural paintings from the reign of King Rama IV (found in Wat Bowonniwet Ratchaworawihan and Wat Boromniwat) entails examining their form, which reflects both shape and content, and their expression of ideals (prisana dhamma), beliefs, themes (emotions), and artistic elements. Symbols within the expressions of mystery lead to the principles of teachings in Buddhism.

The results of the analysis of the Buddhist philosophy of Phra Panya Nanda Bhikkhu, along with religious mysteries depicted in the murals of the reign of King Rama IV, are summarized to guide the creation of innovative art.

Dharma Mysticism is often depicted in murals, presenting images that prompt viewers to contemplate their meanings. Such imagery is commonly found in depictions of Dhamma with metaphors. These mystical pictures often follow a traditional drawing style passed down through generations (Na Songkhla, 1991), making it clear which Dhamma this picture represents.

Data Analysis

The process of creating innovative works

1. Summarize the analysis data, including the interpretation of the Buddhist philosophy of Phra Panya Nanda Bhikkhu (dharma principles) and the analysis of mural paintings from the reign of King Rama IV in terms of style, content, principles, teachings, beliefs, and artistic elements, including symbols of expression that reflect mystery.

Apply the knowledge acquired from the study, analysis, and interpretation of the Buddhist philosophy of Phra Panya Nanda Bhikkhu and Dhamma teachings depicted in murals from the reign of King Rama IV to create innovative works of art centered around the theme of *Dhamma* mystery as shown in Figure 1.

Artistic innovation means new thought processes, practices, and actions that have never been done before or applying concepts from previous knowledge to be developed and modified to be more modern and usable to create a new form, new perception and doing things differently from others. Emphasis is placed on the artistic creative process.

2. Create an innovative artwork on the subject of Dhamma puzzles in a realistic format, combining shape theory, comprising four pictures, with characteristics according to one's own opinions. The viewer interacts with the work using an AR program, Unity Theory in Art, giving unity, leading to an effect on perception and facilitating the appreciation and application of Dhamma teachings in daily life. The installation of the Wonderland of Dhamma room in Wat Chonprathan Rangsarit, Nonthaburi Province, invites the audience to interact with the work, influencing perception and fostering the creation of Buddhist art in temples, communities, and society.

Results and Discussion

The analysis of mural paintings from the reign of King Rama IV, specifically those found in Wat Bowonniwet Ratchaworawihan and Wat Boromniwat, reveals a form that reflects both shape and content, incorporating artistic elements that align with the principles of teaching in Buddhism. During King Rama IV's reign, mural paintings began to integrate Western influences, transitioning from an 'ideal' to a more realistic portrayal. This shift is exemplified in the 3D imagery of Ajarn Khrua's work, particularly by Ajahn In of Wat Liap (Wat Ratchaburana), considered a pioneer of this new style. His paintings,

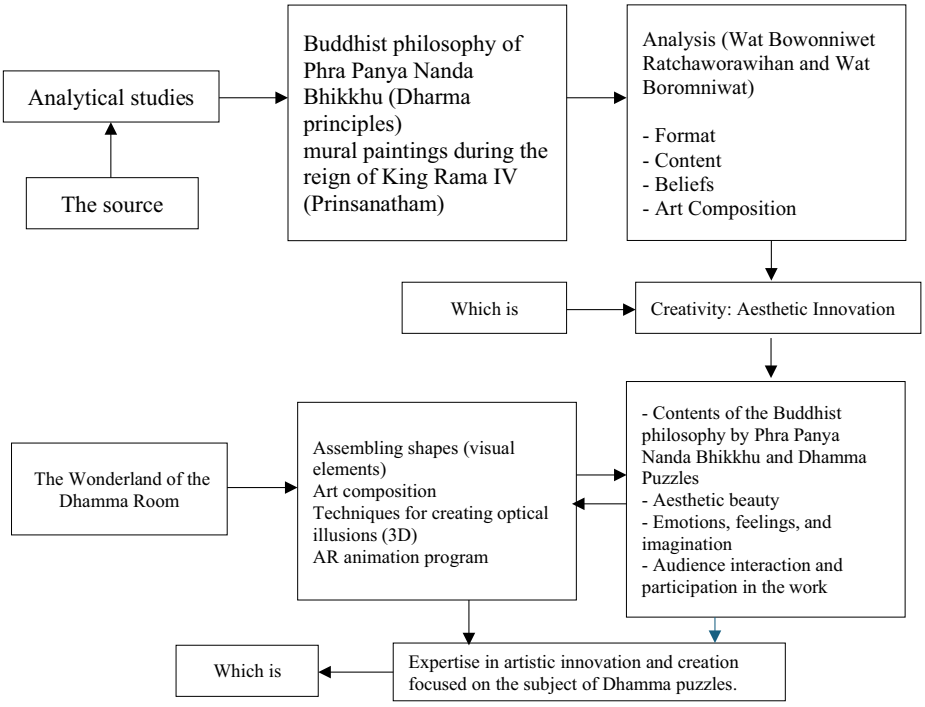


Figure 1 Research conceptual framework

depicting religious mysteries, adorned the ordination halls of Wat Bowonniwet Ratchaviharn and Wat Boromniwat in Bangkok, pivotal locations in Buddhism's dissemination. Khrua's religious depictions in the chapels emphasize 'The Triple Gem', the Buddha, Dhamma, and Sanghaby drawing 'similarities' between diverse elements. These illustrations employ various characters, scenes, buildings, and Western-style atmospheres, influencing subsequent mural painters, especially during King Rama IV's era, evident in the puzzled pictures of Wat Bowonniwet Ratchaworawihan, as shown in Figure 2.

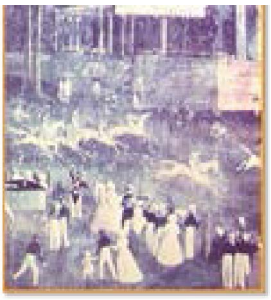
Analysis of mural paintings from the reign of King Rama IV (at Wat Bowonniwet Ratchaworawihan and Wat Boromniwat) as shown in Table 1.

Content analysis of Buddhist philosophy and the principles of teachings of Phra Panya Nanda Bhikkhu.



Figure 2 Mystic pictures of Wat Boromniwat, Bangkok

Table 1 Symbols in mural paintings during the reign of King Rama IV

Composition	Symbols of expression (shapes)	Content	Storyline (Emotion))
Wat Bowonniwet Ratchaworawihan  1. lotus flower picture	Blooming lotus- Buddha Dhamma - The Fragrance of the Lotus Monks - bees and insects that come to gather pollen.	- A blooming lotus symbolizes an arahant. -The lotus bud represents the path, indicative of the results and level of practice. - The lotus flower, free from water, symbolizes the Lord Buddha, who is liberated from all defilements. - Monks engage in practice to attain the opportunity to realize the Dhamma.	It represents the blossoming of wisdom, knowledge, awakening, and joy. The path represents the stages of practice, namely, sotapanna, sakadagami, anagami, and arahant.
Wat Boromniwas  2.A picture of boats and people crossing the shore.	junk - Drowning person People on the boat - Mr. Sampao - Monks - Dhamma	- A drowning person symbolizes one who lacks wisdom. - Those on the boat represent individuals engaged in self-improvement through knowledge to ensure survival. - Mr. Sampao embodies Buddha, while the Dhamma is likened to a vast boat. - Monks are travelers to the shores of the land of pleasure, engaging in dialogue with wise monks. They preach Buddhism and Dhamma principles, guiding others towards the path of Nirvana.	- It expresses survival and existence within society amidst an adventure that everyone must undergo to survive the current social conditions, both of which have been practiced. However, I have not yet practiced. - It showcases realistic drawings of water waves, the sky, and sailboats.
Wat Boromniwas  3.A portrait featuring a sick person and a surgeon	Buddha=A doctor who is an expert in treatment methods Dhamma = medicine for disease Monk = patient recovered from disease.	The media portrays the Buddha, through his teachings, as a cure for diseases such as lust, anger, delusion, and all defilements. May all people gain wisdom and reach Nirvana.	It portrays the realistic atmosphere of landscape science, capturing the interplay of light and shadow on individuals who are sick and in need of treatment. It draws inspiration from the Buddha's teachings on the path to Nirvana.
Wat Boromniwas  4. Picture of Mr. Sarathi, the horse trainer.	- Buddha = Mr. Sarathi, the horse trainer. - Dhamma: How to Train Horses. - Monks = well-trained horses.	It represents the wisdom of the Lord Buddha, who had strategies for delivering sermons and teaching people to understand the principles of Dhamma.	It shows the realistic atmosphere of soldiers riding horses against the backdrop of Hyde Park in London.

Beliefs in Buddhist Philosophy Expressions in Buddhist Philosophy: It is the propagation of the principles of the Buddha. To warn viewers who are interested Consider the causes of suffering that occur in the lives of every human being. And there are practices to relieve suffering and lead to nirvana, which persuade the minds of the viewers to abandon evil, do good, and purify their hearts to create merit and good deeds. Both those who follow the principles and teachings shown in the Dhamma puzzles and creative inheritors Bring faith, wisdom, and liberation as shown in Table 2.

The researcher used the results of the data analysis to create works that influence perception. By incorporating new artistic innovations that are strange and different from before, mysterious stories can be enhanced.

Creativity in Mystery Storylines, from the analysis of Buddhist philosophy image data in terms of principles, teachings, content, beliefs, and symbols of expression, and from the information about the mystical images in the murals from the reign of King Rama IV, a new structure is combined to create appropriate content.

Unity Theory in Art, unity is unity. Harmony and compatibility Unity that arises from the interconnection of different parts. (Nimsamer, 1991) According to the theory of Realism, art should reflect the truth in the lives of individuals and societies, showing landscapes and natural beauty to reflect the truth arising from the artist's experience. It is akin to a historical record. What you see is the creation of work that is a product of truth, expressed in complete detail according to the artist's abilities.

Shape theory, or the theory of prominent shapes, holds that aesthetic emotions and prominent shapes are present in every work of art. According to Clive Bell, a work of art is an object that arouses emotion. This is seen in the mystical paintings of large lotus shapes, representing Buddha symbols. The emphasis on the size highlights the importance and is a clear highlight of the picture. This lotus shape is considered to be both strange and wonderful as shown in Figure 3 and Table 3.

Conclusion and Recommendation

Summary of the Analysis of the Mystery

The integration of Western art style in dhamma puzzles is evident in the work of Khrua In Khong, a favored painter of King Rama IV and a pioneer in the modern tradition of mural painting. Significant examples of his work include the murals found at the ordination halls of Wat Bowonniwet Vihara, located in the Phra Nakhon District, and Wat Boromniwat. These murals represent a departure from ancient themes, such as the history of the Buddha and the Jatakas, transforming them into depictions of religious mysteries and Thai traditions. Moreover, there is a noticeable shift from traditional drawings to realistic portrayals. Khong employs techniques like Chiaroscuro to emphasize the

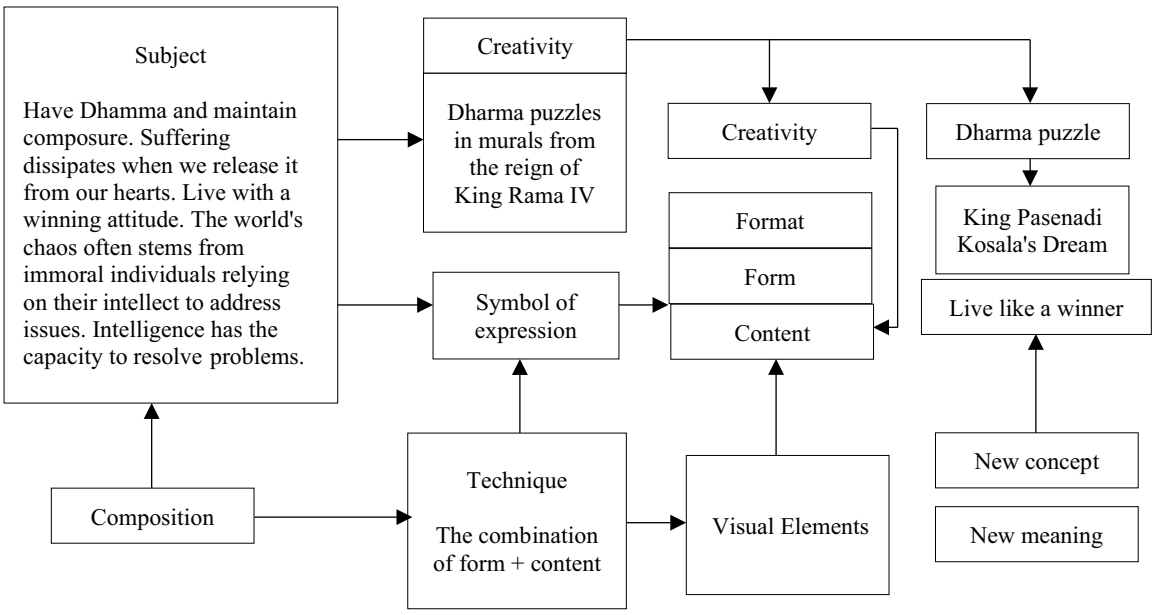
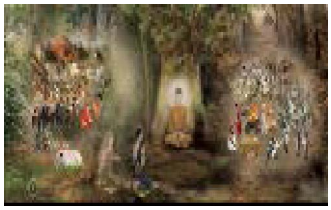


Figure 3 Generating new ideas and plots for the Mystery dharma puzzle

Table 2 Symbols of Buddhist philosophical expressions in the dhamma teachings of Phra Panya Nanda Bhikkhu

Symbol expressing the principles of Buddhist philosophy as taught by Phra Panya Nanda Bhikkhu.			
Abstract (essential content)	Storyline (Emotion) belief	Symbol of expression	Concrete (shape)
1. Live like a winner by accepting and understanding life's constant changes, and adapting to the situation appropriately.	Being in control of changing situations involves letting go of suffering and believing in the success and happiness that come from relinquishing control of our lives.	- As an intelligent person, you can perceive both suffering and happiness in every situation. - Show strength and stability by facing suffering without letting it control or significantly affect your life.	
2. Suffering diminishes as we let go from our hearts. Recognizing and addressing suffering in life involves releasing it with concentration, mindfulness, and wisdom.	By practicing and developing morality, one can journey towards happiness and peace in life.	Meditation is an inner exploration aimed at understanding life's truths and cultivating a state of calm and happiness, even in the face of suffering and pain.	
3. The world is chaotic due to immoral individuals. Understanding the suffering and imperfection of human life involves learning to accept and comprehend pain and suffering.	Confronting suffering with wisdom	Displaying understanding, kindness, and compassion in the midst of suffering and pain is crucial.	
4. Solving problems and alleviating suffering through the application of wisdom and correct understanding.	- Recognize problems and suffering in life, be mindful of them, and avoid avoidance or denial. - Believe in our capacity to address and solve these challenges.	Practicing meditation, mindfulness, and kindness while facing challenges and suffering is essential.	
5. Embrace Dhamma to live peacefully and happily. Cultivate the ability to recognize and foster happiness in life by practicing an understanding of the truth of society and the world's suffering.	- Understanding suffering as an inherent aspect of human life. - Cultivating intelligence to comprehend change.	- Meditation fosters understanding and contemplation of truth. - Positive thoughts inspire and cultivate a mentally joyful life, free from suffering.	

Table 3 Imaginary pictures and dharma puzzle visuals

1. King Pasenadi Kosala's Dream and the Buddha's Prophecies illustrate the power of wisdom in problem-solving.				
Story	Symbol of expression	Substance	Techniques for putting shapes together	Imagination, supposition
King Pasenadi Kosala's Dream and the Buddha's Prophecies.	- When four bulls collide with each other, it signifies that the world is spinning towards decline. - The blooming of small trees symbolizes the youthfulness of human beings and their engagement in sexual activity. - Sacrifice involves killing and torturing, leading astray, and violating the five precepts. - The Buddha, a wise person, resolves problems with wisdom.	The Lord Buddha's prophecy advises sentient beings to exercise caution. Those who are aware of it but do not believe in it will inevitably face the consequences of their actions, akin to the karma of the gol animal. To avoid calamity, one should adhere to the five precepts, cultivate kindness and compassion, act with righteousness, cherish solitude, and strive for knowledge. Avoid being swayed by power, wealth, or superstitious beliefs. Instead, commit to following the teachings of the Buddha, thereby ensuring safety and liberation from danger.	- Arranging overlapping shapes to cover each other. - Creating scenery with optical illusions in a Western art style. - Creating near, middle, and far dimensions in paintings.	  
2. Live with the mindset of a winner.				
Story	Symbol of expression	Substance	Techniques for putting shapes together	Imagination, supposition
Embracing constant change and living with a winner's mindset. Adapting to situations with determination is essential for survival in every circumstance.	- A boat transcends the cycle of life. - Luggage on the boat represents the need to release worldly attachments. - The raft symbolizes the Dhamma, guiding towards freedom from suffering. - Reverend Father Phra Panya Nantha Bhikkhu: A wise person lives with a winning mindset.	Facing suffering involves utilizing meditation, mindfulness, and practicing Dhamma to seek solutions. Letting go of mental anguish fosters mindfulness and inner peace, ultimately leading to happiness. Living with a winning mindset contributes to this journey.	Creating scenery with overlapping shapes intertwined with each other to generate optical illusions. This style is influenced by Western art, aiming to craft a three-dimensional depiction with near, middle, and far dimensions.	  

contrast between light and shadow, while also adhering to Western perspective principles to create a sense of depth between foreground and background elements.

Techniques for Using Paint: The influence of Western art painting, characterized by its realism and principles of perspective, is evident in the choice of painting techniques during certain periods. This influence served as a model and impacted the work of royal artisans in the central region, shaping their style toward a Western realist approach.

Content Consideration: Content is regarded as a pivotal aspect in creating mystical paintings, as it shapes the depicted forms and imbues them with meaning. Diverse and intriguing content choices help capture the attention of viewers, aligning with the teachings of the Buddha. These paintings serve as conduits of Dhamma information, allowing viewers to access the teachings of the Buddha, fostering wisdom and guiding them towards Nirvana through practice.

Creation of Dharma Puzzle Work No. 1: The Dream of King Pasenadi Kosala and the Lord Buddha's Prophecy (Wisdom Can Solve Problems)

In crafting the first Dharma Puzzle Work, titled "The Dream of King Pasenadi Kosala and the Lord Buddha's Prophecy," the emphasis lies on innovative composition. The goal is to achieve unity of form and content that reflects contemporary society, inviting audience participation while maintaining realistic proportions. Drawing from art composition theory, the work incorporates new structural elements to achieve harmony of form, thought, and content within the Dhamma mystery. Three-dimensional expression is utilized to create depth, allowing viewers to engage with the work authentically through realistic proportions, shadows, and shapes.

The mysterious content revolves around the dreams of King Pasenadi Kosala and the Buddha's prophecies, addressing contemporary societal issues. It juxtaposes the problem-solving wisdom of the Buddha with the depiction of societal decline and chaos resulting from immoral behavior, lack of guidance, and ignorance. This comparison serves to intrigue and engage the audience, prompting reflection on the truth and beliefs prevalent in today's society.

The job creation process involves determining proportions based on the viewer's reality, informed by shape theory. Clear aesthetic emotions and shapes are expressed in paintings following the concept of Clive Bell, emphasizing the emotive power of art. The large Buddha figure serves as a focal point, symbolizing wisdom and standing out prominently within the composition. This deliberate choice creates a unique and intriguing element, aligning with the Dhamma mystery's thematic unity. This is consistent with Chalud Nimsamer's theory of unity in art in creating unity. Harmony and compatibility that arise from the relationship between shape and content are as shown in Figure 4.

Creating the 2nd Dhamma Mystery Work: Live like a Winner

This work will be presented in a virtual format, with an emphasis on new compositions that have near, middle, and far dimensions, featuring three-dimensional expression characteristics. The goal is to allow viewers to actively participate in the work. The proportion of light and shadow will determine the size and shape according to reality.

The emphasis is on mystical content, reflecting on living like a winner by constantly accepting change and adapting to situations. It encourages determination



Figure 4 Creation of Dhamma mystery works - the story of King Pasenadi Kosala's dream

to live through every situation, facing all obstacles and suffering with mindfulness and concentration, practicing Dhamma-nature. The work is imbued with peace and tranquility, enhanced by a little sea air, which is symbolic of the birthplace of Phra Panya Nanda Bhikkhu. The nature of the red lotus flower and the image of a boat symbolize overcoming the cycle of rebirth by letting go of worldly attachments, such as wealth, rank, praise, and happiness, in order to follow the principles of the Buddha's teachings. This leads to the development of mindfulness and inner peace, resulting in happiness, freedom, and victory over all.

Job Creation Process: The process involves determining the reality of the participation of people on the bridge within Talay Noi, following the Dhamma of Phra Panya Nanda Bhikkhu according to the theory of realism. This includes showing realistic drawings and painting pictures that depict landscapes and natural beauty to reflect the truth. The creation of this work is a product of truth, incorporating new elements to achieve a unity of form and content. The aim is to attract viewers' attention to perceive Dhamma-Nature as shown in Figure 5.

Knowledge of Creating Innovative Art: This work focuses on using aesthetics to create three-dimensional paintings that express the mystery of the Dhamma. It originates from the analysis of Dhamma mystery depictions in the murals of the Rattanakosin period (King Rama IV) from the thought process Practice of the 2-dimensional mystical religious paintings of murals from the reign of King Rama IV, combined and developed to have 3-dimensional features with light and shadow. According to the realistic model, Resulting in a three-dimensional painting to be modern and usable, better in a new format, new perception with the process of artistic creativity.

These elements are combined with AR systems to allow viewer participation, including both moving and still images in all four works. This combination results in aesthetic beauty that, in my personal opinion, raises awareness of Dhamma and beauty, making it interesting and emotionally engaging.

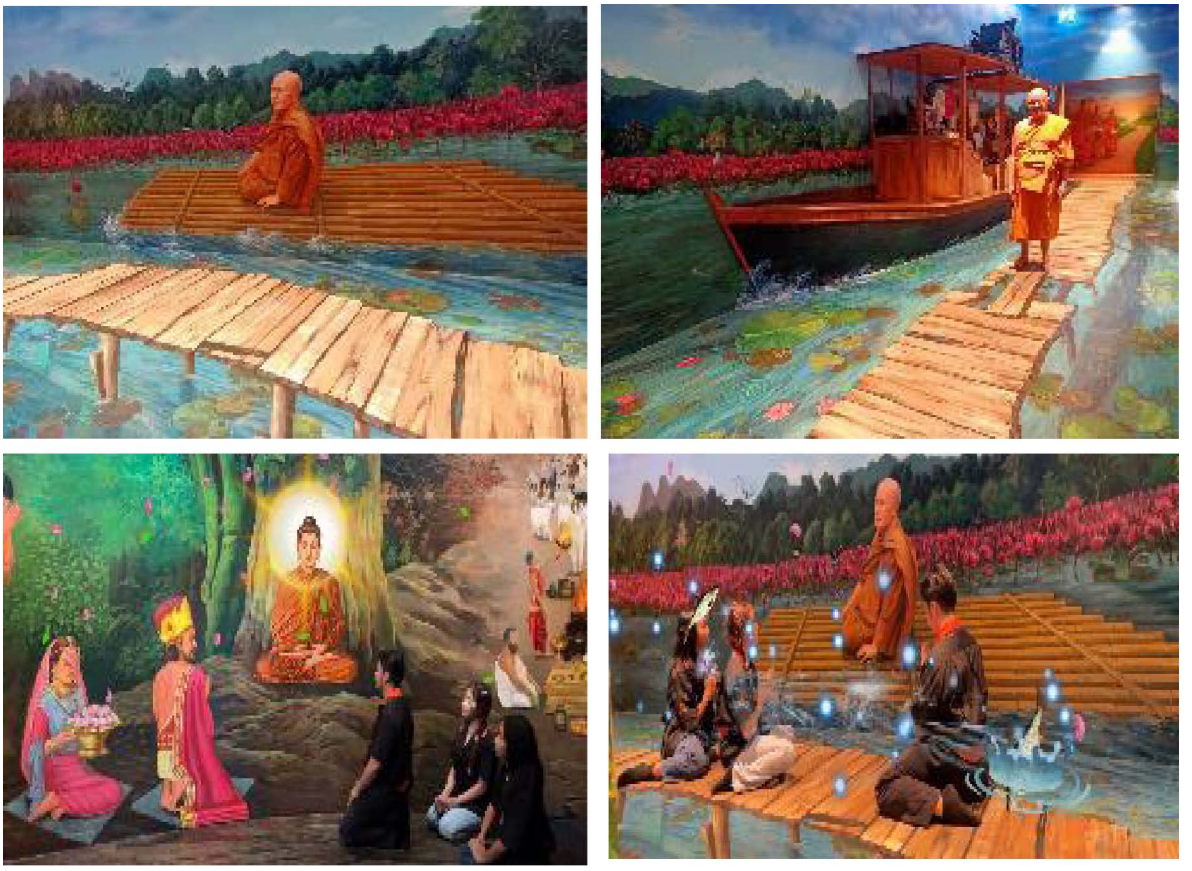


Figure 5 Creation of Dharma puzzle works: Living like a winner

Positive feelings in Buddhism lead to artistic innovations that enhance the perception of dharma puzzles. The creation of Buddhist art using AR technology, combined with three-dimensional paintings, further promotes arts and cultural tourism.

Perception of Religious Images Through AR Technology and Three-Dimensional Paintings at Wonderland of Dhamma Room, Wat Chonlaprathan Rangsarit, Nonthaburi Province as shown in Figure 6.

Figure 6 QR Code the Perception of Religious Images Through AR Technology and Three-Dimensional Paintings at Wonderland of Dhamma Room.

Summary of Knowledge Resulting from Analysis of Previous Knowledge Sets

The analysis of previous knowledge sets on religious puzzle images includes form, techniques, content, beliefs, and symbols of form expression. The composition of murals from the reign of King Rama IV was studied and combined to create new elements within a new framework. By incorporating holism in reorganizing these elements, a new theory of artistic innovation was developed as shown in Figure 7.

Knowledge of innovative art set of original knowledge of the Dhamma mystery pictures was born, in terms of 2D formats, technical techniques for painting pictures according to Western art. Mysterious content Belief and faith lead to wisdom. Symbolic expression of shape according to the theory of realism and composition according to the theory of unity in art combined with AR system technology for a new perception with those involved in still and moving photography.

Suggestions

Suggestions for applying knowledge from the analysis process: Synthesize works to create innovative art aimed at promoting awareness of the principles of Buddhism, as well as to enhance tourism in Buddhist arts and culture.

Conflict of Interest

The authors declare that there is no conflict of interest.

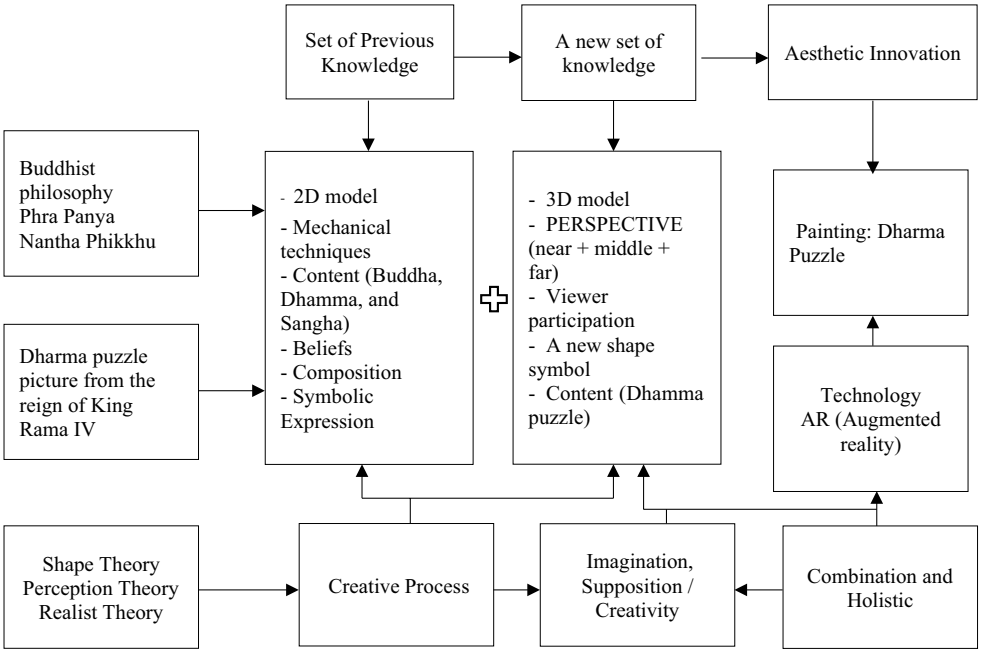


Figure 7 A combination of previous knowledge, new knowledge, and artistic innovation

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The Implementation of Differentiated German Language Learning based on CLIL in Indonesia

Dewi Kartika Ardiyani*, Dudy Syafruddin, Edy Hidayat, Primardiana Hermilia Wijayati, Rofi'ah

Grman Language Education Study Program, Faculty of Letters, State University of Malang, Malang, East Java 65145, Indonesia

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Abstract

This study aims to identify key considerations for German language teachers in Indonesia in implementing differentiated German language learning through the Content and Language Integrated Learning (CLIL) method based on the platform *Kinderuniversität* to achieve the Sustainable Development Goals (SDGs). This research was conducted at Universitas Negeri Malang with 19 teachers as representatives of German Language teachers from the whole of Indonesia as research studies. This qualitative study used a descriptive method supported by quantitative data. The instrument used was the teacher's questionnaire and the document of the lesson plan that they made during the studies (through a workshop). Based on the results of the study, it can be learned that there are several aspects that need to be considered in implementing differentiated learning, including asking each student about their favorite themes, giving students the opportunity to choose their own learning methods and strategies, offering assistance to weak students, using media to stimulate the use of all senses, providing additional tasks for fast learners, providing alternative tasks that are easier and more difficult, providing additional time for slow learners, and using project assignments in German language learning so that each student can contribute what they have mastered. By considering these things, differentiated learning can be implemented. Through differentiated instruction with the CLIL method, students are given various choices based on their individual preferences and needs. Thus, German language learning can accommodate student differences and improve the quality of learning.

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* Corresponding author.
E-mail address: dewi.kartika.fs@um.ac.id (Ardiyani, D. K.).

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Introduction

Education is a fundamental right and plays an important role in human life. Therefore, education is one of the 17 points to be achieved in the Sustainable Development Goals (SDGs) program declared by many UN member countries, including Indonesia, as stated in Presidential Decree Nr. 59 of 2017 (Bappenas, 2023). Related to the SDGs program, improving the quality of education is the core of many studies conducted by academics in order to keep up with the times and achieve a better life (Bappenas, 2023; Nurfatimah et al., 2022; Pribadi, 2017; Safitri et al., 2022). Various learning innovations in various contexts have been developed, including in the context of learning foreign languages, including German.

German is one of the languages that occupies an important role in the world, so that the language is considered needing to be mastered for various academic knowledge and for technological expert facilities. In Indonesia, German is one of the foreign languages that is quite widely studied both in schools and universities. However, since German has different language roots from Indonesian, and Germany is geographically located far from Indonesia, a number of problems arise in learning German, such as speaking anxiety, lack of grammar mastery, difficult German pronunciation, and lack of vocabulary (Ardiyani & Rofiah, 2021) with various background languages and culture that are often an obstacle to successful learning

CLIL is a learning approach that integrates material (content) and the language. CLIL combines language and content approaches, where a second or foreign language is not only used as a language in learning instruction but also as a very important tool for building knowledge (Amiroh et al., 2020; Dafouz et al., 2010; Goethe.de, 2023b; Graham et al., 2018; Kamumu, 2020; Lasagabaster & Doiz, 2016; Yufrizal, 2020). In the context of foreign language learning, CLIL not only raises the expectations of success in language learning but also develops the learner's abilities and discourse in general (Goethe.de, 2023a).

CLIL in learning has been widely researched and applied in various countries. Gruber (2017) implemented CLIL at an Austrian primary school, where the students' mother tongue is German. The findings from this study suggest that students enjoy their English/CLIL lesson and hold largely positive attitudes towards English. In Russian, Fedotova and Shi (2022) stated that CLIL is considered promising, and it can be used as an effective tool for teaching foreign language. Hurajová (2019) from Slovakia, and Lialikhova (2021) from Norway found that CLIL plays an important role in a bilingual classroom. In addition, Goris (2019) investigated the use of CLIL in EFL across The Netherlands, Germany and Italy, and the result shows that CLIL classes had better performance. All those studies mentioned prove that CLIL is effective to be used in foreign language classes e.g. English as foreign language class. Research on CLIL has been conducted by many researchers in various subjects in Indonesia. Research by Amiroh et al. (2020), Kamumu (2020), and Putera and Setianingsih (2017), applied the CLIL approach in mathematics using English, while Mutiah applied CLIL to Indonesian subjects through elective material (Amiroh et al., 2020; Mutiah, 2020; Putera & Setianingsih, 2017). All those studies have a positive impact on learning. Meanwhile, Ardiyani et al. (2023) found that the implementation of CLIL in German has been proven to improve the mastery of material and the didactic methodological competence of German language teachers. In this study, CLIL was still in the context of German in general, while this article focuses on differentiated German language learning based on CLIL. In this context, teachers can already apply CLIL. However, this can be quite challenging, especially in heterogeneous groups.

To overcome the heterogeneous conditions of students, teachers need to prepare before the implementation of differentiated learning. Through this differentiation, learning offers various choices that are based on student differences and are oriented towards students' initial differences. Apart from the possibility of differentiation in social forms, in the scope of learning content or according to the interests of students, it can also be done through the selection of teaching materials and media used

Research on differentiation learning has been conducted by several experts. According to Ardiyani et al., differentiated German language learning is needed because Indonesia has very heterogenous students (Ardiyani et al., 2023). Differentiated learning is thought to be effective in achieving learning success with class characters that have heterogeneous students

Methodology

This qualitative study used a descriptive method supported by quantitative data. It was conducted at Universitas Negeri Malang with 19 teachers as representatives for Indonesian German Language

teachers. The teachers involved in this research are teachers who are members of the Indonesian German Language Teachers Association (IGBJI) who have attended former CLIL workshop (at other meetings and other context), so, they have former knowledge about CLIL. They were teachers with a language level of B1 (CEFR), so they could minimize language errors in the lesson plans they prepared. The instrument used was the teacher's questionnaire results and the learning plan document that they made during the studies (through a workshop).

In the preliminary research, teachers had made a learning plan using CLIL method. In this study, they were learning the concept of differentiated German language learning and how to combine it with CLIL method through the workshop that was held by the researchers. Then they filled out a questionnaire which contains factors that teachers need to pay attention to applying differentiated German Language learning. Then they made a lesson plan for differentiated German language learning through CLIL method based on the online platform *Kinderuniversität.* The lesson plan must meet the specified criteria, namely, it must be in German and include the following information: *Thema* (theme), *Zeitdauer* (learning duration), *Ziel* (learning objectives), *Quelle* (sources), *Methode* (methods), *Medien* (media), and *Schritte* (learning steps). After the data were collected, data analysis was carried out, which was the final stage to add the objectives of this study. In order to be able to conduct an in-depth analysis of the quality of the lesson plans prepared by teachers, researchers and collaborators analyzed the results of each validation in order to provide assessments and suggestions to teachers for improving the lesson plans in the future.

Settings of the Study

In a meeting held on July 27, 2024, a workshop was conducted on preparing a lesson plan for differentiated German language learning through CLIL based on the Kinderuni platform at the German Language Department, Faculty of Letters, State University of Malang. In this workshop, participants had to prepare a Differentiated CLIL-based learning plan consisting of 5 main themes. The preparation of this theme was carried out by considering several important factors, such as suitability with the material on the *Kinderuniversität* platform, relevance to the target group (high school students in grades X-XII), and the language level of students at level A1 according to the CEFR (Common European Framework of Reference for Languages). The target group in this learning plan is high school students in grades X to XII. At this level, students are generally at a stage of intellectual and language development that allows them to apply complex concepts in learning. However, considering that their language level is at level A1 (CEFR), the themes chosen are designed to ensure that the language used in the material is easy to understand and appropriate to students' abilities.

Results and Discussion

The themes and materials used in differentiated learning based on CLIL should be related to the themes and materials available on the *Kinderuniversität* platform, which is the main platform for implementing CLIL-based learning. This platform provides various interactive learning resources, which are designed to support the CLIL approach by providing content that combines language and subject matter. CLIL combines the language and content approaches, where the second language or foreign language is not only used as a language in learning instructions but also as a very important tool for building knowledge (Amiroh et al., 2020; Ardiyani et al., 2023; Dafouz et al., 2010; Goethe.de, 2023b; Graham et al., 2018; Kamumu, 2020; Lasagabaster & Doiz, 2016; Yufrizal, 2020). The CLIL approach is based on three defining aspects (Goethe.de, 2023a). First, the empirical-experimental approach in many subjects, especially natural sciences, which is very important in the process of mastering a foreign language and leads to a learning method by analogy; The second is learning a foreign language in a real-world context with content that can be used directly; And third, the capacity to reinforce the language for actual events and situations can be thoroughly clarified.

As an example, was the following theme named "Das Wasser auf der Welt" (The water in the world). An example of the material can be seen in Figure 1.

This theme discusses various scientific aspects of water that are closely related to daily life, starting from the importance of water for life, the different states of water (liquid, solid, gas), the origin of water, to the process of water evaporating from the sea to form clouds and rain. This theme aligns with the theme in the Faculty of Nature in *Kinderuni*, namely, Regentropfen (Raindrops). An example of the themes available on the Kinderuniversität platform can be seen in Figure 2.

The themes are not only fits to the materials in *Kinderuni*, but also consider students' interests and the relevance of the context in everyday life. This is done



Figure 1 Example of material on the theme of water in the world (Lingonetz.de, 2017)



Figure 2 Example of themes in the platform Kinderuniversität

so that students can be more involved and motivated in the learning process. This is in accordance with the concept of differentiated learning. Differentiated learning is learning that creates diverse classes by giving students the opportunity to obtain materials, process ideas, and improve the learning outcomes of each student, so that learning activities can be more effective (Ardiyani, Hidayat, et al., 2023; Funk et al., 2014; Kamal, 2021; Loibl & Leuders, 2021; Wischer, 2008). Differentiated learning is an adaptation of the German didactic methodic concept, *Binnendifferenzierung* (internal differentiation), which refers to forms and variations of learning (e.g.,

exercises, assignments, texts, strategies, etc.), which take into account learning objectives, needs, abilities, language level, and type of learner

To prepare differentiated CLIL settings for heterogeneous groups, it is necessary to pay attention to factors related to differentiated learning. These points were mentioned during the workshop, then the same aspects were distributed in the questionnaire to ensure that teachers pay attention to the workshop material and can organize differentiated German language learning properly.

The results of the questionnaire regarding the important factors for implementing differentiated learning are presented in Figure 3.

The aspects that need to be considered based on the result of the questionnaire in implementing differentiated learning are as follows:

Eliciting Students' Preferred Themes

Eliciting from each student their preferred theme is one way to find out each individual's preferences. Two-way communication can foster a positive relationship between teachers and students. This is in accordance with one of the objectives of differentiated learning, namely, establishing a strong and harmonious relationship between teachers and students (Leisen, 1999). In addition, this also aims to meet one of students' needs according to Tomlinson et al., namely, students' interest, readiness, and learning profile (Tomlinson et al., 2003).

Eliciting students' preferred themes can also mean providing students with the opportunity to choose subjects they are interested in. In this context, students can select to complete German language assignments in areas such as physics, biology, mathematics, technology, or geography, according to their individual interests. Therefore, teachers must be prepared with German-language materials related to these fields. An example of German language material and an assignment in the field of physics is presented in Figure 4.

Student interest can be a supporting factor in increasing student motivation to actively participate in learning. To consider students' interest in designing learning aims to (1) help students to realize the suitability between learning interests and the chosen school, (2) show the relationship and relevance between all learning, (3) use skills or ideas that are familiar to students as a bridge for students to learn skills or ideas that are not yet familiar, and (4) increase student learning motivation. This is also in accordance with the objectives of differentiated learning, namely, increasing student motivation and learning outcomes (Leisen, 1999). Of the 19 teachers who completed the questionnaire, most (52.6 %) had given students the opportunity to choose themes according to their interests while 47.4 percent of the teachers stated that they were ready to do so in the next lesson. Several

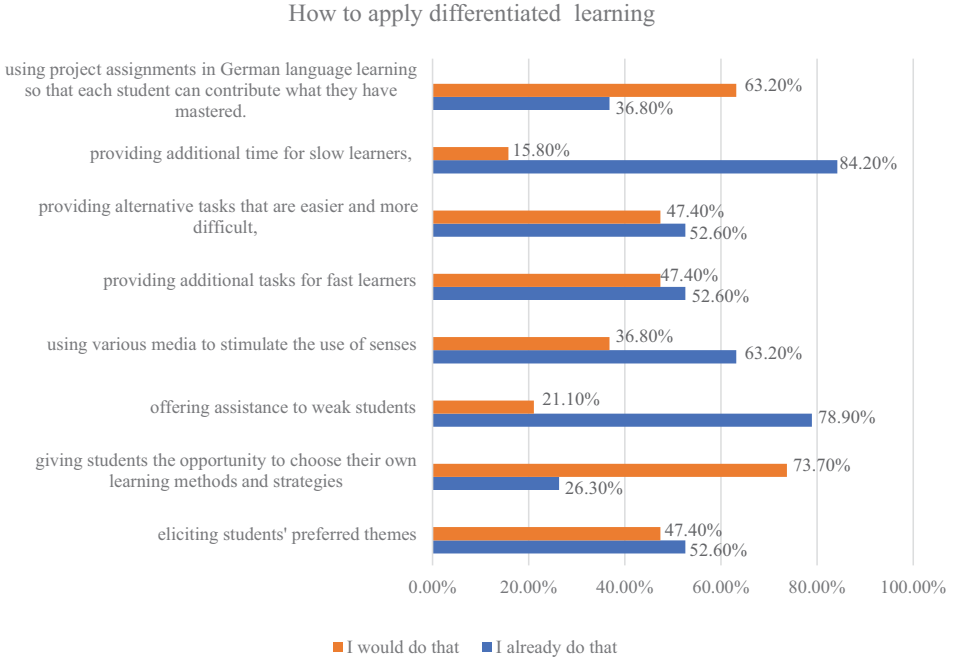


Figure 3 The important factors to implement differentiated learning



Figure 4 Example of German language material and assignment in the subject of physics (Lingonetz.de, 2017)

factors contribute to teachers not offering students the option to choose themes, including the limited resources available to teachers and the requirement to align topics with the curriculum established by the school or the government.

Giving Students the opportunity to Choose Their Own Learning Methods and Strategies

As the theme, teachers should give students the opportunity to choose their own learning methods and strategies. This way, students could measure their abilities and choose what they like. It could support students to be more independent and confident.

This is in accordance with the objectives of differentiated learning, namely, helping students learn according to their abilities (Leisen, 1999). Besides, it could improve their motivation and learning performance, establish strong and harmonious relationships between teachers and students, and train students' independence and activeness in participating in learning (Leisen, 1999). There were still a few teachers who were giving students the opportunity to choose their own learning methods and strategies. 26.3 percent of teachers already do that while 73.7 percent were ready to do that in the future. In a standardized method, the learning outcomes could vary, which may affect the overall effectiveness of the lessons. It is understandable if it is not easy to give this opportunity to students because it could be varied and teachers could have difficulty controlling them. However, by giving them this opportunity, it can enhance students' independence and support differentiated learning, which is believed to be effective in learning foreign languages

Offering assistance to weak students

As effective educators, it is essential to provide assistance whenever students encounter difficulties in their learning process.. Helping students in a proper way could increase their learning motivation as well as their performance. Besides, it also could build a strong and harmonic relationship between teacher and students. Apart from feeling helped, students would feel safe, comfortable and accepted with their weaknesses. This is in line with the objectives of differentiated learning (Leisen, 1999). Most teachers (78.9 %) were already offering assistance to weak students. They are trying their best to give attention to students' needs, such as their readiness and students' learning profile (Tomlinson et al., 2003). The rest of the teachers (21.1 %) are willing to do the same thing in the future. A key factor that prevents teachers from providing assistance to students with weaker abilities is the limited time available. Weak students often require extended periods to complete assignments, making it challenging for teachers to address all the issues these students face within the designated time frame. Furthermore, teachers may not fully recognize the difficulties of these students unless they actively communicate their challenges. Additionally, teachers are often under pressure to complete a topic and transition to the next materials, which can lead to

the assumption that students with weaker abilities have grasped the material, resulting in the continuation of the lesson without further support.

Using media to stimulate the use of all senses

Using media to stimulate the use of all senses aims to optimize learning. The use of media as well as technology in foreign language learning is considered to be effective to support learning needs and improve students ability as well as performance (Hadijah et al., 2020; Hikmah, 2019; Kodrle & Savchenko, 2021). Media could also provide wider access and opportunities for students in building their own knowledge (Hikmah, 2019). As many as 63.2 percent of teachers have provided various media to stimulate the use of all senses, while 36.8 percent are willing to use them in the future. Media can build a positive atmosphere in the class and tend to be fun for students. Thus, the use of media in differentiated learning can help students to learn according to their abilities and increase their motivation and learning performance (Leisen, 1999). A small number of teachers (36.8 %) do not provide various types of media to stimulate the use of all senses due to the limited media available at schools. Some schools lack complete facilities, which requires teachers to teach with the resources at their disposal. However, there are also teachers who are somewhat less active, and even when adequate facilities are available, they do not utilize them. Additionally, the limitation of time remains a significant issue for teachers in incorporating a variety of media into their lessons.

Providing Additional Tasks for Fast Learners

For fast learners, teachers should provide additional tasks to fill the space while they are waiting for the other students and to sharpen their knowledge and language skills. Adding more tasks for fast learners can help them to learn according to their own pace (Leisen, 1999). Such is related to students' learning readiness (Tomlinson et al., 2003). Students' learning readiness is related to the capacity to learn new material. If students are given an assignment that takes into account the level of learning readiness that is adjusted to a suitable and supportive learning environment, students will be able to master the learning material.

An example of an additional task designed for fast learners is presented in Figure 5.

Once they complete their primary assignment, they are given an additional task to research specific information. They scan a barcode that links to a video and then select the correct answer based on the content of the video.



Figure 5 Example of additional task for fast learners (Lingonetz.de, 2017)

Providing additional tasks for fast learners can increase learning motivation and student performance because students would feel validated and appreciated that they are doing a great job and can do more. It also can train students' independence and activeness in participating in learning. This is in line with the objectives of differentiated learning itself (Leisen, 1999). To this point, 47.4 percent teachers have done that, while 52.6 percent teachers would like to do that in the future. There are various reasons why teachers have not yet provided additional tasks for fast learners. Teachers may feel that adding additional tasks for fast learners would require extra time for planning and monitoring. The time required to develop, assign, and assess additional tasks could be seen as an obstacle, especially if the curriculum is already packed or there are multiple responsibilities in managing a class. Some teachers may feel restricted by a rigid curriculum or the need to follow a set pace. If the curriculum does not allow for flexibility, teachers may be unable to create additional tasks for fast learners without deviating from the prescribed content or timeline. In addition, learners may become disengaged or bored if they are constantly given extra tasks. There is also the possibility that teachers worry about the potential for frustration if students are given extra tasks that are not aligned with their interests.

Providing Alternative Tasks that are Easier and More Difficult

As well as providing additional tasks for fast learners, providing alternative tasks that are easier and more difficult could help students to learn at their own pace. It

supports the objectives of differentiated learning to help students learn according to their ability (Leisen, 1999). The fast learners can do more tasks that are even more difficult. It is an alternative. Meanwhile, the slow learners can choose the tasks that are easier so that they can learn step by step. It could however enhance their confidence. An example of an alternative task with a lower level of difficulty is presented in Figure 6.

The alternative task above is relatively easier for learners, as it requires students to read a text and identify items that could contaminate water. The text and pre-established categories assist the students, and the language requirements focus primarily on vocabulary. In contrast, a more difficult alternative task is presented in Figure 7.

This task asks students to share their ideas or opinions on how to conserve water. Although the task may seem brief, it is more challenging due to the need for students to present their opinions in a detailed manner, incorporating more complex language structures.

Those alternative tasks could also increase students' motivation and their learning performance. It also could train students to be more independent and active to participate in learning. Such is in accordance with the objectives of differentiated learning, as stated by Leisen, that differentiated learning increases motivation and learning performance as well as trains students' independence and activeness in learning (Leisen, 1999).

From 19 teachers, 52.6 percent already provide alternative tasks that are easier and more difficult, while 47.45 would like to do it in the future. One common barrier for teachers is the limited time available within the curriculum. Creating, designing, and implementing tasks of varying difficulty requires additional preparation and may be perceived as too time-consuming. Teachers often have to balance the demands of covering the prescribed curriculum, which can make providing differentiated tasks a lower priority. Teachers may feel constrained by a rigid curriculum that does not provide flexibility to create alternative tasks. Standardized testing, pacing guides, and the need to meet specific learning outcomes could prevent them from diversifying their approach to assigning tasks. Developing alternative tasks that cater to varying levels of difficulty may require additional resources, such as technology, instructional materials, or support. If these resources are unavailable or limited



SCHMUTZIGES WASSER

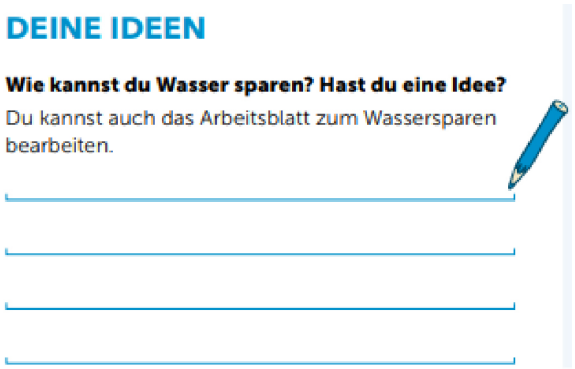
Deine Hände sind schmutzig. Du wäschst sie mit Wasser. Danach ist das Wasser schmutzig. Das schmutzige Wasser nennt man „Abwasser". Das Abwasser kommt in eine Kläranlage. In der Kläranlage wird das Abwasser sauber.

Bei dir **zu Hause** gibt es zum Beispiel beim Kochen, Spülen und Waschen Abwasser. Auch in der **Landwirtschaft** und **Industrie** verschmutzen Chemikalien, Dünger und Öl das Wasser. Das ist für alle schlecht, für Menschen, Tiere, Pflanzen und für die Umwelt.

Diese Dinge verschmutzen das Wasser.
Schreibe die Wörter aus dem Text in die Tabelle.

Zu Hause	Landwirtschaft	Industrie
SEIFE		

Figure 6 Example of alternative easier task (Lingonetz.de, 2017)



DEINE IDEEN

Wie kannst du Wasser sparen? Hast du eine Idee?
Du kannst auch das Arbeitsblatt zum Wassersparen bearbeiten.

Figure 7 Example of alternative more difficult task (Lingonetz.de, 2017)

in their schools, teachers might not feel they can create or manage differentiated tasks effectively. In addition, teachers might be unsure about how to assess and evaluate tasks that vary in difficulty. Designing fair and consistent evaluation criteria for a range of tasks might seem complicated, especially if there is no established framework or rubric for evaluating students working at different levels.

Providing Additional Time for Slow Learners

Additional time means something for slow learners. Providing additional time gives students time to absorb knowledge and gives them the opportunity to perform

at their best. And as the aims of differentiated learning, it helps students to increase motivation and learning performance and train students' independence and activeness in learning (Leisen, 1999).

It is also related to the students' need in learning according to Tomlinson et al., e.g., learning readiness (Tomlinson et al., 2003). Teachers should give slow learners more time, so that they are ready to face the new material. If they are not ready, learning could be less effective because they are not supported to absorb the previous material.Almost all teachers (84.2 %) provide additional time for slow learners already, while a few teachers (15.8 %) would do the same in the future. In the context of differentiated German language learning based on CLIL in Indonesia, several factors may explain why a small percentage of teachers (15.8 %) did not provide additional time for slow learners. One factor is that teachers often face strict time limitations within the curriculum, especially when teaching subjects like German language. The need to meet specific learning outcomes within a set timeframe can make it difficult for teachers to allocate extra time for slow learners, even if they recognize its potential benefits. Additionally, teachers in large classes may struggle to offer individualized support, such as providing additional time, as managing the progress of students at different paces can be overwhelming.

Moreover, some teachers may adhere to traditional teaching models where all students are expected to learn at the same pace. Cultural or institutional expectations in certain educational settings may prioritize uniformity, making teachers reluctant to provide extra time for slow learners. Furthermore, teachers may perceive that their slow learners are coping well with the standard allotted time or may assume that providing extra time will not significantly affect learning outcomes. As a result, they might view additional time as unnecessary, believing that students should simply adapt to the regular pace. Lastly, teachers might prioritize offering extra support through additional resources, guidance, or differentiated tasks rather than providing extra time. They may believe that other forms of support, such as targeted tutoring or one-on-one attention, are more effective for helping slow learners.

Using Project Assignments so that Each Student can Contribute What They Have Mastered

In order for each student to contribute to the material they have mastered, teachers should provide project-based assignments. In this assignment, the various puzzles owned by students can be arranged and collected into a complete knowledge. The use of project-based learning models is one of the effective methods used by teachers to improve learning outcomes and student creativity in schools (Gao et al., 2024; Rizkasari et al., 2022). In addition, the role of teachers and students in project-based learning emphasizes student-centered learning and teachers have a role as tutors who provide resources, support, and advice to students (Gao et al., 2024; Guo et al., 2020; Howard, 2002; Markula & Aksela, 2022; Rizkasari et al., 2022; Thomas, 2000) while the control group used conventional Presentation, Practice, Production (PPP.

The use of project assignments supports the objectives of differentiated learning, e.g. helping students to learn according to their abilities and trains them to be more independent as well as more active in participating in the learning (Leisen, 1999). To consider this kind of assignment, teachers would focus their attention on each student. It is in line with the need of students for differentiated learning according to Tomlinson, e.g., students' learning profile (Tomlinson et al., 2003). Several factors related to students' learning profiles include language, culture, learning style, family background, and health. Mapping students' learning needs based on learning profiles aims to provide students with the opportunity to learn efficiently and naturally. As shown in Figure 8, project assignments can be used to support differentiated learning.

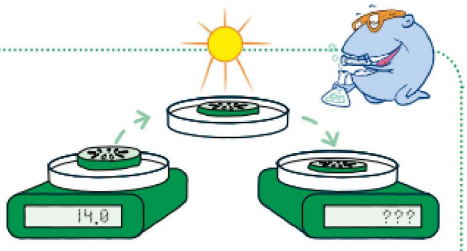
For this project task, students are asked to observe the water content in cucumbers. They are instructed to cut the cucumber and measure its weight. The cucumber is left for several days until it dries, and then its weight is measured again once it is dry. This procedure enables students to calculate the water content of the cucumber in grams. Through this process, students might learn more independently and actively, even if they are doing the task at home.

In this study, 73.7 percent of teachers express a willingness to incorporate project assignments in the future, while 36.8 percent of teachers are already using this type of assignment. The majority of teachers who do not use project-based assignments cite several factors, including: (1) Time and resource constraints: Project assignments typically require more time for planning, implementation, and assessment compared to traditional teaching methods. Teachers may feel overwhelmed by time limitations within an already dense curriculum. Additionally, the resources needed for projects, such as supplementary materials or supporting technology, may not be readily available or accessible to many schools in Indonesia. (2) Lack of experience or training: Teachers

EXPERIMENT 1

WIE VIEL WASSER IST IN EINER GURKE?

Man kann messen, wie viel Wasser in der Gurke ist. Führe das Experiment durch, wie es im Protokoll beschrieben ist.



So schreibst du das Protokoll für das Experiment:

PROTOKOLL		Unser Beispiel
Titel des Experiments	Darum geht es in deinem Experiment	WASSER IN LEBENSMITTELN
Name	Wer macht das Experiment?	Name:
Beginn und Ende	Wann und wie lange führst du das Experiment durch?	Beginn: Datum _____ Uhrzeit _____ Ende: Datum _____ Uhrzeit _____
Versuchsfrage	Was willst du untersuchen?	WIE VIEL WASSER IST IN EINER GURKENSCHEIBE?
Das Material	Welche Materialien brauchst du?	1 SCHEIBE GURKE
Instrumente und Geräte	Welche Hilfsmittel brauchst du?	1 WAAGE
Durchführung	Wie führst du den Versuch durch? Beschreibe genau, was du tust.	1. VON DER GURKE EINE SCHEIBE ABSCHNEIDEN. 2. DIE GURKENSCHEIBE WIEGEN. 3. DIE GURKENSCHEIBE TROCKNEN LASSEN. 4. DIE TROCKENE GURKENSCHEIBE WIEGEN. 5. DAS GEWICHT NOTIEREN. 6. DIE DIFFERENZ BERECHNEN.
Beobachtung	Was beobachtest du?	DAS GEWICHT VOR DEM TROCKNEN: _____ DAS GEWICHT NACH DEM TROCKNEN: _____
Ergebnis	Was ist das Ergebnis?	IN DER GURKE WAREN _____ GRAMM WASSER.

Figure 8 Example of project assignment on the theme of "Water" (Lingonetz.de, 2017)

who are unfamiliar with the Project-Based Learning (PBL) model may lack the confidence or necessary skills to implement it effectively. With 73.7 percent of teachers expressing reluctance to use project-based assignments, this could be attributed to a lack of comprehensive training or the absence of specialized training modules to support project-based teaching, particularly in the context of German language learning. (3) Challenges in managing heterogeneous classes: In CLIL, where students exhibit varying levels of ability, managing a classroom with project-based learning can be particularly challenging. Some teachers may feel that the diverse needs of students make it difficult to apply project assignments effectively, especially without clear, structured support or guidance.

Those are the key considerations for teachers in implementing differentiated German language learning through CLIL. By considering these aspects, teachers are able to prepare differentiated German language learning through CLIL which is proven through a lesson plan. An example of a lesson plan developed by a group of teachers during the workshop is presented in Figure 9.

By considering those aspects, teachers could apply differentiated learning so that learning becomes more effective and of high quality. As stated by Ardiyani et al. (2023) differentiated learning is thought to be effective in achieving learning success with class characters that have heterogeneous students.

LESSON PLAN RAYA, FESYA, NURUL KINDERUNIVERSITÄT
Thema Fireflies (animals)
Level A1
Duration (2×45 Minutes) 90 Minutes
Learning's Objective Learners understand simple information from a video, learn new important vocabulary about animals and can then form simple sentences about fireflies or other animals.

Figure 9 Front view example of a CLIL-based differentiated learning plan from workshop

This study result aligns with previous research on the successful implementation of CLIL across various countries, particularly in addressing diverse student needs. In Austria, Gruber (2017) demonstrated that CLIL effectively engaged primary school students in English lessons, showing how integrating content and language can cater to different learner levels. While the differentiation in Gruber's study was more implicit, it highlights the potential for CLIL to accommodate varying language proficiency levels. Similarly, Fedotova and Shi (2022) in Russia emphasized CLIL's effectiveness in foreign language teaching but did not explore the explicit application of differentiation within CLIL. In Indonesia, studies by Amiroh et al. (2020) and Kamumu (2020) explored CLIL in subjects such as mathematics, revealing positive learning outcomes, though they did not focus on content differentiation. This study, focusing on differentiated German language learning through CLIL in Indonesia, extends these findings by explicitly addressing the intersection of CLIL and differentiation. As highlighted by Ardiyani et al. (2023), Indonesian classrooms are highly heterogeneous, and this study aligns with their work by emphasizing how differentiated CLIL can effectively address such diversity. By tailoring content and language instruction to students' varying academic abilities and interests, this study contributes to the growing body of research on the combination of differentiated learning and CLIL, which enhances both language acquisition and content mastery in diverse educational settings.

Conclusion

A good teacher is one who carefully considers the various factors that influence the success of learning. Such a teacher not only addresses the general factors but also takes into account the diverse needs and characteristics of each student. Differentiated German language learning through the Content and Language Integrated Learning (CLIL) method is a pedagogical approach that effectively accommodates the diverse needs and heterogeneity of students by combining language and content instruction. By understanding the key factors necessary for its successful implementation, differentiated learning can be optimized. This approach enables German language instruction to address the specific needs and preferences of individual students within heterogeneous classrooms, thereby enhancing the overall quality of German language education in high schools across Indonesia. In turn, this contributes to the broader effort of achieving the Sustainable Development Goals (SDGs), particularly in improving the quality of education.

To improve the implementation of CLIL in Indonesian schools, stakeholders can take several actionable steps. These include designing comprehensive training modules for teachers by developing a series of professional development workshops focused on enhancing teachers' abilities to integrate content and language in the context of differentiated learning. Additionally, stakeholders should create a clear, adaptable framework for lesson plan that can be customized to meet the diverse needs of students, ensuring that content is accessible to all learners. Furthermore, it is essential to implement systems for collecting regular, structured feedback from students on CLIL lessons, which will inform and improve teaching practices. By following these steps, stakeholders can ensure that differentiated German language learning through CLIL remains effective, sustainable, and well-supported within Indonesia's education system.

Conflict of Interest

The authors declare that there is no conflict of interest.

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CONTACT

Managing editor kjss@ku.th

Kasetsart University Research and Development Institute (KURDI)

Kasetsart University, 50 Ngamwongwan Road, Chatuchak, Bangkok 10900, Thailand

Tel. +66-2-579-5548, 561-1474