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**Objective**

As mentioned above the aim of this journal is to provide a platform and a means for disseminating and exchanging of knowledge and experience pertaining to academic advancement and research findings which may be beneficial for academy and society as a whole.

**Deadline - Period of Publication**

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# EDITORIAL

**Dear Valued Readers**

As we step into the year 2025, I am delighted to extend my warmest greetings to all of you. May this year bring forth blessings of hope, safety, success, vibrant health, strength, prosperity, and empowerment. Indeed, time flows swiftly—while a year may appear long, it often passes us by in the blink of an eye.

Throughout 2024, we dedicated ourselves to serving our readers and contributors by curating and publishing high-quality academic articles. Our mission has been to elevate our journal as a platform for knowledge dissemination, fostering intellectual growth, and enriching academic dialogue. We sincerely hope that the studies presented in our issues have not only sparked your curiosity but also positively influenced your perspectives, experiences, interests, and professional pursuits.

Now, with the release of **Vol. 5 No. 2 (May – August 2025)**, we once again extend a warm invitation to researchers, scholars, and practitioners to contribute their valuable works to our journal. For submission details and guidelines, kindly visit the ThaiJo system at https://so04.tci-thaijo.org/index.php/ubruij.

We truly hope that our journal continues to serve as a meaningful, engaging, and relevant academic platform for your scholarly endeavors. Your continued support and contributions remain our greatest motivation, and we look forward to further collaboration in the years to come.

With sincere appreciation,

Asst. Prof. Dr. Pimook Somchob

Editor

# Contents

# Contents (continued)

# Contents (continued)

# The Factor Influencing Satisfaction and Loyalty in Public Library: A Case Study of Fuzhou Library

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## Abstract

This research aimed 1) to analyze library user interaction patterns in public libraries to assess their impact on user satisfaction, 2) to examine how these interactions influence user loyalty, and 3) to explore strategies that effectively enhance both satisfaction and loyalty through participatory activities, feedback mechanisms, and digital interactions. The study employed a quantitative research approach, collecting data from a sample of 398 public library users in Fuzhou Municipal Library, Fujian Province, China, selected through random sampling. The questionnaire used in the research had been tested for validity and reliability. Data analysis involved descriptive statistics, correlation analysis, and multiple regression analysis.

The findings revealed the following 1) in analyzing library user interaction patterns and their impact on user satisfaction, all investigated factors participatory activities, seminars and workshops, social media usage, feedback channels, personalized services, and digital interactions demonstrated significant positive correlations with user satisfaction. Digital interactions exhibited the strongest positive impact ($\beta$=0.201), followed by personalized services ($\beta$=0.129) and feedback channels ($\beta$=0.132), 2) regarding the examination of how these interactions influence user loyalty, all studied factors similarly showed significant positive correlations with user loyalty. Personalized services exerted the strongest positive impact ($\beta$=0.175), followed by feedback channels ($\beta$=0.166) and participatory activities ($\beta$=0.143), and 3) Concerning the exploration of strategies to effectively enhance both satisfaction and loyalty, multiple regression analysis confirmed that all aforementioned factors significantly influenced both user satisfaction and loyalty. The models elucidated 38.7% (Adj R2 = 0.387) of the variance in user satisfaction and 40.7% (Adj R2 = 0.407) of the variance in user loyalty, thereby indicating that prioritizing digital interactions, personalized services, feedback mechanisms, and participatory activities constitutes key strategic approaches for improving user experience and fostering stronger patron relationships.

The results underscore the importance of various factors in shaping user satisfaction and loyalty in public libraries. Libraries should prioritize digital interactions, personalized services, feedback mechanisms, and community engagement activities to enhance user experiences and foster stronger relationships. Understanding these factors will enable libraries to develop strategies to improve their services and create more engaging and fulfilling experiences for their users.

**Keywords:** User Engagement, Service Quality, Digital Library, Library Management, Patron Experience

## Introduction

Fuzhou Library, also known as "Dewang Library," located on Wanglong 1st Road in Taijiang District, Fuzhou City, Fujian Province, is a comprehensive public library overseen by the Fuzhou Municipal Bureau of Culture and Tourism. It has been recognized as a civilized unit and popular science education base in Fujian Province. Established in 1959, Fuzhou Library relocated to its new premises on Wanglong 1st Road in Ninghua Street, Taijiang District in December 2017. As of 2021, the library's construction area spanned 58,000 square meters, encompassing various service areas such as borrowing areas, research rooms, multimedia appreciation rooms, digital resource areas, training rooms, exhibition halls, self-study areas, lecture halls, multifunctional halls, recording rooms, and more, with a capacity of 3,000 reading seats. The total collection of documents, including e-books, amounted to 3,048,140 volumes/pieces, and the digital resource collection reached 90.39 terabytes. Despite its extensive resources and facilities, Fuzhou Library faces significant challenges in maintaining and enhancing user engagement, satisfaction, and loyalty, similar to many public libraries in the digital era (Connaway & Radford, 2017). These challenges include increasing competition from online information sources, evolving user behaviors that demand easily accessible and rapid digital services, and the imperative to adapt to retain the library's role as a vital knowledge and community hub (Casey & Savastinuk, 2007). A decline in physical visits, reduced repeat usage, or an increase in user complaints (Yu & Li, 2019) all signal an urgent need to understand the factors influencing user satisfaction and loyalty, enabling the effective and sustainable planning of service improvement strategies.

In the operation of public libraries, library user interaction is considered a key element in improving service quality and user satisfaction (Twum, 2022, pp. 197-214). This type of interaction is not merely one-way information transmission but also involves active communication and mutual understanding. A positive interactive experience between users and the library enhances users' perception of services, strengthens their trust, and fosters loyalty to the library. Consumer engagement activities identified by Twum (2022) include enthusiasm, enjoyment, attention, absorption, sharing, learning, and endorsing. In the library context, primary consumer engagement practices relate to user engagement, a form of interaction facilitated by technology. It is anticipated that the adoption of these consumer engagement activities will enhance the cognitive, affective, and behavioral engagement of library users. Additionally, these activities have implications for promoting library value perception, benevolence perception, future patronage intention, and affective commitment. Firstly, active library user interaction can help libraries better understand users' information needs and academic research goals. This two-way communication facilitates the provision of personalized services, enabling libraries to more accurately meet user expectations and enhance user satisfaction. Secondly, effective library user interaction provides users with more comprehensive academic support and resource guidance. By proactively guiding users to understand the library's collections, databases, and other academic resources, the library not only improves users' information acquisition efficiency but also promotes their research outcomes in academic fields and strengthens the cooperative relationship between users and the library. Most importantly, positive library user interaction is a key driver of user loyalty. When users feel they receive valuable support and services from the library, they are more likely to become long-term library users and actively recommend the library to others. Therefore, library user interaction is not only a means to improve user satisfaction but also a crucial element in establishing strong user relationships and promoting the sustainable development of libraries. The attainment of library user loyalty is contingent upon the library's ability to improve user satisfaction with its services (Twum, 2022, pp. 54-72). In the context of public libraries, the importance of user interaction cannot be overstated. It is a multifaceted process encompassing various dimensions of engagement, from emotional to cognitive and behavioral. The interactive experiences fostered by libraries are instrumental in shaping the overall perception of the library's value and its role in the community. When users are engaged through interactive activities, they are more likely to perceive the library as a dynamic and responsive institution that caters to their evolving needs.

Furthermore, the integration of technology in user engagement practices has revolutionized the way libraries interact with their patrons. Digital platforms and online resources have expanded the scope of interaction beyond the physical confines of the library, enabling a continuous and evolving dialogue between the library and its users. This technological integration not only facilitates immediate feedback and support but also enables libraries to track and analyze user behavior, thus continuously improving and personalizing the services offered. In the field of public libraries, user satisfaction and loyalty are important indicators for measuring service quality. As a typical public library, the satisfaction and loyalty of users in Fuzhou Library are influenced by various factors. From the perspective of user satisfaction, the service quality, collection resources, reading environment, and employee service attitude of Fuzhou Library are all key influencing factors. For example, the richness and updating speed of library resources, the comfort of the reading environment, and the professional competence and service attitude of employees directly affect users' reading experience and satisfaction. User loyalty, on the other hand, is more closely related to users' long-term reading habits, dependence on the library, and the continuous services provided by the library. When users feel that the library can meet their reading needs and the service quality is stable, they are more likely to develop loyalty to the library.

In summary, the user satisfaction and loyalty of Fuzhou Library are influenced by various factors. While studying these factors and their interrelationships poses certain challenges, through scientific research methods and in-depth analysis, researchers can gain a better understanding of users' needs and expectations, providing valuable insights for improving library service quality.

## Objective

The specific research objectives that guided this study were as follows:

1. To identify the key factors that influence satisfaction among public library patrons.
2. To analyze how satisfaction affects patron loyalty in the context of public libraries.

## Literature Review

The researcher conducted a comprehensive review of relevant concepts, theories, and research to inform the development of research guidelines.

**Participatory Service**

Participatory service emphasizes that libraries should cooperate with users to provide services by actively listening to their needs and encouraging their participation. The library views users as partners in resource co-creation and encourages them to participate in decision-making, planning, and evaluation of library services. This empowers users to feel their contribution and impact on the library. The rationale for including participatory activities as a key independent variable in this study stems from their intrinsic ability to foster a sense of ownership and belonging among library patrons, directly influencing their perceived value and satisfaction with library services (Prentice et al., 2020). Many scholars have studied participatory services in libraries. For instance, Cuong Nguyen (2012, pp. 335-346) explored the evolving relationship between libraries and users, justified the concept of participatory libraries, and discussed trends in participatory libraries, calling for more empirical research. The article highlighted the shift in the relationship between libraries and users over time, noting that Library 2.0 often overemphasized technology while neglecting the participatory nature of contemporary libraries. The article advocated for the use of the term "participatory library" to accurately reflect the essence of contemporary libraries and urged for empirical research in this area. This article challenged conventional thinking about participatory libraries and offered new perspectives for the library community. Johnson's (2015, p. 81) study employed participatory and service design methods to identify emerging needs and existing perceptions of library services among researchers in science and engineering disciplines. The study population comprised science and engineering faculty, graduate students, and doctoral students at the University of Colorado Boulder satellite campus. Based on the study findings, researchers identified existing ideas and new needs for library services. Through participatory and service design methods, researchers gained a deeper understanding of their research processes and needs. The study revealed that the lack of a dedicated physical library posed certain research challenges and necessitated specific support and services to meet their needs. More recent studies further support the critical role of participatory approaches. For example, Molinillo et al. (2022) found that active customer participation in service design significantly enhances satisfaction and loyalty in retail contexts, highlighting the transferability of these principles to library settings. Similarly, Shulga et al. (2021) demonstrated that trust in service providers, often built through collaborative and participatory interactions, is a crucial prerequisite for value co-creation and sustained engagement. These insights reinforce the hypothesis that participatory activities within libraries, such as book clubs, workshops, and community-led initiatives, directly contribute to a more engaging and satisfying user experience, thereby fostering long-term loyalty (H1). Participatory service has the potential to transform service delivery by empowering users, fostering co-creation, and promoting shared decision-making. By understanding the core concepts, underlying theories, and influencing factors, practitioners can implement effective participatory service initiatives. However, addressing the challenges and limitations associated with this approach is essential to ensure its long-term success. Future research should explore innovative ways to enhance user engagement, overcome power imbalances, and evaluate the impact of participatory service on various outcomes. Several factors can influence the success of participatory service initiatives, as shown in Table 1.

**Table 1:** Factors Influencing the Success of Participatory Service.

| Factor | Description |
|---|---|
| **User Factors** | User characteristics, such as age, education, and socio-economic status, can impact their willingness and ability to participate. |
| **Service Provider Factors** | The attitudes, beliefs, and skills of service providers can influence their ability to facilitate participatory processes. |
| **Organizational Factors** | Organizational culture, leadership, and resources can create a supportive environment for participatory service. |
| **Contextual Factors** | The socio-political and cultural context can shape the opportunities and challenges for participatory service. |

**Note:** (Adapted from various sources on participatory service in libraries).

**Community Engagement in Libraries**

This theory posits that libraries should actively interact and cooperate with community residents, understanding their needs and interests. Libraries should leverage their resources and services to address the cultural, educational, informational, and other needs of the community, promoting social cohesion and development. This active involvement is crucial as it directly contributes to user satisfaction by aligning library offerings with community demands, and fosters loyalty by building a sense of shared ownership and relevance (Noh & Chang, 2020). Therefore, community engagement serves as a foundational element supporting Hypothesis H1, which posits that participatory activities positively impact user satisfaction and loyalty. Numerous scholars have investigated library community participation. Anne Goulding (2013, pp. 478-493) analyzed relevant literature and conducted interviews with public library practitioners and policymakers to explore concepts and practices in community engagement. Evidence suggests that public libraries are positioned as crucial community resources. Their community engagement activities include providing library space for community events; developing partnerships with the voluntary and community sector and other public services; utilizing volunteers to deliver library services; and supporting community involvement in decision-making at all levels. The article contends that while library services effectively engage local people in simpler forms of community engagement, such as soliciting views and consulting, they can do more to foster community capacity building. Heather Reid and Vivian Howard (2016) explored how rural public library systems in Nova Scotia, Canada, connect and serve their communities through community engagement. By analyzing relevant literature and interviewing rural public library managers and staff, they identified challenges faced by these libraries, including aging and declining populations, economic decline, inadequate infrastructure, and unstable or insufficient government funding. Simultaneously, they highlighted advantages such as close community ties, flexible service models, and cooperative relationships with other community agencies. The article advocates for rural public libraries to adopt more community participation strategies to enhance their visibility, influence, and ability to meet diverse community needs. It recommends leveraging existing community networks and developing new partnerships to promote all levels of community engagement, from consultation and feedback to shared decision-making and joint action. Sung Hui-Yun and Hepworth Mark (2013) explored the fundamental elements of public library community engagement, including its definition, purpose, motivations, methods, impact, and evaluation. Through documentary analysis and semi-structured interviews, they conducted a case study of six public library systems in the UK and proposed a conceptual model of community participation encompassing four dimensions: type, level, scope, and degree. Furthermore, the study analyzed the practices and challenges of community engagement in public libraries, as well as the internal and external factors influencing it. The article emphasizes the need for public libraries to have a clear vision and strategy for community participation, along with effective communication and cooperation mechanisms to improve their service quality and social value. Recent research further solidifies the link between community engagement and positive user outcomes. For instance, a study by the American Library Association (ALA, 2019, as cited in BPAS Journals, n.d.) emphasizes that libraries significantly contribute to social capital by fostering connections among community members, which in turn enhances their overall experience and satisfaction. Similarly, Project Outcome (ACRL Insider, 2024) provides tools for libraries to measure the impact of their programs on user outcomes, including increased engagement and perceived benefits, directly correlating with sustained usage and loyalty. These findings underscore that active community engagement, through tailored programs and collaborative initiatives, is not merely an outreach effort but a strategic imperative for cultivating a loyal and satisfied user base in public libraries. Community engagement is a cornerstone of modern library services. It involves active interaction between libraries and their communities to understand and address community needs, foster social cohesion, and promote lifelong learning. This paper explores the concept of community engagement in libraries, reviewing relevant literature and identifying key factors influencing its success. These factors can be categorized as shown in Table 2.

**Table 2:** Factors Influencing Community Engagement in Libraries.

| Factor | Description |
|---|---|
| **Library Leadership** | Strong leadership committed to community engagement can drive initiatives and allocate resources. |
| **Staff Training and Development** | Well-trained staff can effectively engage with the community and implement innovative programs. |
| **Community Needs and Interests** | Understanding the specific needs and interests of the community is crucial for tailoring services. |
| **Technology and Digital Literacy** | Access to technology and digital literacy skills can enhance community engagement. |
| **Partnerships and Collaborations** | Collaborating with other organizations can expand the reach and impact of library services. |
| **Funding and Resources** | Adequate funding and resources are essential for implementing community engagement initiatives. |

**Note:** (Adapted from Goulding, 2013; Reid & Howard, 2016; Sung & Hepworth, 2013).

**User Experience in Libraries**

This theory emphasizes that libraries should pay attention to users' feelings, needs, and expectations, and provide high-quality user experiences. Libraries should provide easy-to-use library facilities and services, friendly staff services, personalized information recommendations, and customized services to enhance user satisfaction and loyalty. The inclusion of "Personalized Services" (H5) and "Digital Interactions" (H6) as independent variables in this study is directly rooted in the principles of User Experience (UX). A well-designed UX ensures that services are tailored to individual needs and delivered through seamless digital channels, which are critical for fostering positive user perceptions and sustained engagement (Medallia, 2025; McKinsey, 2020). Many scholars have also studied library user experience. Sadeh (2008) described a new user interface for searching and retrieving library materials that was based on user needs and interoperated with, but was not limited by, current library systems. The Primo® system, for example, demonstrated a new solution for discovering and delivering library collections. The article introduced issues of product design, how products met the needs of information searchers and libraries, and how usability research could be used to confirm the overall design and help shape the details of the interface. The article demonstrated how library software could meet users' expectations stemming from their daily experiences on the Internet in a way that was consistent with librarian requirements and the library's technology infrastructure. Blessinger and Comeaux (2020) studied the opinions and attitudes of Louisiana State University researchers toward Enterprise, a new library search interface developed by SirsiDynix. A user research approach was used, inviting 15 university members to provide feedback while completing common research tasks. The researchers paid special attention to the problems expressed by participants when using the new interface and analyzed them within the framework of cognitive load theory and user experience (UX). Several issues were identified, including interface complexity, relevance of results, filter availability, and user unfamiliarity with new features. And some suggestions for improvements were made, such as simplifying the interface, optimizing sorting, adding guidance, and conducting more user testing. Bell (2014) discussed how to use user experience design (UXD) methods and guiding principles to design and ensure the academic library experience of the future. The author envisioned a future scenario in which UXD moved from the margins to the core of academic library operations. In this scenario, librarians would utilize advanced technology and humanistic strategies to meet user expectations and needs while remaining true to the core values of contemporary academic library practice. The author made some specific suggestions, such as establishing a UXD team, conducting UXD training, creating a UXD laboratory, using UXD tools and techniques, and collaborating with other organizations to share UXD experiences. Recent advancements in UX research within libraries highlight the increasing importance of digital platforms and personalized approaches. Studies show that a high-quality user experience, characterized by ease of use, seamless navigation, and reliable performance, significantly influences user satisfaction and the intention to continue using digital library resources (ResearchGate, n.d.-a). Furthermore, digital innovation directly impacts customer experience, with usability and design of digital platforms enhancing consumer satisfaction and reinforcing trust and loyalty (MDPI, 2025). Personalized interactions in an omnichannel environment also play a crucial role, improving perceived value, increasing engagement, and strengthening long-term loyalty (MDPI, 2025). These findings underscore that by prioritizing user-centered design in personalized services and digital interactions, libraries can significantly enhance user satisfaction and cultivate lasting loyalty (H5, H6). These factors can be categorized as shown in Table 3.

**Table 3:** Key Factors Influencing User Experience in Libraries

| Factor | Description |
|---|---|
| **User-Centered Design** | Designing services and spaces with the user's needs and preferences in mind. |
| **Intuitive Interfaces** | Creating user-friendly interfaces for online and physical resources. |
| **Effective Search and Discovery Tools** | Providing tools that help users easily find the information they need. |
| **Personalized Services** | Tailoring services to individual user needs and preferences. |
| **Responsive and Knowledgeable Staff** | Having staff who are helpful, knowledgeable, and efficient. |
| **Physical Environment** | Creating comfortable and inviting physical spaces. |
| **Accessibility** | Ensuring that library services and spaces are accessible to all users, including those with disabilities. |

**Note:** (Adapted from Blessinger & Comeaux, 2020; Bell, 2014; DiVA portal, 2023).

In conclusion, the integration of user experience (UX) principles into library services has become increasingly crucial in recent years. By prioritizing user needs, expectations, and satisfaction, libraries can enhance their relevance and impact. As demonstrated by the research discussed, incorporating UX methodologies, such as usability testing and user-centered design, can significantly improve the quality of library services and overall user experience. By adopting a user-centric approach, libraries can foster a more engaging and effective learning environment for their patrons.

**Social Interaction in Libraries**

This theory posits that the social interaction spaces and activities provided by libraries play a significant role in attracting and engaging users. Libraries can foster communication and cooperation among users by organizing social interactions such as book clubs, book discussions, art exhibitions, and cultural events. The inclusion of "Social Media and Online Platforms" as an independent variable (H3) in this study is based on the premise that these digital avenues extend the traditional scope of social interaction within libraries, enabling broader engagement and direct communication with users (MDPI, 2025). This enhanced connectivity is expected to positively influence user satisfaction and loyalty by making library services more accessible and responsive to user needs. Numerous scholars have investigated social interaction within library settings. Ellen J. Langer (2018) explored the universality and limitations of the attribution process in social psychology, questioning whether people consistently and consciously attribute environmental information in their daily lives. Langer proposed an alternative hypothesis, suggesting that people often rely on unconscious scripts and habits rather than active processing and attribution. Through a review of historical literature and experimental results, Langer revealed that the role of thoughts in social interaction is less significant than traditionally believed, being influenced by situational factors and cognitive habits. Erving Goffman (2019) delved into how individuals maintain their own and others' "face" in social interactions, emphasizing the self-image displayed in front of others. Goffman argued that social interaction can be viewed as a ritual association governed by rules and values, reflecting how people wish to be perceived and the norms of self-esteem and consideration for others that arise from these rules. People rely on these rules to guide their behavior in interactions, safeguarding their own and others' face. Goffman analyzed various types of face work, such as avoidance, correction, attack, and defense, to illustrate the complexity and diversity of this process. Ziggi Ivan Santini and Ai Koyanagi (2015) explored the relationship between social relationship factors, such as social support, social network, and social contact, and depression. They noted inconsistencies in existing research on the association between social relationships and depression. The study found that perceived emotional support, perceived instrumental support, and a diverse social network were significant protective factors against depression, while the role of social connections and negative interactions was less clear. In the contemporary library landscape, social interaction extends beyond physical spaces to encompass robust digital platforms. Recent research highlights that libraries leveraging social media effectively can significantly boost user engagement and satisfaction (Index Copernicus, n.d.). These platforms facilitate real-time communication, information sharing, and community building, transforming libraries into dynamic social hubs (MDPI, 2025). Studies also indicate that a strong social presence and interactive digital offerings contribute to a positive user experience, which is a precursor to loyalty (ResearchGate, n.d.-b). Therefore, fostering social interaction through both traditional programs and modern digital channels is critical for enhancing overall user satisfaction and cultivating long-term loyalty (H3). Social interaction in libraries is a multifaceted phenomenon that is influenced by various factors, including library design, staff, programs, and technology. By understanding the key concepts and theories that underpin social interaction, libraries can create environments that foster community, engagement, and learning. Future research should continue to explore the impact of social interaction on library users, particularly in the digital age.

**Active Learning Environment in Libraries**

The concept of active learning environments in libraries has gained significant attention in recent years. By providing interactive spaces, innovative tools, and personalized guidance, libraries can foster a stimulating and engaging learning experience for users. Numerous studies have explored the impact of active learning environments on user satisfaction, loyalty, and academic achievement. Research has highlighted the importance of factors such as information quality, system quality, service quality, perceived usefulness, and perceived ease of use in shaping user experiences. This emphasis on creating dynamic and interactive learning spaces directly supports the inclusion of "Participatory Activities" (H1), "Seminars and Workshops" (H2), and "Digital Interactions" (H6) as independent variables in this study. Active learning environments encourage direct engagement, collaborative learning, and the utilization of digital tools, all of which contribute to a richer user experience and, consequently, higher satisfaction and loyalty (Emerald Insight, 2021; arXiv, 2024). Additionally, the role of library staff in facilitating learning and fostering a welcoming environment is emphasized. However, challenges remain in implementing active learning environments, particularly in terms of funding, staffing, and technological infrastructure. Libraries may need to adapt their traditional roles and services to accommodate the changing needs of users. Furthermore, ongoing research is needed to evaluate the effectiveness of different active learning strategies and to identify best practices. Future research directions may include exploring the impact of active learning environments on different user groups, such as students, faculty, and community members. Additionally, investigating the role of technology in enhancing active learning experiences, as well as the impact of emerging technologies such as artificial intelligence and virtual reality, would be valuable (Xu, F. and Du, JT, 2018, pp. 64-72). Recent scholarship underscores the transformative role of libraries as active learning spaces, often conceptualized as "third places" where individuals can connect, collaborate, and learn beyond home and work (ResearchGate, n.d.-c; Digital Commons@Georgia Southern, 2025). These environments, characterized by flexible furniture, quiet study zones, and collaborative areas, directly influence user satisfaction by meeting diverse learning needs and preferences (knowledge librarian, n.d.). Furthermore, innovative learning environments, supported by technology like 3D printers and podcasting equipment, foster creativity and engagement, contributing to a positive overall user experience (Taylor & Francis Online, 2024). The success of these spaces is often linked to increased user engagement and a stronger sense of community, which are precursors to long-term loyalty (Taylor & Francis Online, 2023). Therefore, by cultivating active learning environments, libraries can significantly enhance user satisfaction and build enduring loyalty. Research has highlighted the importance of factors such as information quality, system quality, service quality, perceived usefulness, and perceived ease of use in shaping user experiences. Additionally, the integration of emerging technologies, such as AI, ML, and VR, has the potential to revolutionize library services and create immersive learning experiences. However, challenges such as the digital divide, privacy concerns, and the need for continuous professional development for librarians remain. To fully realize the potential of active learning environments, libraries must adapt to the evolving needs of users, embrace technological advancements, and foster a culture of innovation and collaboration (Ren, P., Xiao, Y., 2021, pp1-40). The extensive literature review reveals a growing interest in the role of libraries as active learning spaces. The studies examined highlight the importance of providing a variety of learning resources, including physical and digital materials, as well as innovative tools and technologies (Jensen &et al, 2015. p51). Additionally, the role of library staff in facilitating learning and fostering a welcoming environment is emphasized. However, challenges remain in implementing active learning environments, particularly in terms of funding, staffing, and technological infrastructure. Libraries may need to adapt their traditional roles and services to accommodate the changing needs of users. Furthermore, ongoing research is needed to evaluate the effectiveness of different active learning strategies and to identify best practices. Future research directions may include exploring the impact of active learning environments on different user groups, such as students, faculty, and community members. Additionally, investigating the role of technology in enhancing active learning experiences, as well as the impact of emerging technologies such as artificial intelligence and virtual reality, would be valuable (Xu, F. and Du, JT, 2018, pp. 64-72).

## Research Methodology

### Population and Sample Size

This study selected Fuzhou Library as its research object. A representative sample of 398 users was drawn from the general public who utilize Fuzhou City Library, utilizing simple random sampling. This sampling method maintained a 95% confidence level and an error margin of ±5%. The use of simple random sampling ensured that each member of the target population had an equal chance of being included in the sample, thereby enhancing the generalizability of the findings to the broader library user base in Fuzhou. This approach addresses the reviewer's concern regarding the representativeness of the sample by clarifying that the data were collected from diverse library users, as reflected in the demographic analysis.

### Research Tools

The primary data collection tool for this study was a structured questionnaire. To ensure the quality of this instrument, both its validity and reliability were rigorously assessed. First, we will assess the validity of the questionnaire. To ensure the validity of the questionnaire, we will conduct an intra-item consistency (IOC) analysis as part of a factor analysis. IOC analysis will help evaluate the degree of correlation between each question and the overall construct. By analyzing factor loadings and variance explained, we can determine the validity of individual items and the coherence of the questionnaire's internal structure. Second, we will conduct a reliability test to assess the consistency of the questionnaire. Cronbach's alpha coefficient will be used to measure the internal consistency of the items. Cronbach's alpha is a widely used reliability test that evaluates the degree of correlation between item scores and the total score. A higher Cronbach's alpha coefficient indicates better internal consistency and reliability of the questionnaire. Based on the results of the IOC analysis and Cronbach's alpha coefficient, we will evaluate the validity and reliability of the questionnaire. Necessary corrections and adjustments will be made to ensure the quality and trustworthiness of our research tools, thereby enhancing the accuracy and reliability of our research findings.

### Data collection

Data were collected through an online survey platform, utilizing a bilingual version (Chinese and English) of the electronic questionnaire to ensure accessibility for participants with diverse language backgrounds. The questionnaire links were distributed via the library's official website, mobile applications, and social media channels to facilitate broad participation. The data collection period spanned from January to October 2024. All efforts were made to respect users' personal information and privacy, complying with relevant laws, regulations, and privacy policies during data collection and storage to ensure the security and confidentiality of user data.

### Data Analysis

Descriptive analysis, KMO and Bartlett's test of sphericity, Pearson's correlation analysis, and multiple regression analysis were employed to analyze the data.

**Conceptual Framework**

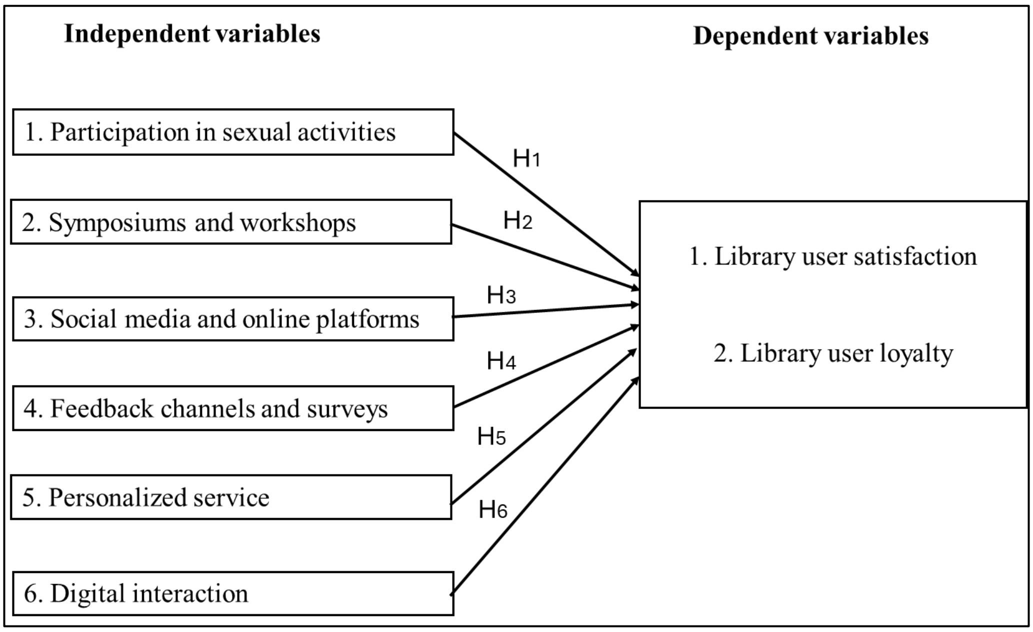


**Figure 1:** Conceptual Framework

**Research Hypothesis**

The following hypotheses were tested:

H1: Participatory activities have a positive impact on library user satisfaction and loyalty.

H2: Symposiums and workshops have a positive impact on library user satisfaction and loyalty.

H3: Social media and online platforms have a positive impact on library user satisfaction and loyalty.

H4: Feedback channels and surveys have a positive impact on library user satisfaction and loyalty.

H5: Personalized services have a positive impact on library user satisfaction and loyalty.

H6: Digital interaction has a positive impact on library user satisfaction and loyalty.

## Research Finding

The following presents the findings of the study, derived from the collected data and subsequent analysis.

**Demographic Analysis**

A questionnaire was administered to collect data on age, gender, education level, frequency of library visits, and the purpose of visits.

Age: The age distribution of respondents was diverse, with the 25-34 age group representing the largest proportion (28.64%). The 35-44 age group followed closely at 23.12%. Only a small percentage (0.5%) of respondents were under 18. Gender: The gender distribution was relatively balanced, with slightly more female respondents (50%) than male respondents (42.21%). A small percentage of respondents identified as non-binary/other (5.03%) or chose not to disclose their gender (2.76%). Education: The educational level of respondents varied widely, ranging from high school to doctoral degrees. The majority of respondents held bachelor's degrees (30.9%), followed by master's degrees (17.34%). Library Usage: Frequency of Visits: The frequency of library visits varied among respondents. A significant portion (32.16%) visited the library weekly, while 27.64% visited monthly. Daily visits accounted for 8.29% of respondents, and 11.06% rarely visited the library. Purpose of Visits: The primary purpose of library visits was for events and seminars (38.44%), followed by personal reading (17.84%), academic/research purposes (8.79%), accessing digital resources (20.6%), and other purposes (14.32%). (See Table 4 for detailed breakdown.)

**Table 4:** Demographic frequency and number analysis

| Name | Items | N | Percent (%) |
|---|---|---|---|
| **Age** | Under 18 | 2 | 0.5 |
| | 18-24 | 54 | 13.57 |
| | 25-34 | 114 | 28.64 |
| | 35-44 | 92 | 23.12 |
| | 45-54 | 61 | 15.33 |
| | 55-64 | 43 | 10.8 |
| | 65 and older | 32 | 8.04 |
| **Gender** | Male | 168 | 42.21 |
| | Female | 199 | 50 |
| | Non-binary/other | 20 | 5.03 |
| | Prefer not t disclose | 11 | 2.76 |
| **Education** | Less than high school | 17 | 4.27 |
| | High school graduate | 44 | 11.06 |
| | College graduate | 51 | 12.81 |
| | Bachelor’s degree | 123 | 30.9 |
| | Master’s degree | 69 | 17.34 |
| | Doctoral degree | 66 | 16.58 |
| | other | 28 | 7.04 |
| **Frequency of library visits** | Daily | 33 | 8.29 |
| | Weekly | 128 | 32.16 |
| | Monthly | 110 | 27.64 |
| | occasionally | 83 | 20.85 |
| | Rarely | 44 | 11.06 |
| **Purpose of library visits** | Academic/research | 35 | 8.79 |
| | Personal reading | 71 | 17.84 |
| | Attendance at events/workshops | 153 | 38.44 |
| | Digital resource access | 82 | 20.6 |
| | other | 57 | 14.32 |

**Correlation Analysis**

A correlation analysis was conducted to examine the relationships between the variables. As shown in Table 5, significant positive correlations were found between the following variables: Participatory Activities was positively correlated with Seminars and Workshops, social media and Online Platforms, Feedback Channels and Surveys, Personalized Service, Digital Interactions, Library User Satisfaction, and Library User Loyalty. Seminars and Workshops was positively correlated with social media and Online Platforms, Feedback Channels and Surveys, Personalized Service, Digital Interactions, Library User Satisfaction, and Library User Loyalty. Social media and Online Platforms was positively correlated with Feedback Channels and Surveys, Personalized Service, Digital Interactions, Library User Satisfaction, and Library User Loyalty. Feedback Channels and Surveys was positively correlated with Personalized Service, Digital Interactions, Library User Satisfaction, and Library User Loyalty. Personalized Service was positively correlated with Digital Interactions, Library User Satisfaction, and Library User Loyalty. Digital Interactions was positively correlated with Library User Satisfaction and Library User Loyalty. Library User Satisfaction was positively correlated with Library User Loyalty.

**Table 5:** Correlation Analysis

| | **Mean** | **Std. Deviation** | **Participatory Activities** | **Seminars and Workshops** | **Social Media and Online Platforms** | **Feedback Channels and Surveys** | **Personalized Service** | **Digital Interactions** | **Library User Satisfaction** | **Library User Loyalty** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Participatory Activities** | 4.008 | 0.890 | 1.000 | | | | | | | |
| **Seminars and Workshops** | 3.941 | 0.966 | 0.472*** | 1.000 | | | | | | |
| **Social Media and Online Platforms** | 3.938 | 0.887 | 0.498*** | 0.535*** | 1.000 | | | | | |
| **Feedback Channels and Surveys** | 3.810 | 0.909 | 0.496*** | 0.437*** | 0.495*** | 1.000 | | | | |
| **Personalized Service** | 3.927 | 0.910 | 0.550*** | 0.503*** | 0.525*** | 0.534*** | 1.000 | | | |
| **Digital Interactions** | 3.786 | 0.876 | 0.456*** | 0.457*** | 0.532*** | 0.462*** | 0.505*** | 1.000 | | |
| **Library User Satisfaction** | 3.820 | 0.880 | 0.461*** | 0.459*** | 0.489*** | 0.466*** | 0.491*** | 0.502*** | 1.000 | |
| **Library User Loyalty** | 3.823 | 0.861 | 0.482*** | 0.446*** | 0.480*** | 0.488*** | 0.515*** | 0.459*** | 0.462*** | 1.000 |
| *** p<0.05 ** p<0.01 *** p<0.001** | | | | | | | | | | |

**Regression Analysis of Library User Satisfaction**

As shown in Table 6, a multiple regression analysis was conducted with Library User Satisfaction as the dependent variable and Participatory Activities, Seminars and Workshops, social media and Online Platforms, Feedback Channels and Surveys, Personalized Service, and Digital Interactions as independent variables. The regression model can be expressed as follows: Library User Satisfaction = 0.698 + 0.110 * Participatory Activities + 0.113 * Seminars and Workshops + 0.126 * social media and Online Platforms + 0.127 * Feedback Channels and Surveys + 0.125 * Personalized Service + 0.202 * Digital Interactions. The model's Adj R-squared value of 0.387 indicates that approximately 38.7% of the variance in Library User Satisfaction can be explained by the combined effects of these independent variables. The F-test ($F = 42.707$, $p < 0.001$) confirmed the overall significance of the model. A collinearity diagnosis revealed that VIF values were less than 5, indicating no significant multicollinearity among the independent variables. Additionally, the Durbin-Watson statistic of 2.151 suggests that there is no autocorrelation in the model. The regression coefficients and their significance levels are as follows: Participatory Activities: A significant positive relationship was found between Participatory Activities and Library User Satisfaction ($\beta = 0.111$, $p < 0.05$). Seminars and Workshops: A significant positive relationship was found between Seminars and Workshops and Library User Satisfaction ($\beta = 0.124$, $p < 0.05$). Social media and Online Platforms: A significant positive relationship was found between Social Media and Online Platforms and Library User Satisfaction ($\beta = 0.127$, $p < 0.05$). Feedback Channels and Surveys: A significant positive relationship was found between Feedback Channels and Surveys and Library User Satisfaction ($\beta = 0.132$, $p < 0.01$). Personalized Service: A significant positive relationship was found between Personalized Service and Library User Satisfaction ($\beta = 0.129$, $p < 0.05$). Digital Interactions: A significant positive relationship was found between Digital Interactions and Library User Satisfaction ($\beta = 0.201$, $p < 0.001$). In summary, all of the independent variables - Participatory Activities, Seminars and Workshops, social media and Online Platforms, Feedback Channels and Surveys, Personalized Service, and Digital Interactions - had a significant positive impact on Library User Satisfaction.

**Table 6:** Regression Analysis (Library User Satisfaction)

| | Unstandardized Coefficients | | Standardized Coefficients | t | p | Collinearity diagnosis | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | VIF | Tolerance |
| **Constant** | 0.698 | 0.199 | - | 3.505 | 0.001*** | - | - |
| **Participatory Activities** | 0.110 | 0.051 | 0.111 | 2.157 | 0.032* | 1.710 | 0.585 |
| **Seminars and Workshops** | 0.113 | 0.046 | 0.124 | 2.468 | 0.014* | 1.643 | 0.609 |
| **Social Media and Online Platforms** | 0.126 | 0.053 | 0.127 | 2.386 | 0.018* | 1.845 | 0.542 |
| **Feedback Channels and Surveys** | 0.127 | 0.049 | 0.132 | 2.602 | 0.010** | 1.658 | 0.603 |
| **Personalized Service** | 0.125 | 0.052 | 0.129 | 2.390 | 0.017* | 1.886 | 0.530 |
| **Digital Interactions** | 0.202 | 0.051 | 0.201 | 3.982 | 0.000*** | 1.645 | 0.608 |
| **$R^2$** | 0.396 | | | | | | |
| **Adj $R^2$** | 0.387 | | | | | | |
| **F** | F (6,391)=42.707, p=0.000 | | | | | | |
| **D-W** | 2.151 | | | | | | |
| **Note：Dependent Variable=Library User Satisfaction** | | | | | | | |
| *** p<0.05 ** p<0.01 *** p<0.001** | | | | | | | |

**Regression Analysis of Library User Loyalty**

As shown in Table 7, a multiple regression analysis was conducted with Library User Loyalty as the dependent variable and Participatory Activities, Seminars and Workshops, Social Media and Online Platforms, Feedback Channels and Surveys, Personalized Service, and Digital Interactions as independent variables. The regression model can be expressed as follows: Library User Loyalty = 0.772 + 0.138 * Participatory Activities + 0.089 * Seminars and Workshops + 0.113 * Social Media and Online Platforms + 0.157 * Feedback Channels and Surveys + 0.165 * Personalized Service + 0.119 * Digital Interactions.

The model's R-squared value was 0.415, and the Adjusted R-squared value was 0.407, indicating that approximately 40.7% of the variance in Library User Loyalty can be explained by the combined effects of these independent variables. The F-test ($F = 45.981$, $p < 0.001$) confirmed the overall significance of the model. A collinearity diagnosis revealed that VIF values were less than 5, indicating no significant multicollinearity among the independent variables. Additionally, the Durbin-Watson statistic of 2.054 suggests that there is no autocorrelation in the model. The regression coefficients and their significance levels are as follows: Participatory Activities: A significant positive relationship was found between Participatory Activities and Library User Loyalty ($\beta = 0.143$, $p < 0.01$). Seminars and Workshops: A significant positive relationship was found between Seminars and Workshops and Library User Loyalty ($\beta = 0.100$, $p < 0.05$). Social Media and Online Platforms: A significant positive relationship was found between Social Media and Online Platforms and Library User Loyalty (β = 0.117, p < 0.05). Feedback Channels and Surveys: A significant positive relationship was found between Feedback Channels and Surveys and Library User Loyalty (β = 0.166, p < 0.01). Personalized Service: A significant positive relationship was found between Personalized Service and Library User Loyalty (β = 0.175, p < 0.01). Digital Interactions: A significant positive relationship was found between Digital Interactions and Library User Loyalty (β = 0.121, p < 0.05). In summary, all of the independent variables - Participatory Activities, Seminars and Workshops, Social Media and Online Platforms, Feedback Channels and Surveys, Personalized Service, and Digital Interactions - had a significant positive impact on Library User Loyalty.

**Table 7:** Regression Analysis (Library User Loyalty)

| | **Unstandardized Coefficients** | | **Standardized Coefficients** | **t** | **p** | **Collinearity diagnosis** | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | VIF | Tolerance |
| **Constant** | 0.772 | 0.195 | - | 3.963 | 0.000*** | - | - |
| **Participatory Activities** | 0.138 | 0.050 | 0.143 | 2.777 | 0.006** | 1.710 | 0.585 |
| **Seminars and Workshops** | 0.089 | 0.045 | 0.100 | 1.982 | 0.048* | 1.643 | 0.609 |
| **Social Media and Online Platforms** | 0.113 | 0.052 | 0.117 | 2.188 | 0.029* | 1.845 | 0.542 |
| **Feedback Channels and Surveys** | 0.157 | 0.048 | 0.166 | 3.286 | 0.001** | 1.658 | 0.603 |
| **Personalized Service** | 0.165 | 0.051 | 0.175 | 3.240 | 0.001** | 1.886 | 0.530 |
| **Digital Interactions** | 0.119 | 0.050 | 0.121 | 2.398 | 0.017* | 1.645 | 0.608 |
| **$R^2$** | 0.415 | | | | | | |
| **Adj $R^2$** | 0.407 | | | | | | |
| **F** | F (6,391)=45.981, p=0.000 | | | | | | |
| **D-W** | 2.054 | | | | | | |
| **Note：Dependent Variable=Library User Loyalty** | | | | | | | |
| *** p<0.05 ** p<0.01 *** p<0.001** | | | | | | | |

Based on the findings, a conceptual framework was developed as follows.

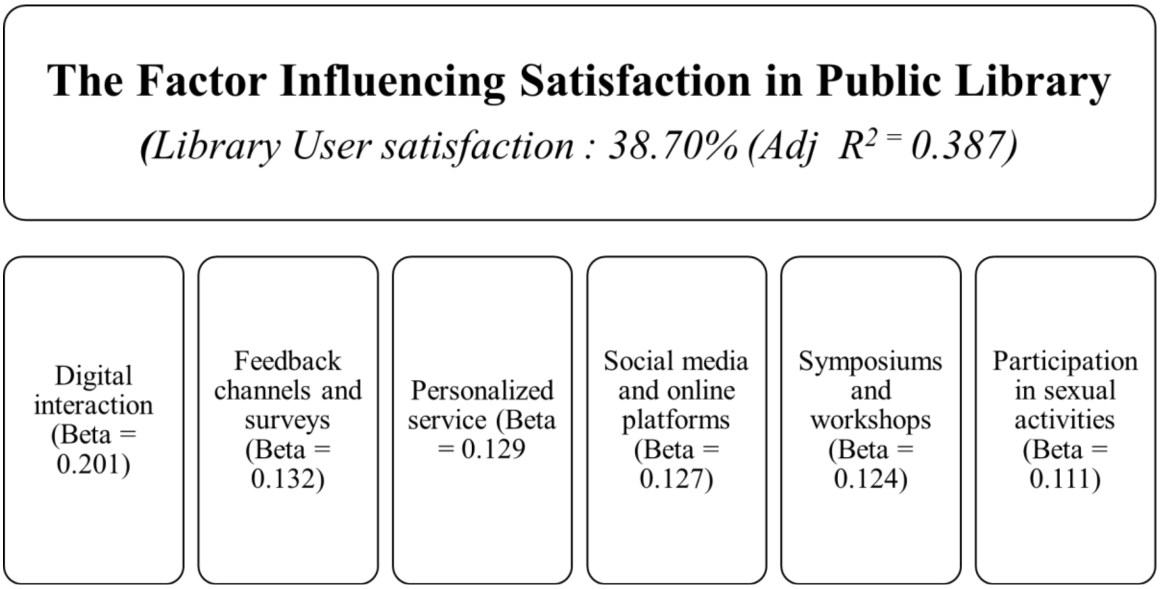


**Figure 2:** The Factor Influencing of user Satisfaction in Public Library

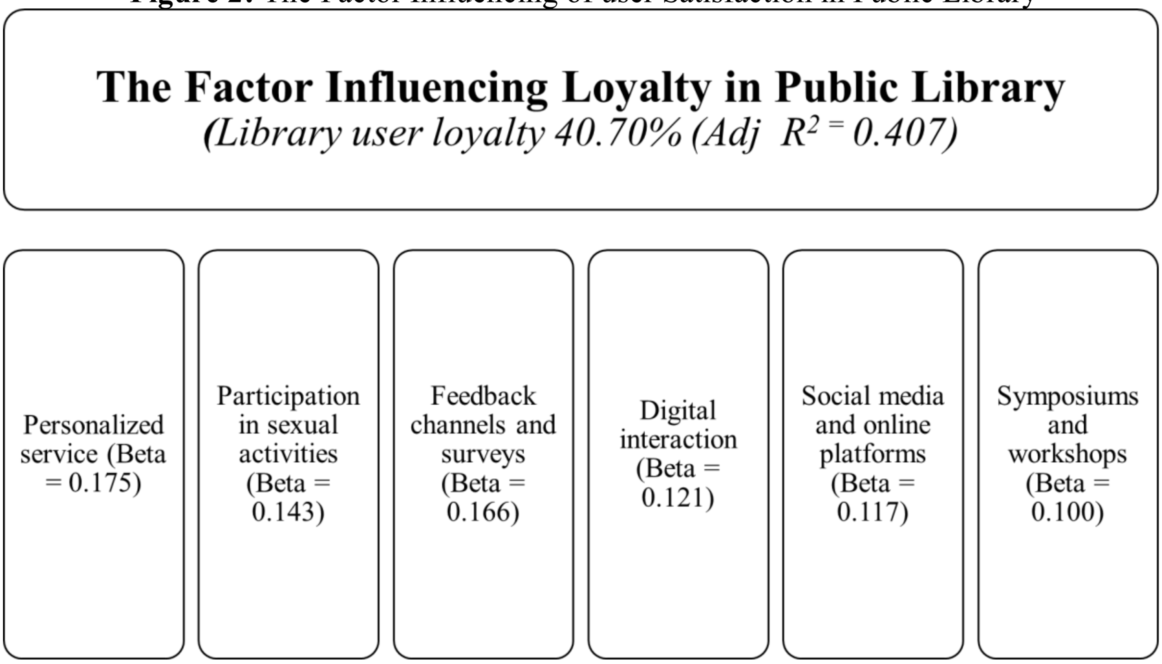


**Figure 3:** The Factor Influencing of user Loyalty in Public Library

## Conclusion

This study primarily aimed to identify key factors influencing public library user satisfaction and to analyze how satisfaction impacts user loyalty. The findings revealed that participatory activities, seminars and workshops, social media and online platforms, feedback channels and surveys, personalized services, and digital interactions all significantly and positively influenced both user satisfaction and loyalty. Specifically, digital interactions had the strongest impact on user satisfaction, while personalized services exhibited the strongest influence on user loyalty. These results confirm that prioritizing these factors enhances user experiences and fosters stronger relationships with library patrons, leading to sustained satisfaction and long-term loyalty.

## Discussion

The findings of this study align with and extend previous research emphasizing the importance of user engagement, effective communication, and personalized services in libraries (Chen, 2012; Xu & Du, 2018; Noh & Chang, 2020). Specifically: Participatory Activities and Seminars/Workshops: The significant positive influence of participatory activities and seminars/workshops on both user satisfaction and loyalty underscores the library's role as a dynamic learning and community hub. This aligns with the concept of participatory service, where users are seen as co-creators of value (Nguyen, 2012; Johnson, 2015), and the principles of active learning environments that foster engagement and collaboration (Jensen et al., 2015; Emerald Insight, 2021). Actively involving users in programs and events not only meets their informational needs but also builds a sense of community and belonging, crucial for sustained engagement and loyalty (ACRL Insider, 2024). Furthermore, promoting these activities reflects the principles of the Sufficiency Economy Philosophy (SEP) in terms of moderation, reasonableness, and self-immunity, which emphasize balanced and sustainable development at the community level. Integrating these concepts into library operations can support the Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education) and SDG 11 (Sustainable Cities and Communities), by creating inclusive and accessible learning and engagement spaces for all (Wongkumchai & Kiattisin, 2021). Social Media and Online Platforms: The positive impact of social media and online platforms highlights the evolving nature of library-user interaction in the digital age. This supports the notion that effective digital presence and communication channels enhance accessibility and responsiveness, contributing to user satisfaction (MDPI, 2025; Index Copernicus, n.d.). As libraries increasingly function as "third places" in both physical and virtual realms, these platforms are vital for fostering social connections and extending the library's reach (ResearchGate, n.d.-c). Feedback Channels and Surveys: The strong positive influence of feedback mechanisms on satisfaction and loyalty emphasizes the importance of a user-centric approach. This aligns with the core tenets of User Experience (UX) design, where continuous feedback loops are essential for identifying areas of improvement and tailoring services to meet user expectations (Blessinger & Comeaux, 2020). When users feel their voices are heard and acted upon, it builds trust and reinforces their perceived value of the library's services. Personalized Services: The significant impact of personalized services on both satisfaction and loyalty confirms the growing demand for tailored experiences. This is a direct application of User Experience (UX) principles, where services are customized based on individual preferences and needs (Medallia, 2025; McKinsey, 2020). By offering personalized recommendations and customized support, libraries can create a more relevant and engaging experience, leading to higher satisfaction and stronger emotional connections that drive loyalty. Digital Interactions: Digital interactions, such as online chat and virtual reference services, were found to have the strongest positive impact on user satisfaction and a significant impact on loyalty. This underscores the critical role of digital transformation in modern library services. Efficient and user-friendly digital interfaces enhance convenience and accessibility, which are key drivers of positive user experience and subsequent loyalty in the digital era (MDPI, 2025; ResearchGate, n.d.-a). This finding reinforces the importance of continuous investment in robust digital infrastructure and services.

## Limitations of the Research

It is important to acknowledge that the findings of this study are subject to certain limitations. Firstly, the research was conducted within the specific context of Fuzhou Municipal Library in China. While the findings offer valuable insights, their generalizability to other library settings, particularly those in different cultural or geographical contexts (e.g., public libraries in Thailand), may require further investigation. Secondly, despite efforts to ensure a representative sample, the demographic analysis revealed a wide age range among respondents, including a notable proportion of older adults, which might not be fully captured by a sampling frame primarily focused on "users" without explicit stratification by age or primary library use purpose. This could potentially influence the interpretation of results if specific age groups have distinct interaction patterns or expectations. Thirdly, while the study examined several key factors influencing satisfaction and loyalty, other potential variables, such as the quality of library resources (e.g., collection relevance and currency), the physical atmosphere and environment of the library, and the specific skills and attitudes of library staff, were not explicitly included as independent variables in the regression models. Future research could explore the influence of these additional factors to provide a more comprehensive understanding.

## Suggestion

**Practical Implications**

Based on the findings of this study, the following practical recommendations are proposed for public libraries to enhance user satisfaction and loyalty:

1. Prioritize Digital Engagement and Personalized Services: Libraries should strategically invest in robust digital platforms and develop personalized service offerings. This includes enhancing user-friendly online interfaces, providing tailored recommendations, and implementing efficient digital communication channels (e.g., online chat support, personalized notifications). These efforts will directly address the strongest drivers of user satisfaction and loyalty identified in this research.

2. Strengthen Feedback Mechanisms and Participatory Programs: Establish proactive and accessible feedback channels (e.g., regular surveys, suggestion boxes, online forums) to continuously gather user insights. Concurrently, expand and promote participatory activities (e.g., book clubs, workshops, community-led initiatives) that foster a sense of belonging and co-creation among users. Actively incorporating user feedback into service improvements will build trust and reinforce loyalty.

3. Invest in Staff Digital Literacy and Service Orientation: Provide ongoing training for library staff to enhance their digital literacy and proficiency in utilizing various platforms and tools for user interaction. Emphasize a user-centric service orientation that encourages staff to

proactively engage with patrons, offer personalized assistance, and facilitate a welcoming and interactive environment, both physically and digitally.

**Recommendations for Future Research**

Building upon the findings and limitations of this study, the following concise recommendations for future research are proposed:

1. Longitudinal and Comparative Studies: Future research should conduct longitudinal studies to track the evolution of user behavior and satisfaction over time, particularly in response to new library initiatives. Additionally, comparative studies across diverse library settings (e.g., different cultural contexts, academic vs. public libraries) are needed to assess the generalizability of these findings and identify context-specific factors influencing user satisfaction and loyalty.

2. Qualitative Exploration of User Experience: Employ qualitative methods such as in-depth interviews and focus groups to delve deeper into users' subjective experiences. This approach can uncover nuanced perceptions of service quality, staff interactions, and the physical/digital environment, revealing underlying mechanisms and hidden factors that quantitative studies might not capture.

3. Sustainability and Holistic Impact Assessment: Investigate how public libraries can effectively integrate principles of sustainability, such as the Sufficiency Economy Philosophy (SEP) and Sustainable Development Goals (SDGs), into their operations and service delivery. Future studies should also explore a more holistic model of influencing factors by incorporating additional variables like the perceived quality of library collections, physical space ambiance, and specific measures of staff competency.

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# Impact of Entrepreneurial Passion on The International Performance of New Venture - Mediating Role of Entrepreneurial Bricolage and Innovation

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## Abstract

This study aims to investigate how entrepreneurial passion can affect international performance, explicitly examining indirect effects mediated by entrepreneurial bricolage and innovation behaviors. This study adopts a quantitative research methodology, using a judgmental sampling approach to collect data from a target population of founders, founding team members, chairpersons, general managers, or senior managers of import and export enterprises in Shandong Province, China. Data are collected using a questionnaire survey. The data have been analyzed using SPSS and PLS-SEM. Findings reveal that entrepreneurial passion sensibly impacts enterprises' international performance, and this relationship is further strengthened by the mediating effects of entrepreneurial bricolage and innovation behaviors. These results provide theoretical foundations and practical guidance for entrepreneurs and policymakers on leveraging entrepreneurial passion to enhance international performance. Research enriches the literature by extending the application of social cognitive theory. It also provides novel perspectives and strategic recommendations for improving international performance during the internationalization of new ventures.

**Keywords:** Entrepreneurial Passion, International Performance, Entrepreneurial Bricolage, Innovation, New Ventures

## Introduction

Entrepreneurial activity is a key micro-driver of innovation and economic growth (Stoica, Roman, & Rusu, 2020). With a deepening of economic globalization, Entrepreneurs have contributed significantly to regional and national economic prosperity by establishing new ventures, promoting technological progress, optimizing resource allocation, and creating jobs (Baumol, 2007). A rapid expansion of entrepreneurial activities is evident in domestic markets, and a growing trend of enterprises "going global" involves entering international markets and engaging in global competition. The International Entrepreneurship (IE) concept describes how enterprises acquire resources, technology, and market shares in a transnational context under globalization (Oviatt & McDougall, 2005). In recent years, IE has proven a critical means for enterprises to obtain an edge in global competition (Reuber et al., 2018). With this background, Chinese entrepreneurs are accelerating internationalization efforts. The "Belt and Road" initiative has further promoted Chinese enterprises' expansion into global markets, enhancing their competitiveness through cross-border e-commerce, technological collaboration, and overseas acquisitions. However, Chinese enterprises still need to overcome multiple challenges, such as cultural differences, market entry barriers, and management complexity during entrepreneurship in the global market, making their international performance uncertain.

Entrepreneurial passion is a core cognitive characteristic of entrepreneurs that drives enterprise growth. Entrepreneurial passion has been hailed as a catalyst for innovation, a source of motivation for perseverance, and a cornerstone for ultimate success (Cardon, Glauser, & Murnieks, 2017). However, existing literature reveals a substantial gap in comprehending how entrepreneurial passion can influence international performance, particularly concerning mediating mechanisms, such as entrepreneurial bricolage and innovation behaviors. This study seeks to address this gap by analyzing entrepreneurial passion's impact on enterprise international performance and investigating the pathways and mechanisms by which innovation and entrepreneurial bricolage influence the global success of new ventures.

A central aim of this study is to explain how entrepreneurial passion affects the international performance of new ventures and what the mediating roles of innovation and entrepreneurial bricolage play in this relationship. For theoretical enhancement, the study aims to develop the international entrepreneurship framework by addressing existing gaps in the literature. For practical insights, it offers actionable management insights for new international ventures, particularly leveraging entrepreneurial passion to gain a competitive edge in complex international market environments.

## Objective

1. To explain the factors affecting the international performance of new ventures under the entrepreneurial passion perspective of entrepreneurs.
2. To describe the current state of the international performance of new ventures and related influencing factors.
3. To explain the mechanism of entrepreneurs' entrepreneurial passion and its effect on the international performance of new ventures.
4. To investigate the mediating role of entrepreneurial bricolage and innovation between entrepreneurial passion and international performance.
5. To provide managerial recommendations to enhance the entrepreneurial performance of new ventures for international entrepreneurship.

## Literature Review

### Social Cognitive Theory

Social Cognitive Theory (SCT), which reveals an interaction between human cognition, behavior, and an environment, emphasizes 'social cognition' as a core cognitive process in an individual's mental processes when interacting with the surrounding environment (Bandura, 2014). According to SCT, behavior is a dynamic process constructed based on continuous reflection and adjustment of one's perception of the environment and self-perception (Cai & Shi, 2022). Additionally, the environment, social cognition, and behavior jointly shape an individual's mental activities and behavioral patterns (Li et al., 2024).

The influence of social cognition on entrepreneurship is profound and highly practical. It significantly shapes entrepreneurs' attention and decision-making, leading their responses to environmental opportunities and challenges. This practical impact underscores the relevance and applicability of social cognition, positioning it as a valuable cognition for entrepreneurs (Albert, 2016). Therefore, Social Cognitive Theory (SCT) has developed into a robust and systematic theoretical framework for understanding entrepreneurial behavior, offering valuable insights into how cognitive processes guide entrepreneurial actions and outcomes (Bacq, 2017).

This paper will delve into the role of social cognition in entrepreneurial behavior, specifically through the lens of entrepreneurial passion. Entrepreneurial passion, a vital dimension in social cognition, represents an intense and enduring emotional commitment entrepreneurs invest in their entrepreneurial pursuits. Entrepreneurial passion is a crucial factor in stimulating innovative behavior. It can also improve firm performance by improving entrepreneurs' cognition, flexibility, and creative skills (Cardon et al., 2009). As per SCT, an interplay of individual cognition, behavior, and environment is crucial. Entrepreneurial passion, as a factor of social cognition, not only motivates entrepreneurs to confront external challenges but also influences their decision-making and resource integration ability, thereby fostering the growth of the enterprise.

This study constructs a comprehensive research framework based on Social Cognitive Theory, where entrepreneurial passion is a crucial independent variable; in contrast, entrepreneurial bricolage and innovation mediate. The framework incorporates entrepreneurial bricolage and innovation as mediating variables, which are essential in understanding how entrepreneurial passion influences international performance. These mediating factors are pivotal in transmitting the effects of entrepreneurial passion on international performance, offering an in-depth analysis of the underlying mechanisms of influence. By establishing this framework, the study aims to systematically show how entrepreneurial passion impacts the international performance of new ventures, specifically through entrepreneurial bricolage and innovation behaviors.

**Entrepreneurial passion**

The path of impact between passion and enterprise performance remains a debate in academia. On the one hand, some scholars argue that entrepreneurial passion positively impacts performance, serving as a powerful motivator that drives innovation and enhances enterprise outcomes (Adomako & Ahsan, 2022; Maina & Lawrence, 2023). Entrepreneurial passion propels entrepreneurs' drive, enabling them to overcome obstacles and find new opportunities, ultimately contributing to improved performance. On the other hand, an opposing view indicates that excessive passion should lead to blind decision-making, resource misallocation, and poor judgment, which may negatively impact enterprise performance (Rahman et al., 2020). Given these contrasting perspectives, this study hypothesizes the following:

H1: Entrepreneurial passion of entrepreneurs has an impact on international performance.

Driven by passion, entrepreneurs prefer capitalizing on low-cost or readily available resources that can be applied flexibly in production. Passion ensures the smooth progress of business operations when searching for entrepreneurial resources through multiple channels. It has been suggested that entrepreneurial passion generates more entrepreneurial bricolage behavior (Breugst et al., 2012; Stenholm & Renko, 20l6; Drnovsek, Cardon & Patel, 2016). So, we propose a research hypothesis as follows:

H2: Entrepreneurial passion of entrepreneurs has an impact on entrepreneurial bricolage.

Passion is a vital motivator that propels entrepreneurs to relentlessly pursue innovation success. This passion ignites entrepreneurs' keen insight into business opportunities, motivates them to find uncharted territory, and creates new business models. Passion is key to sustaining innovative activities (Tehrani, Ghofraniha & Meckl-Sloan, 2015). Furthermore, entrepreneurial passion has positively influenced enterprises' exploratory innovation while exhibiting a complex inverted U-shaped relationship with exploitative innovation (Luu & Nguyen, 2021). Therefore, we posit the hypothesis as follows:

H3: Entrepreneurial passion of entrepreneurs has an impact on innovation.

These hypotheses collectively aim to explain the multifaceted role of entrepreneurial passion in shaping international performance, entrepreneurial bricolage, and innovation behaviors.

**Entrepreneurial bricolage**

"Making do by applying combinations of the resources at hand to new problems and opportunities." (Baker & Nelson,2005, p. 333). In addition, it also is defined as "Bricolage behaviors have been identified as a way that some entrepreneurs 'make do' by applying combinations of the resources at hand to new challenges." (Senyard et al.， 2010, p. 2).

Entrepreneurial bricolage positively impacts the construction of resource advantages for new ventures, significantly enhancing enterprise performance in the start-up phase (Senyard, Baker & Steffens, 2010; Fisher, 2012). At the same time, entrepreneurial bricolage substantially contributes to organizational growth (Kickul, Griffiths & Gundry, 2010). Entrepreneurial bricolage positively impacts the international performance of international new ventures (Ding et al.,2022). It can also improve the performance of new ventures by helping them create value when facing resource constraints and respond quickly to customer needs (Wang et al., 2024). Based on the above understanding, this study hypothesizes as follows:

H4: Entrepreneurial bricolage has an impact on international performance.

**Innovation**

Innovation is an indispensable driver of enterprise growth. By actively engaging in product and process innovation, young enterprises will likely pursue internationalization (Lamotte & Colovic, 2013). Furthermore, these enterprises stand to gain both financial and strategic advantages through open innovation, which can enhance their international performance (Romero et al., 2017). Consequently, a clear link emerges between innovation and the international performance of new ventures. For this reason, this study hypothesizes the following:

H5: Innovation has an impact on international performance.

**International performance**

Entrepreneurial bricolage has been used as a crucial mediating variable in various studies (Gundry et al., 2011; Hou, Xiong & Lin, 2022; Xu et al., 2023; Wang et al., 2024), playing a critical role in shaping the impact of entrepreneurial passion on enterprise performance. The enterprise often encounters significant challenges in the internationalization process, such as resource scarcity and market uncertainty. Entrepreneurial bricolage enables enterprises to navigate these obstacles by creatively utilizing available resources. Research has shown that entrepreneurial passion positively impacts entrepreneurial performance (Tu et al., 2023). However, more than entrepreneurial passion is required to ensure international success;

it must be coupled with the ability to strategically acquire and allocate resources. Thus, entrepreneurial bricolage may serve as a vital mediating factor, enabling the entrepreneurial passion to drive their ventures into international markets.

Similarly, innovation has also been used as a vital mediating variable (Syed et al., 2020; Suryanto, Hadi & Subiyanto, 2023)) between entrepreneurial passion and international performance. Entrepreneurial passion motivates entrepreneurs to seek innovations, and these innovation behaviors largely determine an enterprise's success in the global market. Innovation acts as a bridge in this process, transforming entrepreneurial passion into actual international performance improvement. Therefore, it is reasonable to hypothesize that innovation plays a role in entrepreneurial passion and performance.

According to the above considerations, this study proposes the following hypotheses:

H6: Entrepreneurial bricolage behavior mediates the relationship between entrepreneurial passion and international performance.

H7: Innovation behaviors mediate the relationship between entrepreneurial passion and international performance.

Figure 1 shows the study's conceptual framework, derived and constructed based on the above theories and hypotheses. This framework visualizes the study's core variables and their interrelationships. It systematically integrates the theoretical rationale and research objectives, thus providing structured support for answering the research questions.

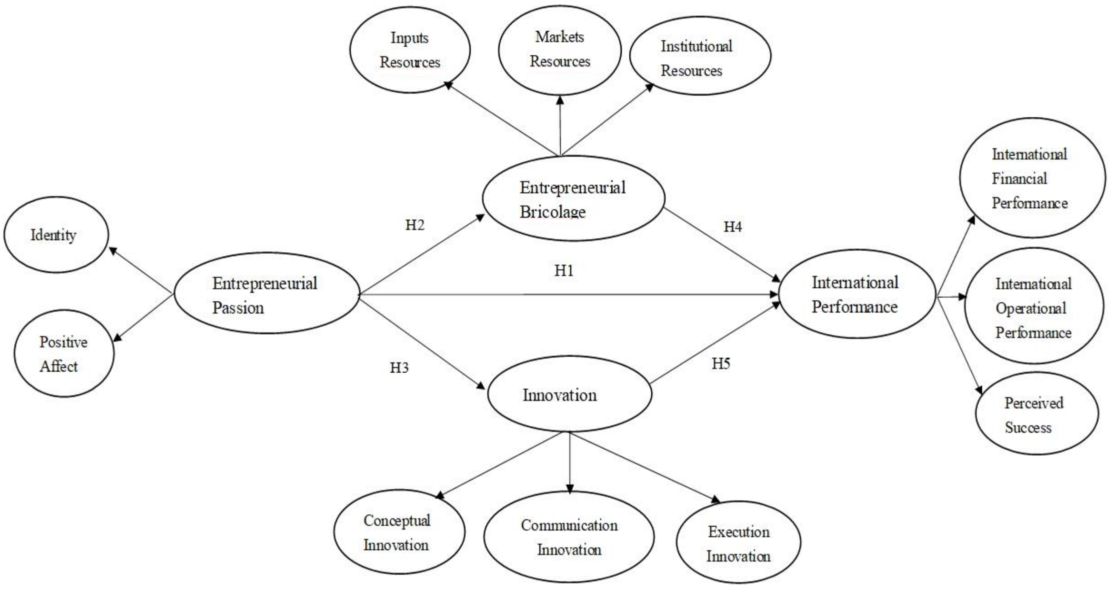


**Figure 1:** Conceptual framework of the study

## Research Methodology

This study adopts a quantitative research methodology, using a judgmental sampling approach to collect data from a target population of founders, founding team members, chairpersons, general managers, or senior managers of import and export enterprises in Shandong Province, China.

Due to business confidentiality and other constraints, enterprises' precise quantity of imports and exports in Shandong, China, are not publicly available. Specific details about the number of founders or entrepreneurial team members in each enterprise are also uncertain. The study uses Cochran's (1953) sample size formula to address this, assuming a ratio of 0.5, a 95% confidence level, and a maximum permissible error of ±5%. Based on these parameters, the minimum sample size for the study is approximately 385 participants.

The questionnaire is designed to ensure content validity based on established empirical research. Specifically, the four scales developed by Welbourne & Paterson (2017) and Kercher (1992) et al. are adapted to measure the impact of entrepreneurial passion on international performance. The survey consists of two parts: the first part collects demographic information, such as identity, gender. The second part focuses on the key variables under investigation, measured using items adapted from widely cited scales in the literature. A 7-point Likert scale assesses respondents' attitudes toward the various examined structures, with 1 = strongly disagree and 7 = strongly agree. This design ensures that the study adheres to rigorous standards of reliability and validity when measuring the research variables.

The Ethics Committee has reviewed this study with code: STIU-HREC111/2024.

## Research Finding

This paper presents the findings of a questionnaire survey targeting founders, founding team members, chairpersons, general managers, and senior managers of companies involved in the imports and exports business in Shandong Province, China. 600 questionnaires were distributed to individuals fitting the study's target population, resulting in a high response rate of 86.5%, with 519 completed questionnaires returned. After screening for validity, 507 responses were deemed valid for analysis. Demographic information such as gender, education, and industry was collected from the respondents.

This chapter presents the results of the questionnaire survey. Respondents' demographic data were analyzed using SPSS software (see Table 1). Meanwhile, this study was analyzed in two stages through PLS-SEM software (Wang & Rattanaparnudet, 2024). First, a measurement model assessment will be conducted, focusing on ensuring its reliability and validity. Second, a structural model assessment will be conducted, testing the hypothesized relationships between key variables.

**Table 1:** The demographic data of respondents

| Category | Options | Frequency | Percentage (%) |
|---|---|---|---|
| Are you an entrepreneur of export & import company? | 1. Yes<br>2. No | 507<br>0 | 100<br>0 |
| Genders | Male | 267 | 52.7 |
| | Female | 240 | 47.3 |
| Age (years old) | 20-29 years old | 71 | 14 |
| | 30-39 years | 242 | 47.7 |
| | 40-49 years | 163 | 32.1 |
| | 50 years old and above | 31 | 6.1 |
| Education | College | 87 | 17.2 |
| | Bachelor's Degree | 197 | 38.9 |
| | Master's Degree and above | 191 | 37.7 |
| | Others | 32 | 6.3 |
| Industry background | Electromechanical products | 38 | 23.9 |
| | Agricultural Products | 38 | 23.9 |
| | High-tech products | 25 | 15.7 |
| | Textile & Garment | 13 | 8.2 |
| | Others | 45 | 28.3 |
| Year of founded | 2016 | 85 | 16.8 |
| | 2017 | 45 | 8.9 |
| | 2018 | 58 | 11.4 |
| | 2019 | 94 | 18.5 |
| | 2020 | 84 | 16.6 |
| | 2021 | 59 | 11.6 |
| | 2022 | 52 | 10.3 |
| | 2023 | 30 | 5.9 |
| How many years has your company been doing international business? | 1 year and less | 72 | 14.2 |
| | 1-3.5 years | 210 | 41.4 |
| | 3.5-5 years | 149 | 29.4 |
| | 5 years and above | 76 | 15 |
| What is the number of employees in your company as of the end of 2023? | 20 people or less | 94 | 18.5 |
| | 21-300 people | 198 | 39.1 |
| | 300-1000 people | 158 | 31.2 |
| | More than 1000 people | 57 | 11.2 |

The respondents of this survey are all entrepreneurs of import and export enterprises, with 52.7% male and 47.3% female. The leading entrepreneurs are 30-49 years old, and the proportion of respondents with high education is high (38.9% for bachelor's degree and 37.7% for master's degree and above). The agricultural and high-tech products are leading, and electromechanical textile and garment industries are also represented, reflecting the diversity of industries. The peak of enterprise establishment is concentrated in 2016 and 2019, with fewer new enterprises in recent years. The international business is dominated by enterprises that have been in business for 1-3.5 years, and the employee size is mainly small and medium-sized enterprises (21-300 employees), which covers a sample of enterprises of different sizes. The sample is representative and diverse, providing a reliable basis for the study.

**Measurement Model Assessment**

To ensure that the study was not affected by “common method bias,” controls were implemented during the methodological design phase. First, the study utilized classic scales. Second, data was collected anonymously during data collection. Additionally, in terms of statistics, after conducting a Harman single-factor test for common method bias, the first factor explained 47.978% of the variance, which was less than the critical standard of 50%. Therefore, there was no common method bias in the data for this study (Podsakoff et al., 2003).

In the study, the reliability of the measurement model was assessed by examining Cronbach's alpha and composite reliability (CR) (Hair, Sarstedt & Ringle, 2012). Cronbach's alpha of no less than 0.7 is acceptable (Nunnally & Bernstein,1994). For this study, all variables had CR values exceeding 0.7, indicating that the variables exhibited internal consistency (Chin, 1998). All variables of the Cronbach's alpha coefficients were higher than 0.86 (see Table 2), confirming the model's reliability.

All variables showed CR values above 0.91, demonstrating the high internal consistency of the scales. Each variable's average variance extracted (AVE) was assessed for convergent validity. As Fornell and Larcker (1981) proposed, an AVE value greater than 0.5 indicates excellent convergent validity. The results showed that the AVEs of the related variables ranged from 0.786 to 0.853 (see Table 2), which is well above the 0.5 threshold, thereby confirming the strong convergent validity of the model in this study. These results collectively suggest that the model is robust, with high reliability and good validity across all key variables, making it suitable for further analysis in the structural model.

**Table 2:** Reliability and AVE of the external model

| Variable | | Cronbach's alpha | Composite reliability | AVE |
|---|---|---|---|---|
| Entrepreneurial passion | IDY | 0.906 | 0.941 | 0.841 |
| | PAT | 0.914 | 0.946 | 0.853 |
| Entrepreneurial bricolage | INP | 0.877 | 0.924 | 0.803 |
| | MAS | 0.884 | 0.928 | 0.812 |
| | INS | 0.864 | 0.917 | 0.786 |
| Innovation | CON | 0.889 | 0.931 | 0.819 |
| | COM | 0.898 | 0.937 | 0.831 |
| | EIN | 0.906 | 0.941 | 0.842 |
| International performance | IFP | 0.877 | 0.924 | 0.802 |
| | IOP | 0.89 | 0.932 | 0.820 |
| | PSS | 0.889 | 0.931 | 0.819 |

Discriminant validity refers to how each variable can be distinguished from others in the model, ensuring that the variables are genuinely separate and not overlapping (Yao & Wu, 2024). This study utilized the Fornell-Larcker criterion and the Heterotrait-Monotrait Ratio (HTMT) to assess discriminant validity.

According to the Fornell-Larcker criterion, discriminant validity is established under two primary conditions. First, the square root of AVE for each variable must exceed its bivariate correlations with other variables, indicating a stronger association of the variable with its own indicators than with different variables (Cha, 1994). Second, the values on the diagonal line are directly proportional to the validity of the discriminant (Hair et al.,2017). In line with this, Table 3 shows that the AVE square roots for each variable (highlighted in bold) are indeed greater than their bivariate associations with other structures, confirming discriminant validity.

**Table 3:** Fornell-Larcker Criterion

| | **IDY** | **PAT** | **INP** | **MAS** | **INS** | **CON** | **COM** | **EIN** | **IFP** | **IOP** | **PSS** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IDY** | **0.917** | | | | | | | | | | |
| **PAT** | 0.540 | **0.886** | | | | | | | | | |
| **INP** | 0.516 | 0.513 | **0.896** | | | | | | | | |
| **MAS** | 0.532 | 0.534 | 0.594 | **0.923** | | | | | | | |
| **INS** | 0.532 | 0.550 | 0.522 | 0.535 | **0.905** | | | | | | |
| **CON** | 0.520 | 0.487 | 0.585 | 0.551 | 0.537 | **0.906** | | | | | |
| **COM** | 0.500 | 0.477 | 0.497 | 0.521 | 0.503 | 0.507 | **0.896** | | | | |
| **EIN** | 0.535 | 0.522 | 0.548 | 0.561 | 0.541 | 0.555 | 0.514 | **0.912** | | | |
| **IFP** | 0.553 | 0.477 | 0.487 | 0.503 | 0.542 | 0.488 | 0.459 | 0.483 | **0.905** | | |
| **IOP** | 0.480 | 0.474 | 0.413 | 0.474 | 0.499 | 0.458 | 0.431 | 0.473 | 0.433 | **0.901** | |
| **PSS** | 0.528 | 0.526 | 0.527 | 0.578 | 0.552 | 0.537 | 0.475 | 0.556 | 0.541 | 0.521 | **0.917** |

**Notes:** IDY, Identity; PAT, Positive Affect exchange; INP, Inputs Resources; MAS, Markets Resources; CON, conceptual innovation; COM, communication innovation; EIN, execution innovation; .INS, Institutional Resources; IFP, International financial performance; IOP, International Operational performance; PSS, Perceived Success.

Additionally, discriminant validity is confirmed by the HTMT, which should not exceed the recommended threshold of the 0.90 (Gold, Malhotra, & Segars, 2001). In this study, the HTMT values between all variables are below 0.9 threshold (see Table 4), further supporting the discriminant validity of the model.

**Table 4:** Heterotrait-Monotrait Ratio (HTMT)

| | **IDY** | **PAT** | **INP** | **MAS** | **INS** | **CON** | **COM** | **EIN** | **IFP** | **IOP** | **PSS** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IDY** | | | | | | | | | | | |
| **PAT** | 0.610 | | | | | | | | | | |
| **INP** | 0.579 | 0.590 | | | | | | | | | |
| **MAS** | 0.585 | 0.601 | 0.664 | | | | | | | | |
| **INS** | 0.592 | 0.627 | 0.591 | 0.593 | | | | | | | |
| **CON** | 0.579 | 0.555 | 0.663 | 0.611 | 0.603 | | | | | | |
| **COM** | 0.561 | 0.548 | 0.566 | 0.582 | 0.569 | 0.572 | | | | | |
| **EIN** | 0.593 | 0.592 | 0.617 | 0.620 | 0.605 | 0.620 | 0.578 | | | | |
| **IFP** | 0.617 | 0.544 | 0.552 | 0.558 | 0.609 | 0.548 | 0.520 | 0.539 | | | |
| **IOP** | 0.536 | 0.543 | 0.469 | 0.527 | 0.562 | 0.516 | 0.489 | 0.531 | 0.488 | | |
| **PSS** | 0.583 | 0.595 | 0.592 | 0.636 | 0.615 | 0.598 | 0.532 | 0.616 | 0.603 | 0.582 | |

**Notes:** IDY, Identity; PAT, Positive Affect exchange; INP, Inputs Resources; MAS, Markets Resources; CON, conceptual innovation; COM, communication innovation; EIN, execution innovation; .INS, Institutional Resources; IFP, International financial performance; IOP, International Operational performance; PSS, Perceived Success.

**Structural Model Assessment**

A bootstrapping procedure of 5000 re-samples and a blindfolding procedure of PLS-SEM software were used to assess this study's structural model. The standard beta (β), t-value, p-value, and coefficient of determination ($R^2$) were obtained (Hair et al.,2017).

Figure 2 and Tables 5, 6 show the hypothesis testing results, indicating that all the hypotheses are supported.

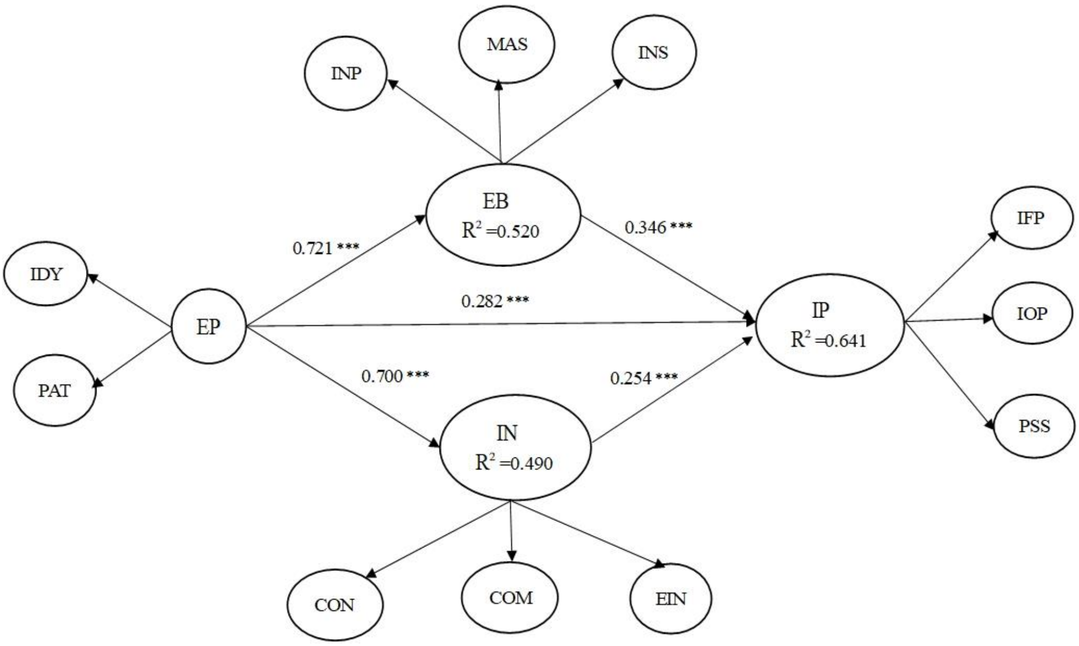


**Figure 2:** PLS algorithm results
**Note：** ***P<0.001；**P<0.05；*P<0.10

EP, Entrepreneurial passion; IP, International Performance; EB, Entrepreneurial bricolage; IN, Innovation；IDY, Identity; PAT, Positive Affect exchange; INP, Inputs Resources; MAS, Markets Resources; CON, conceptual innovation; COM, communication innovation; EIN, execution innovation; INS, Institutional Resources; IFP, International financial performance; IOP, International Operational performance; PSS, Perceived Success.

Regarding the ($R^2$) results in Figure 2, entrepreneurial passion explains 52% of the variance in entrepreneurial bricolage, and entrepreneurial passion support explains 49% of the variance in innovation. Further, entrepreneurial passion, entrepreneurial bricolage, and innovation explain 64.1% of the variance in international performance. According to the recommended values of ($R^2$) (Chin,1998), the observed ($R^2$) values are considered to be acceptable.

**Table 5:** Path coefficients

| Hypothesis | Relationship | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Decision |
|---|---|---|---|---|---|---|---|
| **H1** | EP -> IP | 0.709 | 0.709 | 0.024 | 29.388 | *** | Supported |
| **H2** | EP-> EB | 0.721 | 0.722 | 0.022 | 32.737 | *** | Supported |
| **H3** | EB -> IP | 0.346 | 0.347 | 0.047 | 7.389 | *** | Supported |
| **H4** | EP -> IN | 0.700 | 0.700 | 0.025 | 27.462 | *** | Supported |
| **H5** | IN -> IP | 0.254 | 0.254 | 0.046 | 5.479 | *** | Supported |

**Note:** *** indicates $p<0.001$, ** indicates $p<0.01$, * indicates $p<0.05$.
EP, Entrepreneurial passion; IP, International Performance; EB, Entrepreneurial bricolage; IN, Innovation.

As Table 5 shows that in line with H1, H3 and H5, the results show that the entrepreneurial passion ($\beta = 0.024$, $t = 29.388$), entrepreneurial bricolage ($\beta = 0.047$, $t = 7.389$), and innovation ($\beta = 0.046$, $t = 5.479$) positively affect international performance. Therefore, H1, H3 and H5 are supported.

In line with H2 and H4, the results revealed that entrepreneurial passion positively relates to entrepreneurial bricolage ($\beta = 0.022$, $t = 32.737$) and innovation ($\beta = 0.025$, $t = 27.462$). Hence, H2 and H4 can be supported.

**Table 6:** Specific indirect effects

| Hypothesis | Relationship | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Decision |
|---|---|---|---|---|---|---|---|
| **H6** | EP -> EB -> IP | 0.250 | 0.250 | 0.035 | 7.147 | *** | Supported |
| **H7** | EP -> IN -> IP | 0.178 | 0.178 | 0.034 | 5.273 | *** | Supported |

**Note:** *** indicates $p<0.001$, ** indicates $p<0.01$, * indicates $p<0.05$.
EP, Entrepreneurial passion; EB, Entrepreneurial bricolage; IP, International Performance; IN, Innovation.

Consistent with H6 and H7, entrepreneurial passion was positively related to international performance through entrepreneurial bricolage (β = 0.035, t = 7.147) and innovation (β = 0.034, t = 5.273). Hence, H6 and H7 are confirmed (see Table 6).

Overall, both mediating paths (see Figure 3) have demonstrated their significance by passing the test with a p-value of 0. It underscores the importance of the research, as the model strongly supports the mediating effect. The indirect influence of EP through EB (0.250) is more substantial than that through IN (0.178), suggesting that EB is a more critical mediating variable when influencing IP.

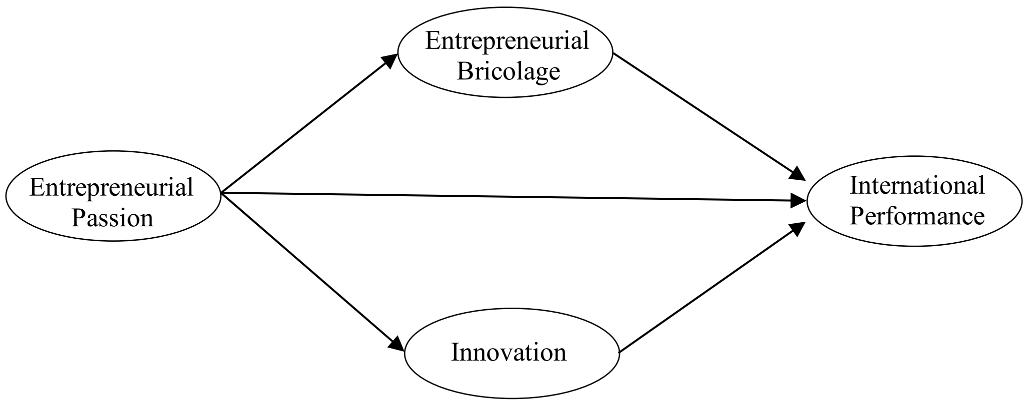


**Figure 3:** Mediated Effects Paths

## Discussion

This study examined how entrepreneurial passion influences the international performance of new ventures, focusing on the mediating roles of entrepreneurial bricolage and innovation. The results confirmed all seven hypotheses, providing essential insights into the interactions between these variables.

First, the study found that entrepreneurial passion directly impacts international performance (H1), aligning with previous research by Adomako & Ahsan (2022), highlighting entrepreneurial passion as a key performance driver. This underscores entrepreneurial passion as a critical factor in achieving business objectives in international markets. Additionally, entrepreneurial passion was found to significantly influence both entrepreneurial bricolage (H2) and innovation (H3), echoing findings from Breugst et al. (2012) and Kiani et al. (2022), who emphasized that passion fuels resourceful innovation and bricolage behaviors in entrepreneurs.

The study also confirmed that entrepreneurial bricolage and innovation positively relate to international performance (H4, H5). Entrepreneurial bricolage, particularly in resource-constrained environments, contributes to performance by enabling entrepreneurs to leverage available resources for innovation and business model development (Senyard, Baker & Steffens, 2010). It aligns with the findings from Wang et al. (2024), who suggested that bricolage helps businesses quickly adapt to market changes and customer demands. Similarly, innovation—both technological and organizational—was positively correlated with performance, supporting the findings of Singh et al. (2022) and Černe et al. (2024) that innovation drives long-term success in SMEs (Vahter & Vadi, 2024).

Furthermore, the study validated the mediating roles of entrepreneurial bricolage (H6) in the relationship between entrepreneurial passion and international performance. From theoretical logic, entrepreneurial passion, as a strong social cognition, can motivate entrepreneurs to actively seek solutions with limited resources. Entrepreneurial bricolage constructs a specific path for entrepreneurial passion to be transformed into performance. This mechanism suggests that entrepreneurial bricolage is a practical action manifestation driven by entrepreneurial passion and a key bridge for passion for realizing international performance.

In addition, the findings suggest that innovation (H7) plays an equally crucial mediating role between entrepreneurial passion and international performance. Entrepreneurial passion can inspire entrepreneurs to continuously explore novel products, services, or business models. This innovative ability enhances the enterprise's market differentiation advantage and significantly improves the enterprise's sustainability in the international market. Entrepreneurial passion is extended and amplified through innovation, further promoting international performance.

This study supplements the gaps in related theories by introducing the dual mediating path of entrepreneurial bricolage and innovation.

According to the social cognitive theory, this research investigates the mechanism of entrepreneurial passion of entrepreneurs on the international performance of enterprises through quantitative research methods. This research still has some limitations in terms of sample selection and variable setting, and future research can further expand and improve on these aspects to enhance the generalizability of the study. Given the limitations of this study, future study can be expanded and enhanced in the following aspects:

First, the scope and diversity of the research sample should be expanded. Future research can collect data in different countries, regions, and industries, especially for enterprises with different cultural backgrounds and levels of economic development, to verify the relationship between entrepreneurial passion, entrepreneurial bricolage, innovation, and international performance, improving the universality and cross-cultural applicability of the research findings.

Second, future research can consider some variables missing from the framework in this study. More influencing factors are introduced for in-depth exploration. Based on this study, future research can incorporate external variables such as digital transformation, digital marketing, organizational agility, market dynamics, network relations, government support, etc., and investigate how these factors interact with entrepreneurial passion, entrepreneurial bricolage, and innovation to reveal more comprehensively the influence mechanism of new ventures' international performance.

Again, attention is paid to the influence of different cultural and institutional contexts. Since cultural and institutional contexts may significantly influence entrepreneurial passion, bricolage behavior, and innovation activities, future research should consider institutional differences, cultural values, and entrepreneurial ecosystems in different countries or regions to explain how these factors moderate the relationship between entrepreneurial passion and international performance.

In summary, future research can further deepen the understanding of the relationship between entrepreneurial passion and international performance by expanding the scope of the sample and introducing more variables, promoting the theoretical and practical development of the field of global entrepreneurship.

## Conclusion

This study explains the direct and indirect effects of entrepreneurial passion on the international performance of new ventures, highlighting the mediating roles of entrepreneurial bricolage and innovation. Empirical research supports all seven proposed hypotheses. The findings demonstrate that entrepreneurial passion significantly enhances international performance through its direct influence on enterprise growth and its indirect contribution by stimulating entrepreneurial bricolage and innovation behaviors. Entrepreneurial passion is a key intrinsic driver that fosters resource integration and innovation capabilities, helping new ventures secure a competitive advantage in resource-limited environments. These results underscore the pivotal role of entrepreneurial passion in international entrepreneurship and offer valuable practical insights for business managers.

The main contributions of this study are as follows: First, at the theoretical level, this research advances the understanding of the relationship between entrepreneurial passion and the international performance of new ventures, particularly by elucidating the mechanisms through which entrepreneurial bricolage and innovation act as mediating variables. This study extends the application of Social Cognitive Theory. It clarifies the role of entrepreneurial passion, bricolage, and innovation in this context. Second, at the practical level, the findings provide actionable insights for business managers and policymakers, suggesting that fostering and supporting entrepreneurial passion can significantly enhance the international performance of new ventures. Additionally, this study emphasizes the importance of encouraging innovation and bricolage behaviors, particularly in the international expansion of enterprises.

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# Academic Leadership of School Administrators Affecting Change Management in Schools Under the Secondary Educational Service Area Office Nakhon Phanom

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## Abstract

This research aims to 1) study and compare the school administrators' academic leadership classified by status and school size, 2) study and compare change management in schools classified by status and school size, 3) study and compare the relationship between school administrators' academic leadership and change management in schools, and 4) study the predictive power of school administrators' academic leadership affecting change management in schools under the Secondary Educational Service Area Office Nakhon Phanom. There were 277 samples including 64 school administrators and 213 teachers under the Secondary Educational Service Area Office Nakhon Phanom in academic year 2024, determined by Boonchom Srisa-ard's table. The research instrument is a 5-level Likert scale questionnaire. The statistics used include percentage, mean, standard deviation, Pearson's correlation analysis, and stepwise multiple regression analysis. The research findings are as follows: 1) the overall school administrators' academic leadership was at the high level. 2) The overall change management in schools was at the high level. 3) The school administrators' academic leadership and change management in schools revealed high significant positive correlation at the .01 level. 4) There were 5 variables of school administrators' academic leadership that affected change management under the Secondary Educational Service Area Office Nakhon Phanom: Personnel development ($X_5$), establishing relationships with teachers, students and community ($X_6$), supervision ($X_4$), vision, goal, and mission setting ($X_1$) and Curriculum and teaching management ($X_2$) can be predicted with statistical significance at the .01 level. They could be predicted up to 77 percent and the Standard Error of estimate is ± .14.

**Keywords:** Academic Leadership, Change Management, The Secondary Educational Service Area Office Nakhon Phanom

## Introduction

Education is a crucial tool for building individuals, society, and the nation. It serves as a key mechanism for developing human capital to ensure individuals can live harmoniously with others in society amidst the rapid changes of the 21st century. Education plays a vital role in creating a nation's competitive advantage, enabling it to stand firm on the global stage within the dynamic economic and social systems. Therefore, countries around the world prioritize and invest heavily in the development of education to enhance their human resources, ensuring they can keep pace with the changes in national, regional, and global economic and social systems, while preserving their national identity. (Office of the Education Council, 2017). This aligns with the 13th National Economic and Social Development Plan, which aims to equip Thai citizens with skills and attributes suited to the modern world, including knowledge-based skills, behavioral skills, and socially accepted characteristics, fostering lifelong learning that addresses future development needs. The goal of development is to enhance and strengthen human resource potential, with the key objective of cultivating Thai people to be virtuous, capable, and of high quality, ready for life in the 21st century (Thai government gazette, 2022).

As the modern world undergoes increasingly rapid changes, the impacts have become more intense. These changes not only influence organizational leaders' decision-making processes in deploying strategies to overcome obstacles but also affect the mental well-being of employees who must work in this chaotic environment. Consequently, the concept of the "VUCA World," which has been in use for over 30 years, may no longer fully explain the various ongoing changes. To improve organizational development, executives from various industries have adopted the concept of the "BANI World" as a new framework to describe the modern world more comprehensively than "VUCA World." This approach provides greater clarity in addressing the impacts of change, both in terms of organizational structure and the emotional well-being of employees. (Chukwan Rattanapitakthada and Pratumthong Trairat, 2023)

Academic Leadership of school Administrators refer to the ability of school administrators to influence students' academic progress by focusing on teacher behaviors that enhance student learning. It involves setting educational objectives, defining the school's mission, establishing overall institutional goals, managing teaching and learning processes, fostering a conducive school atmosphere, providing necessary resources for effective learning, supervising and evaluating teachers, coordinating developmental projects, and building positive relationships with fellow administrators, teachers, students, and the community (Chaiya Phawabutr, 2017). Education management aimed at developing the potential of individuals across all age groups is, therefore, a shared mission between the government and all relevant sectors. This includes defining educational goals, setting education standards, developing curricula, learning processes, educational media, learning resources, and learner assessment across all levels, target groups, and age ranges. The objective is to cultivate and develop citizens who possess knowledge, capabilities, skills, and desirable characteristics, enabling them to study, learn, and maximize their potential based on their abilities, aptitudes, and interests for meaningful careers and harmonious living in society. Additionally, improving the teacher and educational personnel development system at all levels and types of education is essential to ensure the recruitment of qualified educators who possess knowledge, skills, teaching expertise, and the spirit of teaching professionalism. These educators will contribute to the education system by fostering learners' growth and enabling them to reach their fullest potential (Office of the Education Council, 2017).

Change Management in schools will be successful, school administrators play a crucial role. They must act as supporters and facilitators, providing consistent assistance to personnel and fostering a culture of mutual support. Leaders should adopt a growth mindset, as administrators with such a mindset tend to think positively, earning the respect and trust of their staff, who are then willing to work wholeheartedly for the organization. These leaders can inspire staff to work with love and understanding, creating a sense of challenge that drives everyone toward achieving the institution's goals. In addition to focusing on operational targets, administrators should seek role models of leaders with a growth mindset to guide their own personal and professional development (Soo and Vicki, 2021). Change management plays a significant role in modernizing and enhancing the organization to meet the needs of service recipients. It also ensures that the institution remains well-prepared at all times, particularly in the area of personnel development, which is often prioritized as the top factor. This emphasis on personnel may stem from the fact that human resources are at the heart of all development. When people are developed, other improvements follow. Human capital is a key factor—investing in personnel development ensures that they have the appropriate competencies for their roles, improves their work-related skills, and updates their knowledge of new academic advancements and technologies. Consequently, well-trained personnel are more motivated and confident, which strengthens organizational stability. Therefore, educational administrators must allocate budgets for seminars and training to continually enhance the knowledge and capabilities of their staff (Kouzes and Posner, 2007).

The Role of the Secondary Educational Service Area Office Nakhon Phanom holds a crucial role in managing basic education in alignment with the policies of the government, the Ministry of Education, and the Office of the Basic Education Commission. This office oversees education for grades 7 to 12 across 51 secondary schools within Nakhon Phanom province. Educational management is divided into four key areas: 1. Educational Quality 2. Educational Opportunities 3. Teacher and Educational Personnel Development 4. Management and Administration.

The office continuously enhances the quality of education in each area to achieve its set goals by defining its vision, objectives, and developmental strategies to elevate operational performance. It incorporates principles of change management by fostering collaboration with various educational stakeholders to co-develop, support, and promote sustainable educational policies and development plans. In line with this approach, the office has established its fiscal year 2024 policy theme: "Quality Schools in Three Dimensions: Academic Excellence, Vocational Competence, and Life Skills—Fostering Wisdom and a Happy Life through Innovation." (Secondary Educational Service Area Office Nakhon Phanom, 2024). To achieve these outcomes, teachers must be proactive and well-prepared to create learning environments that foster these essential skills, enabling students to thrive in an ever-changing world. The Secondary Educational Service Area Office Nakhon Phanom has allocated resources for professional seminars and training sessions aimed at enhancing the knowledge and expertise of its educators to ensure they are equipped to prepare students for future challenges.

Based on the background and significance of the aforementioned issues, the researcher is interested in studying academic leadership of school administrators and its impact on change management in schools under the Secondary Educational Service Area Office Nakhon Phanom. Academic leadership of school administrators plays a crucial role in shaping educational development strategies in an era of rapid change. Academic-focused management enhances the quality of teaching and learning, contributing to the sustainable development of both teachers and students. Ultimately, it supports effective and efficient change management within educational institutions, ensuring that schools under the Secondary Educational Service Area Office Nakhon Phanom achieve optimal performance and sustainable success.

## Literature Review

This literature review aims to study the academic leadership of school administrators and change management within educational institutions. The content is divided into several sections, including the definition, importance, and components of academic leadership.

**Definition of Academic Leadership**

Various scholars define academic leadership as the behavior of administrators in motivating staff, promoting learning, and managing curricula to enhance teaching quality.

**Importance of Academic Leadership**

The role of academic leadership significantly impacts the success of educational institutions through effective teaching promotion and management, improving students' learning outcomes, and systematically enhancing teacher quality.

**Components of Academic Leadership**

Key synthesized components include Vision and goal setting, Curriculum and instructional management, Academic atmosphere promotion, Supervision and progress monitoring, Personnel development, Building relationships with teachers, students, and the community

**Change Management in Schools**

Change management is a process that helps organizations adapt to external factors such as technology, learner demands, and evolving environments. Administrators must have clear plans and foster collaboration to ensure effective implementation.

From the literature review, the researcher concludes that the components of academic leadership influencing change management encompass planning, supervision, and capacity-building for staff, as well as fostering positive relationships to ensure sustainable educational development.

## Research Methodology

**Population**

The population used in this research consists of school administrators and teachers from schools under the Secondary Educational Service Area Office Nakhon Phanom in the academic year 2024, totaling 1,783 individuals—127 school administrators and 1,656 teachers. The sample group used in this research consists of school administrators and teachers from schools under the Secondary Educational Service Area Office Nakhon Phanom, totaling 277 individuals—64 school administrators and 213 teachers. The determination of sample size and sample selection was conducted by the researcher using Boonchom Srisaart's percentage-based criterion. A sample size of 15% was selected, resulting in a sample group of 277 individuals.

**Research Instruments**

The research instrument used in this study was a questionnaire created by the researcher based on the review of relevant documents, textbooks, and research studies, as well as feedback from experts. The questionnaire focused on academic leadership of school administrators that affect change management in schools under the Secondary Educational Service Area Office Nakhon Phanom. The research instrument used for data collection was divided into three sections, as follows:

Personal Information of Respondents: This section includes demographic information and the size of the school, presented in a checklist format.

Academic Leadership of School Administrators: This section pertains to academic leadership of school administrators under the Secondary Educational Service Area Office Nakhon Phanom and is designed in a rating scale format, divided into five levels. The questionnaire consists of 30 items, with a content validity index (IOC) for each item ranging from 0.60 to 1.00 and a reliability coefficient of 0.92.

Change Management in Schools: This section focuses on the change management performance in schools under the Secondary Educational Service Area Office Nakhon Phanom. The questionnaire is designed in a rating scale format, divided into five levels. The questionnaire consists of 30 items, with a content validity index (IOC) for each item ranging from 0.60 to 1.00 and a reliability coefficient of 0.96.

**Data collection**

1. Request an official letter from the Graduate Studies Office, Faculty of Education, Nakhon Phanom University, to seek cooperation from school administrators and teachers in the sample group to respond to the questionnaire.

2. Deliver the questionnaires to the sample schools under the Nakhon Phanom Secondary Educational Service Area, totaling 32 schools and 277 copies. All 277 completed questionnaires were returned, accounting for 100%. The data collection was conducted via Google Forms, after which the questionnaires were verified for accuracy and analyzed further.

**Data Analysis**

After collecting the data from the questionnaires, the researcher analyzed the data using the Statistical package for the Social Science (SPSS) software, selecting data analysis methods consistent with the research hypotheses as follows:

**Section 1**: Analysis of respondent demographics: This section involves descriptive statistics using a checklist format. The data was analyzed by calculating frequencies and percentages and presented in tables accompanied by narrative descriptions.

**Section 2**: Analysis and comparison of academic leadership of school administrators: This section pertains to the analysis of academic leadership of school administrators the Secondary Educational Service Area Office Nakhon Phanom. The questionnaire was designed in a 5-level rating scale format, with scoring criteria and meanings defined by the researcher as follows:

**4.51 - 5.00**: Indicates behavior at the highest level
**3.51 - 4.50**: Indicates behavior at a high level
**2.51 - 3.50**: Indicates behavior at a moderate level
**1.51 - 2.50**: Indicates behavior at a low level
**1.0 - 1.50**: Indicates behavior at the lowest level

The analysis compared the academic leadership of school administrators under the Secondary Educational Service Area Office Nakhon Phanom as a whole and in each aspect using hypothesis testing as follows: 1) Classified by demographic characteristics using an independent sample *t-test* 2) Classified by school size using one-way analysis of variance (ANOVA)

**Section 3:** Analysis and comparison of change management in schools under the Secondary Educational Service Area Office Nakhon Phanom, based on a 5-level rating scale with the following criteria:

**4.51 - 5.00**: Indicates performance at the highest level
**3.51 - 4.50**: Indicates performance at a high level
**2.51 - 3.50**: Indicates performance at a moderate level
**1.51 - 2.50**: Indicates performance at a low level
**1.00 - 1.50**: Indicates performance at the lowest level

The analysis also compared change management performance in schools under the Secondary Educational Service Area Office Nakhon Phanom overall and by specific aspects using hypothesis testing as follows: 1) Classified by demographic characteristics using an independent sample *t-test* 2) Classified by school size using one-way analysis of variance (ANOVA)

**Section 4:** Analyzing the relationship between academic leadership of school administrators and change management in schools under the Secondary Educational Service Area Office Nakhon Phanom using Pearson's Correlation Coefficient. The interpretation of the correlation coefficients is as follows:

**0.81 - 1.00**: High correlation
**0.61 - 0.80**: Moderately high correlation
**0.41 - 0.60**: Moderate correlation
**0.21 - 0.40**: Moderately low correlation
**0.01 - 0.20**: Low correlation

A positive (+) correlation coefficient indicates a positive relationship (as one variable increases, the other also increases), while a negative (-) correlation coefficient indicates an inverse relationship (as one variable increases, the other decreases).

Some correlation coefficients with values between $0 \leq r \leq 1$ only indicate the magnitude or level of the correlation, without specifying the direction of the relationship.

**Section 5:** Analysis of the predictive power of school administrators' academic leadership that affect change management in schools under the Secondary Educational Service Area Office Nakhon Phanom using stepwise multiple regression analysis.

## Research Finding

1. The results of the analysis of academic leadership behavior levels of school administrators under the Secondary Educational Service Area Office Nakhon Phanom are presented in a summary table as follows:

**Table 1:** Mean and Standard Deviation of Academic Leadership of School Administrators under the Secondary Educational Service Area Office Nakhon Phanom, both overall and categorized by specific aspects.

| Academic Leadership of School Administrators | $\bar{x}$ | S.D. | Behavior Level |
|---|---|---|---|
| 1. Vision, goals, and mission setting | 4.55 | .48 | Highest |
| 2. Curriculum and teaching management | 4.42 | .50 | High |
| 3. Academic atmosphere encouragement | 4.52 | .49 | Highest |
| 4. Supervision | 4.45 | .44 | High |
| 5. Personnel development | 4.47 | .42 | High |
| 6. Establishing relationships with teachers, students and community | 4.48 | .43 | High |
| **Overall** | 4.48 | .40 | High |

According to Table 1, it was found that the overall academic leadership of school administrators under the Secondary Educational Service Area Office Nakhon Phanom is at a high level. When considering individual aspects, 2 aspects are rated at the highest level, while 4 aspects are rated at the high level. The aspect with the highest mean score is Vision, goals, and mission setting, while the aspect with the lowest mean score is Curriculum and teaching management.

**Table 2:** Comparison of Academic Leadership of School Administrators under the Secondary Educational Service Area Office Nakhon Phanom, by Status (Overall and by Aspect)

| Academic Leadership of School Administrators | School Administrators | | Teachers | | t | P > |
|---|---|---|---|---|---|---|
| | $\bar{x}$ | S.D. | $\bar{x}$ | S.D. | | |
| 1. Vision, goals, and mission setting | 4.52 | .46 | 4.55 | .48 | .49 | .63 |
| 2. Curriculum and teaching management | 4.43 | .50 | 4.41 | .50 | .22 | .83 |
| 3. Academic atmosphere encouragement | 4.54 | .52 | 4.52 | .48 | .30 | .77 |
| 4. Supervision | 4.48 | .43 | 4.44 | .44 | .59 | .56 |
| 5. Personnel development | 4.54 | .52 | 4.45 | .42 | 1.57 | .12 |
| 6. Establishing relationships with teachers, students and community | 4.42 | .43 | 4.50 | .43 | 1.32 | .19 |
| **Overall** | 4.49 | .40 | 4.48 | .40 | .16 | .88 |

According to Table 2, the comparison of academic leadership of school administrators under the Secondary Educational Service Area Office Nakhon Phanom, both overall and by aspect, reveals that there is no significant difference in the opinions of school administrators and teachers regarding the academic leadership of school administrators.

**Table 3:** Comparison of Academic Leadership of School Administrators under the Secondary Educational Service Area Office Nakhon Phanom, by School Size (Overall and by Aspect)

| Academic Leadership of School Administrators | SS | df | MS | F | P > |
|---|---|---|---|---|---|
| 1. Vision, goals, and mission setting | | | | | |
| Between groups | .76 | 2 | .38 | 1.67 | .19 |
| Within groups | 62.11 | 274 | .23 | | |
| **Overall** | 62.87 | 276 | | | |
| 2. Curriculum and teaching management | | | | | |
| Between groups | 1.52 | 2 | .76 | 3.14* | .05 |
| Within groups | 66.18 | 274 | .24 | | |
| **Overall** | 67.70 | 276 | | | |
| 3. Academic atmosphere encouragement | | | | | |
| Between groups | 2.57 | 2 | 1.29 | 5.63** | .00 |
| Within groups | 62.59 | 274 | .23 | | |
| **Overall** | 65.16 | 276 | | | |
| 4. Supervision | | | | | |
| Between groups | 1.14 | 2 | .57 | 3.01* | .05 |
| Within groups | 51.81 | 274 | .19 | | |
| **Overall** | 52.95 | 276 | | | |
| 5. Personnel development | | | | | |
| Between groups | .02 | 2 | .01 | .61 | .94 |
| Within groups | 49.71 | 274 | .18 | | |
| **Overall** | 49.73 | 276 | | | |
| 6. Establishing relationships with teachers, students and community | 2.34 | 2 | 1.17 | 6.46** | .00 |
| Between groups | 49.64 | 274 | .18 | | |
| Within groups | | | | | |
| **Overall** | 51.98 | 276 | | | |
| Overall | | | | | |
| Between groups | .68 | 2 | .34 | 2.15 | .12 |
| Within groups | 43.36 | 274 | .16 | | |
| **Overall** | 44.04 | 276 | | | |

**Significant at the .01 level
*Significant at the .05 level

According to Table 3, the comparison of academic leadership of school administrators under the Secondary Educational Service Area Office Nakhon Phanom categorized by school size (small, medium, large, and extra-large), shows no overall significant differences.

However, when considering individual aspects: The academic atmosphere encouragement and establishing relationships with teachers, students, and community exhibit statistically significant differences at the .01 level. The curriculum and teaching management and supervision show statistically significant differences at the .05 level. The vision, goals, and mission setting and personnel development reveal no significant differences across school sizes.

2. The results of the analysis of change management in schools under the Secondary Educational Service Area Office Nakhon Phanom are presented in a summary table as follows:

**Table 4:** Mean and Standard Deviation of Change Management in schools under the Secondary Educational Service Area Office Nakhon Phanom, both overall and categorized by specific aspects.

| Change Management in Schools | $\bar{x}$ | S.D. | Performance Level |
|---|---|---|---|
| 1. Creating a sense of necessity and urgency | 4.47 | .46 | High |
| 2. Building an effective team | 4.58 | .41 | Highest |
| 3. Communication | 4.42 | .42 | High |
| 4. Setting short-term goals | 4.53 | .33 | Highest |
| 5. Flexibility and acceptance of change | 4.50 | .31 | High |
| 6. Motivating change adoption | 4.51 | .30 | Highest |
| **Overall** | 4.50 | .29 | High |

According to Table 4, it was found that the overall change management in schools under the Secondary Educational Service Area Office Nakhon Phanom is at a high level. When considering individual aspects: 3 aspects were rated at the highest level. The aspect with the highest mean score is building an effective team. 3 aspects were rated at the high level. The aspect with the lowest mean score is communication.

**Table 5:** Comparison of Change Management in Schools under the Secondary Educational Service Area Office Nakhon Phanom, by Status (Overall and by Aspect)

| Change Management in Schools | School Administrators | | Teachers | | t | P > |
|---|---|---|---|---|---|---|
| | $\bar{x}$ | S.D. | $\bar{x}$ | S.D. | | |
| 1. Creating a sense of necessity and urgency | 4.41 | .46 | 4.48 | .47 | 1.11 | .27 |
| 2. Building an effective team | 4.59 | .43 | 4.58 | .47 | .28 | .78 |
| 3. Communication | 4.38 | .54 | 4.43 | .77 | .21 | .44 |
| 4. Setting short-term goals | 4.52 | .72 | 4.53 | .54 | .22 | .82 |
| 5. Flexibility and acceptance of change | 4.48 | .67 | 4.51 | .49 | .87 | .39 |
| 6. Motivating change adoption | 4.49 | .76 | 4.52 | .51 | .61 | .64 |
| **Overall** | 4.48 | .56 | 4.51 | .40 | .70 | .84 |

According to Table 5, the comparison of change management in schools under the Secondary Educational Service Area Office Nakhon Phanom categorized by status (administrators and teachers) shows no significant differences in their overall opinions.

**Table 6:** Comparison of Change Management in Schools under the Secondary Educational Service Area Office Nakhon Phanom, by School Size (Overall and by Aspect)

| Change Management in Schools | SS | df | MS | F | P > |
|---|---|---|---|---|---|
| 1. Creating a sense of necessity and urgency | | | | | |
| Between groups | 1.03 | 2 | .52 | 2.42 | .09 |
| Within groups | 58.36 | 274 | .21 | | |
| **Overall** | 59.39 | 276 | | | |
| 2. Building an effective team | | | | | |
| Between groups | 1.14 | 2 | .57 | 3.37** | .04 |
| Within groups | 46.21 | 274 | .17 | | |
| **Overall** | 47.35 | 276 | | | |
| 3. Communication | | | | | |
| Between groups | 6.35 | 2 | 3.17 | 20.21** | .00 |
| Within groups | 43.06 | 274 | .16 | | |
| **Overall** | 49.41 | 276 | | | |
| 4. Setting short-term goals | | | | | |
| Between groups | .56 | 2 | .28 | 2.60 | .08 |
| Within groups | 29.73 | 274 | .11 | | |
| **Overall** | 30.29 | 276 | | | |
| 5. Flexibility and acceptance of change | | | | | |
| Between groups | .57 | 2 | .28 | 2.97** | .05 |
| Within groups | 26.20 | 274 | .10 | | |
| **Overall** | 26.77 | 276 | | | |
| 6. Motivating change adoption | | | | | |
| Between groups | 2.79 | 2 | 1.39 | .22 | .80 |
| Within groups | 67.19 | 274 | .31 | | |
| **Overall** | 69.98 | 276 | | | |
| Overall | | | | | |
| Between groups | .89 | 2 | .45 | 5.17** | .00 |
| Within groups | 23.57 | 274 | .09 | | |
| **Overall** | 24.46 | 276 | | | |

**Significant at the .01 level
*Significant at the .05 level

According to Table 6, the comparison of change management in schools under the Secondary Educational Service Area Office Nakhon Phanom categorized by school size (small, medium, large, and extra-large) shows that the overall difference is statistically significant at the .01 level. When considering individual aspects: Statistically significant differences at the .01 level were found in: building an effective team, communication, setting short-term goals, flexibility and acceptance of change, motivating change adoption. Statistically significant differences at the .05 level were found in: creating a sense of necessity and urgency.

3. Results of the Correlation Analysis between Academic Leadership of School Administrators and Change Management in Schools under the Secondary Educational Service Area Office Nakhon Phanom. The analysis revealed that overall academic leadership of school administrators has a positive and statistically significant correlation at the .01 level with change management in schools with a correlation coefficient of $r_{xy} = 0.88$, indicating a strong positive relationship.

4. Results of Stepwise Multiple Regression Analysis of Academic Leadership of School Administrators. The stepwise multiple regression analysis of the 5 predictor variables of academic leadership shows that the variables can be ranked in descending order based on their Beta coefficients as follows: Personnel Development ($X_5$), Building Relationships with Teachers, Students, and the Community ($X_6$), Supervision ($X_4$), Vision, Goals, and Mission Setting ($X_1$) and Curriculum and Teaching Management ($X_2$). The analysis indicates that these 5 predictor variables together account for 77% ($R^2 = 0.77$) of the variance in change management with statistical significance at the .01 level.

Raw Score Prediction Equation:

$$Y' = 1.48 + .20X_5 + .15X_6 + .11X_4 +.11X_1+.10X_2$$

Standardized Score Prediction Equation:

$$Zy' = .28Z_5 + .22Z_6 + .18Z_4 + .17Z_1 + .16Z_2$$

## Discussion/Conclusion

Discussion of Research Findings on Academic Leadership of School Administrators Affecting Change Management in Schools Under the Secondary Educational Service Area Office Nakhon Phanom. The research findings indicate that academic leadership significantly influences change management in schools. The discussion of results is as follows:

1. The research findings indicate that the overall level of academic leadership of school administrators under the Secondary Educational Service Area Office Nakhon Phanom is at a high level. This suggests that school administrators place significant importance on setting a clear vision, goals, and mission to enhance teaching management and foster a positive learning atmosphere in schools. The researcher notes that this aligns with the study conducted by Chaninan Klaimanee (2017) on factors of academic leadership of school administrators affecting teaching efficiency of teachers under the Bangkok Primary Educational Service Area Office. The findings from that study also indicated that the overall and individual aspects of academic leadership were at a high level. The research findings, which demonstrate the characteristics of academic leadership among school administrators that positively influence change management in schools, should be utilized as supporting data for the formulation of policies concerning the selection, appointment, and development of school leaders. This approach would ensure alignment with the evolving needs of the educational system in the modern era. Bush (2008) Furthermore, linking the findings to international best practices by comparing them with research conducted in different global contexts would enhance the depth and global relevance of the study. This also facilitates the development of flexible leadership models that are appropriately adapted to the Thai school context in a time of rapid change. Hallinger & Bryant (2013)

1.1 Discussion on the Comparison of Academic Leadership of School Administrators by Status. The research findings indicate that the opinions on academic leadership of school administrators categorized by status (administrators and teachers) show no significant differences which contradicts the initial hypothesis. This may be attributed to the fact that modern school administrators demonstrate appropriate leadership behaviors, fostering collaboration and cooperation among all stakeholders—teachers, students, parents, communities, and related organizations. Such collaboration enhances satisfaction among all parties, leading to improved educational management and increased institutional effectiveness. Moreover, these administrators are capable of developing personnel into future leaders with systematic creativity and enhancing students to become quality members of society amidst the rapid changes of the digital era. In today's educational context, digital learning plays a crucial role as digital tools serve as key instruments for both learners and teachers to access knowledge and create meaningful work efficiently. As a result, differences in perspectives are expected due to varying levels of exposure to and comfort with technology. This finding aligns with the study by Tassana Wannaprapa (2017) on the academic leadership of school administrators in Soi Dao District under the Chanthaburi Primary Educational Service Area Office 2. The study similarly found that the overall and individual aspects of academic leadership of school administrators were at a high level.

1.2 Discussion on the Comparison of Academic Leadership of School Administrators by School Size. The research findings indicate that the overall academic leadership of school administrators categorized by school size (small, medium, large, and extra-large) shows no significant differences. However, significant differences were observed in specific aspects which aligns with the initial hypothesis. This may be due to the fact that school administrators possess various leadership characteristics that support student academic development. Effective academic leadership involves improving the school's mission, promoting school goals, managing teaching and learning, and fostering a positive learning environment. The aspect that had the greatest influence on academic leadership was the development of the school's mission. Administrators who prioritize classroom instruction, ensure teacher effectiveness, and aim for student success contribute to a cohesive system where academic leadership aligns with educational goals. Therefore, teachers and administrators tend to have similar perceptions of academic leadership within their institutions. This finding is consistent with the study by Boonpa Prommana (2016) on the academic leadership of school administrators under the Surat Thani Primary Educational Service Area Office 1. That study found that academic leadership varied significantly across school types, with a statistically significant difference at the .05 level.

2. Discussion on Change Management in Educational Institutions. The research findings reveal that the overall level of change management in schools under the Secondary Educational Service Area Office Nakhon Phanom is at a high level. This can be attributed to the ability of school administrators to manage their institutions to adapt effectively to both internal and external changes. The goal is to ensure that changes yield positive outcomes while minimizing negative impacts, allowing the institution to operate smoothly and sustainably and achieve organizational objectives. Effective change management involves multiple dimensions such as embracing new technologies, expanding educational scope to align with global standards, and fostering innovation. These efforts enhance the institution's capacity to survive, thrive, and maintain efficiency amidst evolving circumstances. This finding is consistent with the study conducted by Watthana Namwan and Julaphanporn Thanaphat (2017) on the change management of school administrators based on teachers' perceptions in schools under the

jurisdiction of Bangkok's Din Daeng district. The study found that the overall and individual aspects of change management were rated at a high level.

2.1 Discussion on the Comparison of Change Management in Educational Institutions by Status. The research findings indicate that the opinions on change management in educational institutions, categorized by status (administrators and teachers) show no significant differences, which contradicts the initial hypothesis. This may be due to the fact that modern educational management is conducted in a systematic and inclusive manner. Collaborative planning and joint decision-making are emphasized to ensure that all stakeholders—administrators, teachers, and external partners—are actively involved. This inclusive approach strengthens the effectiveness of implementation and fosters mutual acceptance and shared responsibility in achieving the school's vision and goals. The process of collective participation—where stakeholders share insights, contribute ideas, and work together to implement and adapt to changes—has contributed to aligned perspectives among administrators and teachers regarding change management. This finding aligns with the definition provided by the Office of the Public Sector Development Commission (2008), which states that planning and actions aimed at reducing the negative impacts of change, while supporting adaptation and acceptance, and building new capabilities to meet goals, are essential for effective change management.

2.2 Discussion on the Comparison of Change Management in Schools by School Size. The research findings indicate that the overall change management practices in educational institutions, categorized by school size (small, medium, large, and extra-large), show statistically significant differences at the .01 level. This result aligns with the initial hypothesis. This may be due to the fact that schools of different sizes face varying challenges and levels of resource availability when implementing change. Smaller schools may have more limited resources but benefit from a close-knit structure, while larger schools often require more complex management systems to handle broader responsibilities and stakeholder interactions. Consequently, the approaches to managing and adapting to change differ depending on the school's size and context. The findings align with the study conducted by Natthida Thansap and Rungchatchadaporn Wehachart (2019) on the change management of school administrators based on teachers' perceptions under the Songkhla Primary Educational Service Area Office 3. Their research found that opinions on change management, categorized by school size, showed statistically significant differences at the .01 level in both overall and individual aspects.

3. Discussion on the Relationship Between Academic Leadership of School Administrators and Change Management in Schools. The study results indicate that the overall relationship between academic leadership of school administrators and change management schools under the Secondary Educational Service Area Office Nakhon Phanom is positively correlated at a high level and statistically significant at the .01 level. This finding aligns with the initial hypothesis. Academic leadership is a critical characteristic of school administrators as it plays an essential role in promoting, supporting, and guiding the development of effective change management especially in an era of volatility and rapid transformation. Strong academic leadership enables the school to achieve its goals with quality and consistency, reinforcing a positive correlation between leadership and effective institutional management.

This finding is consistent with the views of Chaiya Phawabutr (2017) who emphasized that the characteristics of academic leadership are crucial in adapting paradigms to keep pace with societal and global changes. Modern leadership requires administrators to evolve their concepts, methods, skills, and techniques to align with contemporary education management trends and comply with the structural reforms in Thailand's education system. Effective academic leaders must possess both theoretical knowledge and the ability to apply that knowledge in practice, ensuring that their institutions benefit from innovative and strategic management approaches. This enhances the institution's ability to operate efficiently and achieve optimal outcomes, even amidst constant changes and challenges. In conclusion, the study reinforces that academic leadership is a key driver of successful change management enabling schools to adapt, improve, and achieve sustainable educational excellence.

4. Discussion on the Predictive Power of Academic Leadership of School Administrators on Change Management in Schools. The analysis of the predictive power of the 5 academic leadership variables of school administrators on change management in schools under the Secondary Educational Service Area Office Nakhon Phanom reveals the following order based on Beta coefficients (from highest to lowest): Personnel Development, Building Relationships with Teachers, Students, and the Community, Supervision, Vision, Goals, and Mission Setting snd Curriculum and Teaching Management. These 5 variables together predict 77% ($R^2$ = 0.77) of the variance in change management with statistical significance at the .01 level. The findings indicate that personnel development is the most influential factor, emphasizing the importance of continuous training and capacity-building for teachers and staff to foster innovation and adapt to change. Relationship-building with key stakeholders—teachers, students, parents, and the community—further enhances collaboration and shared goals, contributing to a stronger change management framework. The vision-setting component plays a significant role in defining the school's objectives and ensuring these goals are well-communicated and understood by all stakeholders. This involves clear communication of the school's vision to parents, teachers, and the community to align their efforts in achieving shared developmental goals. The findings align with the study by Nakarin Imsawas, Charoenwich Somphongtham, and Paradee Anannawi (2019) which examined change leadership and academic leadership in Chonburi Provincial Administrative Organization schools. Their study concluded that change leadership and academic leadership significantly influenced school effectiveness, with statistically significant differences at the 0.05 level based on school type and leadership factors.

## Suggestion

1. Discussion on Academic Leadership of School Administrators Regarding Curriculum and Teaching Management. The study of academic leadership of school administrators under the Secondary Educational Service Area Office Nakhon Phanom revealed that the aspect with the lowest average score was curriculum and instruction management. When examining individual items, the lowest-rated points were the participation of school administrators in developing the curriculum and instructional plans for educational implementation. The role of school administrators as leaders in designing the school curriculum. Recommendations for Improvement to address these issues school administrators should encourage inclusive participation. Provide opportunities for all stakeholders—teachers, staff, students, and parents—to contribute ideas, share knowledge and participate in curriculum development and decision-making processes. Promote Teamwork: Support an efficient team-based approach, fostering a sense of ownership and collaboration among staff. Foster a Sense of Belonging: Create an environment where personnel feel valued and are motivated to drive the organization forward. Facilitate Open Communication: Encourage diverse perspectives and collective brainstorming to enhance creativity and innovation in educational practices. By implementing these strategies, the curriculum and instruction processes can be enhanced,

leading to more effective educational management and increased success in achieving institutional goals.

2. Discussion on Change Management in Schools Regarding Communication. The study on change management in schools under the Secondary Educational Service Area Office Nakhon Phanom revealed that the aspect with the lowest average score was communication. When examining individual items, the lowest-rated point was the use of modern communication technologies (e.g., LINE, Facebook) to reach all target groups. Recommendations for Improvement to enhance internal communication: School administrators should prioritize communication as an integral part of the organizational change management plan to ensure that all stakeholders are well-informed and aligned. Integrate Modern Technology: Regularly update and implement digital communication tools such as messaging apps, social media, and digital platforms to facilitate real-time interaction and reach diverse audiences. Continuous Communication: Establish a continuous and consistent communication flow to keep stakeholders informed about ongoing activities, changes, and future plans. Adapt Communication Plans: Continuously review and adapt communication strategies to suit evolving tasks and environmental changes, particularly in the digital age. Monitor and Evaluate Communication Effectiveness: Implement regular monitoring and evaluations of communication activities to ensure they remain current and effective in addressing stakeholder needs. Foster Change Acceptance: Encourage feedback and interaction to build acceptance of change by fostering transparency and trust. By integrating modern communication tools and systematic planning, school administrators can improve internal and external communication, ensuring that change initiatives are effectively supported and successfully implemented. This will contribute to more efficient instructional activities and better learning outcomes.

3. Discussion on the Relationship Between Academic Leadership of School Administrators and Change Management in Schools. The study revealed a high-level positive correlation between the academic leadership of school administrators and change management in schools under the Secondary Educational Service Area Office Nakhon Phanom. This finding suggests that when school administrators demonstrate strong academic leadership, the effectiveness of change management significantly improves. Academic leadership involves not only setting a clear vision and goals but also guiding and empowering teachers and staff, which fosters a collaborative and adaptive environment. The findings of this study indicate that academic leadership among school administrators plays a significant role in facilitating effective change management within secondary schools under the Secondary Educational Service Area Office Nakhon Phanom. School leaders who exhibit strong academic vision, instructional leadership, and collaborative decision-making tend to create more adaptive and forward-looking learning environments. These traits align with Bush’s (2008) assertion that leadership development must be integrated into educational policy to address the complex and dynamic challenges faced by today’s schools.

The positive impact of academic leadership on school transformation suggests the necessity of incorporating such leadership traits into national education policies, especially those related to the selection, appointment, and continuous professional development of school leaders. Targeted training programs that enhance academic leadership capacities should be institutionalized, ensuring that administrators are equipped to lead schools through educational reforms and societal shifts.

Moreover, to enhance the global relevance of the research, it is recommended that future studies compare the findings with international literature on educational leadership. This comparative perspective would help contextualize the results and contribute to a broader understanding of how leadership practices influence school improvement across different cultural and educational systems. As Hallinger and Bryant (2013) emphasize, educational leadership research must be sensitive to context while drawing insights from global practices to inform local application.

Developing flexible leadership models rooted in both local realities and international frameworks can better prepare Thai school administrators to manage change effectively. Such models would support school systems in becoming more resilient and innovative in response to globalization, technological advancement, and evolving student needs.

4) Discussion on Academic Leadership Dimensions of School Administrators Affecting Change Management in Schools. The study findings indicate that the dimensions of academic leadership that significantly affect change management in schools under the Secondary Educational Service Area Office Nakhon Phanom include Personnel Development, Building Relationships with Teachers, Students, and the Community, Supervision, Vision, Goals, and Mission Setting snd Curriculum and Teaching Management. Academic leadership across these five dimensions plays a crucial role in driving successful change management. By enhancing leadership effectiveness in these areas, school administrators can foster a supportive and adaptive educational environment that responds proactively to changes and achieves sustainable improvements in teaching and learning.

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# The Effect of Advanced Technology on Human Resource Recruiting in Higher Education

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## Abstract

This study aimed to identify and analyze the impact factors of advanced technologies on human resource recruitment in Chinese higher education institutions, focusing on recruitment efficiency, candidate experience, diversity and quality of hires, and retention rates of new hires. Utilizing a quantitative research design, data were collected from a sample of 205 recruitment officers and human resource (HR) managers across fifteen diverse universities in China, selected through a purposive sampling method. A structured questionnaire was used, the validity and reliability of which were established using Cronbach's alpha coefficient at the 0.8 level. Multiple linear regression analyses were employed to examine the relationships between AI-driven screening tools, virtual interview platforms, data analysis evaluation techniques, automated applicant tracking systems, and each dependent variable.

The results showed that all four technologies were positively associated with recruitment efficiency, candidate experience, diversity and quality of hires, and retention rates. Specifically, AI-driven screening tools had the largest unique contribution to recruitment efficiency ($\beta = .284$, $p = .000$), while data analysis evaluation techniques had the largest unique contribution to both candidate experience ($\beta = .251$, $p = .000$) and retention rates ($\beta = .237$, $p = .001$). Virtual interview platforms had the largest unique contribution to diversity and quality of hires ($\beta = .213$, $p = .003$). These findings underscore the strategic value of advanced technologies in enhancing organizational capabilities, aligning with the Resource-Based View, and their crucial role in optimizing human capital acquisition and retention, as posited by Human Capital Theory. The study concluded that the integration of advanced technologies can significantly enhance various aspects of the recruitment process in higher education institutions. However, it also emphasized the importance of addressing potential challenges related to data security, fairness, and transparency.

**Keywords:** Digital Recruitment, Technology, Higher Resource Recruitment

## Introduction

In recent years, the rapid advancement of digital technologies has transformed various industries, including higher education, particularly in human resource recruitment processes. Higher education institutions now face an increased demand for skilled personnel who can adapt to digitalized environments (Singh & Sahoo, 2023). With the widespread adoption of big data analytics, artificial intelligence (AI), digital recruitment platforms, and mobile applications, these institutions have turned to technology as a solution to improve recruitment efficiency and the quality of new hires (Martinez-Gil et al., 2020; Leonidas & Tibuhinda, 2023). As noted by Bara et al. (2015), big data tools allow institutions to enhance decision-making accuracy in recruitment, significantly optimizing candidate selection and aligning hires with institutional needs.

This shift to technology-driven recruitment models is essential, particularly in competitive educational landscapes like China, where universities are rapidly expanding and aiming to improve their educational standards (Bara et al., 2015; Memon et al., 2024). The "Internet +" initiative and the Chinese government's push for digital transformation in education have catalyzed the adoption of advanced HR technologies, encouraging universities to implement digital upgrades in recruitment and HR management to meet new challenges (Hamilton & Sodeman, 2020). These advancements promise more efficient recruitment processes, broadened outreach through social media, and improved candidate matching through AI-driven tools (Dhiman & Arora, 2018). Despite the potential benefits, universities must also address challenges, such as data security and maintaining fairness in digital recruitment practices (Tumasjan et al., 2020).

Despite the growing adoption and perceived benefits of these advanced technologies, there remains a critical gap in comprehensive empirical research specifically examining their multifaceted impact on key recruitment outcomes within the unique context of Chinese higher education institutions. While individual technologies have been studied, a holistic analysis that integrates their collective influence on recruitment efficiency, candidate experience, diversity and quality of hires, and retention rates is still limited. Understanding these specific impacts is crucial for institutions to strategically invest in and implement digital recruitment solutions effectively, ensuring fairness, data security, and optimal talent acquisition in a competitive landscape.

Therefore, this study aims to analyze the application and impact of advanced technologies on recruitment in Chinese higher education institutions, focusing on efficiency, candidate experience, hire quality, and retention outcomes. By examining the integration of digital technologies, this research seeks to contribute valuable insights for HR practitioners and policymakers in enhancing recruitment strategies to adapt to the digital age.

## Objective

The specific research objectives that guided this study were as follows:

1. To identify the impact factor of advanced technology on human resource recruiting in Higher Education.

2. To analyze the impact of advanced technology on human resource recruiting in Higher Education.

## Literature Review

The researcher conducted a comprehensive review of relevant concepts, theories, and research to inform the development of research guidelines.

The Impact of Advanced Technologies on Human Resource Recruitment in Higher Education. The rapid advancement of digital technologies has led to transformative changes in human resource (HR) recruitment within higher education. This transformation has been particularly influenced by tools such as artificial intelligence (AI), big data analytics, digital recruitment platforms, mobile applications, and social media.

**Artificial Intelligence in HR Recruitment**

AI technology has significantly enhanced recruitment efficiency and accuracy by enabling automated resume screening, skills assessment, and candidate ranking. These AI-driven tools reduced manual workload and fostered transparency in the recruitment process, thereby improving overall effectiveness (Martinez-Gil et al., 2020; Bara et al., 2015). For example, universities such as Zhejiang University adopted AI systems to precisely match candidate qualifications with job requirements, particularly for in-demand roles, substantially enhancing the quality of hires (Kurek et al., 2024). However, the implementation of AI also raised ethical and operational concerns, especially regarding data privacy and algorithmic bias. As AI systems rely on historical hiring data, they may inadvertently perpetuate existing biases, underscoring the need for transparency and fairness in AI usage to maintain equitable hiring practices (Tumasjan et al., 2020).

**Big Data Analytics in Recruitment**

Big data analytics played an equally critical role by providing a data-driven approach to candidate evaluation, hiring predictions, and strategic decision-making. At Peking University, for instance, big data systems analyzed vast amounts of candidate information, streamlining recruitment processes and enhancing the quality of hiring decisions. Such insights enabled HR teams to anticipate hiring needs, optimize recruitment timelines, and ensure alignment between candidate qualifications and job roles (Hamilton & Sodeman, 2020; Singh & Sahoo, 2023). Despite these benefits, big data analytics presented challenges such as data security and high processing demands, especially for institutions with limited resources. Consequently, universities needed robust data protection measures to ethically leverage big data in recruitment, protecting candidate privacy through protocols that anonymized data and ensured compliance with regulatory standards (Ikram et al., 2017). Moving forward, the integration of big data analytics with AI can enhance predictive capabilities and refine recruitment strategies, allowing higher education institutions to achieve inclusive hiring while maintaining efficiency and cost-effectiveness (Hamilton & Sodeman, 2020).

**Digital Recruitment Platforms**

Digital recruitment platforms have revolutionized HR processes in higher education by centralizing job postings, application tracking, candidate communication, and interview scheduling. These platforms significantly improved recruitment efficiency by automating routine administrative tasks, broadening applicant outreach, and supporting institutional competitiveness. For example, Chinese universities such as Tsinghua and Fudan extensively used platforms like Zhaopin and 51job to attract high-caliber talent, streamline recruitment activities, and enhance candidate experience (Leonidas & Tibuhinda, 2023; Memon et al., 2024). Nonetheless, digital platforms posed risks such as cybersecurity vulnerabilities, potential dependency on third-party platforms, and the need for continuous technological updates. Universities must invest in cybersecurity measures to protect applicant data and balance external dependencies with internal recruitment capabilities to optimize processes (Leonidas & Tibuhinda, 2023). Future developments in customizable digital recruitment platforms could offer solutions to current challenges by seamlessly integrating with institutional databases, allowing for a flexible recruitment approach tailored to the unique requirements of higher education.

### Mobile Applications and Social Media Tools

Mobile applications and social media are powerful tools that extended recruitment reach and boosted candidate engagement. Many institutions utilized social media for recruitment transparency, enabling real-time interaction with candidates. For instance, China University of Geosciences developed mobile apps to simplify applications, while Shanghai Jiao Tong University used WeChat for live recruitment events that included interactive Q&A sessions, thereby strengthening institutional branding and recruiting effectiveness (Dhiman & Arora, 2018; Rana & Singh, 2015). However, these tools must prioritize data privacy; universities must design mobile applications to rigorously protect user data, given the sensitive nature of recruitment information, and maintain professional branding on social media platforms (Lal & Aggarwal, 2013).

### Human Resource Management Practices and Retention Rates

Beyond technological tools, strategic human resource management (HRM) practices played a crucial role in not only attracting but also retaining talent. Data-driven HR practices enabled universities to develop tailored growth opportunities and retention initiatives, fostering a supportive work environment that enhanced employee satisfaction and loyalty (Arulrajah et al., 2015). In the context of higher education, retention strategies focused on inclusive onboarding, professional growth opportunities, and employee engagement to achieve high retention rates. Data analytics further aided HR teams in predicting turnover risks, enabling proactive measures to improve retention (Spano, 2008).

### Cost-Efficiency in Recruitment

Finally, cost-efficiency remained a pivotal consideration in recruitment. Digital tools, from AI-driven screening to e-recruitment platforms, drastically reduced operational costs by automating tasks that would otherwise require significant manual input. Online recruitment methods not only eliminated logistical costs associated with traditional, in-person recruitment but also streamlined processes, making recruitment more cost-effective and efficient overall (Christensen et al., 2017).

## Research Methodology

### Research design

This study utilizes a rigorous quantitative research design to evaluate the influence of advanced technologies on recruitment practices within Chinese higher education institutions. A structured questionnaire serves as the primary data collection tool. The quantitative methodology ensures a systematic approach to collecting, measuring, and analyzing data, thereby facilitating the empirical testing of hypotheses. Guided by established research paradigms in recruitment and digital transformation, the study's design allows for precision in examining the dimensions of technology integration. The structured questionnaire enables the measurement of multiple factors, ensuring that findings are reliable, actionable, and generalizable across institutions.

**Population and Sample Size**

The target population consists of recruitment officers and human resource (HR) managers from 15 universities in China, representing varying sizes, geographic locations, and institutional types. These universities were selected to capture a diverse range of recruitment experiences and practices, ensuring broad applicability of the findings. To enhance the robustness of the analysis, stratified sampling was employed to ensure proportional representation of subgroups, including recruitment officers and HR managers. The total sample size comprises approximately 250 respondents, with 15-20 participants from each university. This sample size ensures sufficient statistical power and the ability to identify significant trends. The detailed breakdown of the sample is as follows:

| No. | University Name | Recruitment Officers & HR Managers | Sampling Number |
|---|---|---|---|
| 1 | Hebei University Science of and Technology | 100 | 20 |
| 2 | Zhejiang Gongshang University | 90 | 18 |
| 3 | Guangdong University of Finance | 70 | 14 |
| 4 | Shenyang Jianzhu University | 60 | 12 |
| 5 | Changsha University | 80 | 16 |
| 6 | Fujian University of Technology | 75 | 15 |
| 7 | Xi'an University of Arts and Science | 95 | 19 |
| 8 | Qingdao Agricultural University | 85 | 17 |
| 9 | Guangxi Normal University | 90 | 18 |
| 10 | Yunnan University of Economic and Management | 70 | 14 |
| 11 | Shandong Jiaotong University | 100 | 20 |
| 12 | Chongqing University of Technology | 120 | 24 |
| 13 | Guizhou University of Finance and Economics | 65 | 13 |
| 14 | Tianjin University of Vocational Technology | 80 | 16 |
| 15 | Henan University of Engineering | 85 | 17 |
| | **Total** | **1,235** | **250** |

The actual number of valid responses collected and used for analysis was 205, as detailed in the Data Collection section. This slight deviation from the initial target of 250 was due to incomplete submissions, but the final sample size of 205 still provides sufficient statistical power for the analyses conducted.

### Research Tools

The primary data collection tool was a structured questionnaire designed to evaluate the effectiveness and usability of various technologies across recruitment stages. A Likert scale was used to assess respondents' perceptions of technology features, such as the effectiveness of AI screening and the usability of data analytics tools. As can be seen from the table above: the KMO value is 0.920, and the KMO value is greater than 0.8, the research data is very suitable for extracting information.

### Data collection

Data were collected using both electronic and in-person methods. The questionnaire encompassed key recruitment metrics, including candidate evaluation, recruitment efficiency, and employee retention. A pilot test was conducted to verify the questionnaire's reliability, and subsequent adjustments were made based on initial feedback to enhance clarity and validity.

### Data Analysis

Data analysis was performed using SPSS, incorporating descriptive statistics, reliability analysis, factor analysis, and regression and correlation analyses.

### Conceptual Framework

This section presents the conceptual framework that guided this research, illustrating the hypothesized relationships between the independent variables (advanced technologies) and the dependent variables (human resource recruitment outcomes in higher education). This framework provides a visual representation of the study's theoretical underpinnings and the specific constructs being investigated.

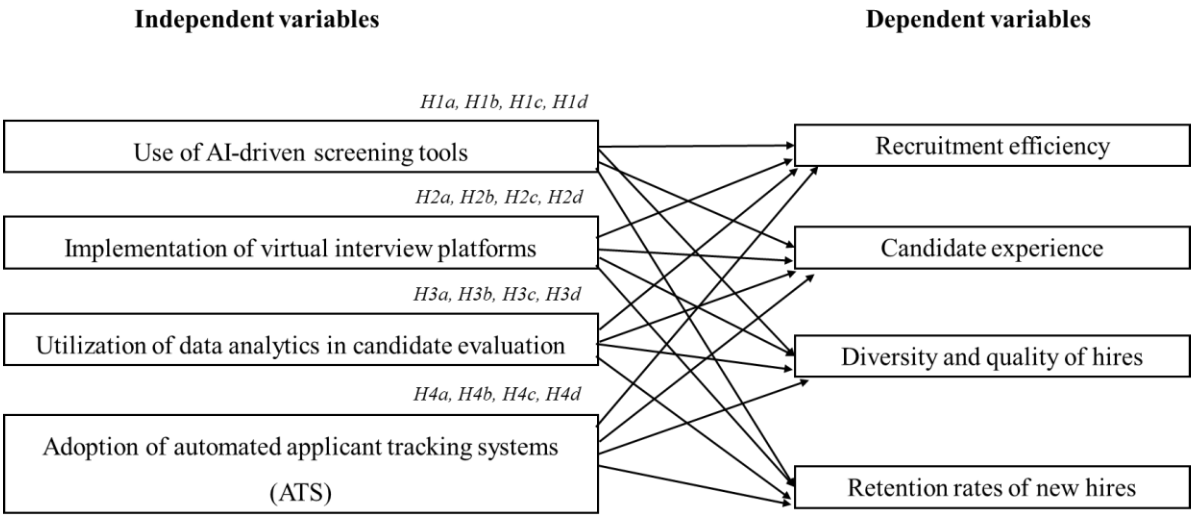


**Figure 1:** Conceptual Framework

As depicted in Figure 1, the framework proposes that the use of advanced technologies, specifically AI-driven screening tools, implementation of virtual interview platforms, utilization of data analytics in candidate evaluation, and adoption of automated applicant tracking systems (ATS), are the independent variables. These technologies are hypothesized to positively influence four key dependent variables: recruitment efficiency, candidate experience, diversity and quality of hires, and retention rates of new hires. This model serves as the foundation for the empirical investigation and hypothesis testing conducted in this study.

**Research Hypothesis**

This study hypothesized positive relationships between four independent variables: (1) AI-driven screening tools, (2) virtual interview platforms, (3) utilization of data analytics in candidate evaluation, and (4) adoption of automated applicant tracking systems; and four dependent variables: (a) recruitment efficiency, (b) candidate experience, (c) diversity and quality of hires, and (d) retention rates of new hires. The following hypotheses were tested:

H1a: AI-driven screening tools positively influences recruitment efficiency.

H1b: AI-driven screening tools positively influences candidate experience.

H1c: AI-driven screening tools positively influences diversity and quality of hires.

H1d: AI-driven screening tools positively influences retention rates of new hires.

H2a: Virtual interview platforms positively influences recruitment efficiency.

H2b: Virtual interview platforms positively influences candidate experience.

H2c: Virtual interview platforms positively influences diversity and quality of hires.

H2d: Virtual interview platforms positively influences retention rates of new hires.

H3a: Utilization of data analytics in candidate evaluation positively influences recruitment efficiency.

H3b: Utilization of data analytics in candidate evaluation positively influences candidate experience.

H3c: Utilization of data analytics in candidate evaluation positively influences diversity and quality of hires.

H3d: Utilization of data analytics in candidate evaluation positively influences Retention rates of new hires.

H4a: Adoption of automated applicant tracking systems positively influences recruitment efficiency.

H4b: Adoption of automated applicant tracking systems positively influences candidate experience.

H4c: Adoption of automated applicant tracking systems influences diversity and quality of hires.

H4d: Adoption of automated applicant tracking systems positively influences retention rates of new hires.

**Limitations**

Despite its rigorous methodology, this study has certain limitations that warrant consideration for future research. Firstly, the study's geographical scope was limited to 15 universities in China. While efforts were made to include diverse institutional types, the findings may not be fully generalizable to all higher education institutions globally or even across all regions within China. Secondly, the reliance on self-reported data from HR professionals might introduce response bias, as participants' perceptions could be influenced by social desirability or their personal experiences. Future research could incorporate objective measures or triangulate data from multiple sources to mitigate this. Thirdly, the study employed a cross-sectional design, which captures data at a single point in time. This limits the ability to establish causal relationships or observe the long-term impacts of technology adoption on recruitment outcomes. Longitudinal studies would be beneficial to track changes over time. Finally, while the study identified key technological impact factors, it did not delve deeply into the specific technical, financial, or organizational barriers that institutions might face during implementation. Future research could explore these practical challenges in more detail to provide actionable insights for digital transformation strategies.

## Research Finding

The following presents the findings of the study, derived from the collected data and subsequent analysis. This section addresses the research objectives by first identifying key demographic characteristics and correlations among variables and then analyzing the specific impacts of advanced technologies on human resource recruiting outcomes in higher education.

**Demographic Analysis**

The majority of respondents (45.37%) were hiring specialists, followed by Hiring Managers (40.98%) and Human Resources Managers (13.66%). Most respondents worked in general undergraduate universities (51.71%), with fewer respondents from key universities (32.20%) and vocational and technical colleges (16.10%). The largest group of respondents (43.41%) reported hiring 11-50 new employees per year. Over half of the respondents had 3 or more years of hiring experience (37.07% had 3-6 years and 31.71% had more than 6 years). The most common level of technology use in the hiring process was 41-60% (37.56%). A significant portion of respondents (12.20%) reported using technology in only 0-20% of their hiring process. As shown in Table 1.

**Table 1:** Demographic frequency and number analysis

| Name | Options | Frequency | Percentage (%) |
|---|---|---|---|
| **1. What is your position?** | Human Resources Manager | 28 | 13.66 |
| | Hiring specialist | 93 | 45.37 |
| | Hiring Manager | 84 | 40.98 |
| **2. Type of higher education institution:** | General undergraduate University | 106 | 51.71 |
| | Vocational and technical colleges | 33 | 16.10 |
| | Key universities (e.g. 985, 211 universities) | 66 | 32.20 |
| **3. The average number of new hires per year:** | 1-10 | 38 | 18.54 |
| | More than 100 employees | 17 | 8.29 |
| | 11-50 | 89 | 43.41 |
| | 51-100 | 61 | 29.76 |
| | 1-3 years | 46 | 22.44 |

| | | | |
|---|---|---|---|
| **4. How many years of hiring experience do you have?** | Less than 1 year | 18 | 8.78 |
| | 3-6 years | 76 | 37.07 |
| | More than 6 years | 65 | 31.71 |
| **5. What percentage of your hiring process involves technology tools (AI, ATS)?** | 0-20% | 25 | 12.20 |
| | 21-40% | 51 | 24.88 |
| | 41-60% | 77 | 37.56 |
| | 61-80% | 37 | 18.05 |
| | 81-100% | 15 | 7.32 |

Summary of Table 1: This table provides a demographic overview of the 205 HR professionals surveyed. It shows that the majority of respondents are hiring specialists (45.37%) and hiring managers (40.98%) from general undergraduate universities (51.71%). Most institutions hire 11-50 new employees annually (43.41%), and over half of the respondents have more than 3 years of hiring experience. The data also indicates that technology is commonly integrated into 41-60% of the hiring processes among the surveyed institutions. These demographic insights help identify the context and characteristics of the impact factors (Objective 1) within the Chinese higher education recruitment landscape.

**Correlation Analysis**

Pearson's correlation analysis revealed statistically significant positive correlations between all variables. AI-driven screening tools were positively correlated with virtual interview platforms ($r = .454$, $p < .01$), data analysis evaluation techniques ($r = .390$, $p < .01$), automated applicant tracking systems ($r = .440$, $p < .01$), recruitment efficiency ($r = .488$, $p < .01$), candidate experience ($r = .440$, $p < .01$), diversity and quality of hires ($r = .434$, $p < .01$), and retention rate ($r = .427$, $p < .01$). Virtual interview platforms were also positively correlated with data analysis evaluation techniques ($r = .424$, $p < .01$), automated applicant tracking systems ($r = .498$, $p < .01$), recruitment efficiency ($r = .436$, $p < .01$), candidate experience ($r = .459$, $p < .01$), diversity and quality of hires ($r = .463$, $p < .01$), and retention rate ($r = .473$, $p < .01$). Similar positive correlations were observed between data analysis evaluation techniques and automated applicant tracking systems ($r = .465$, $p < .01$), recruitment efficiency ($r = .411$, $p < .01$), candidate experience ($r = .479$, $p < .01$), diversity and quality of hires ($r = .431$, $p < .01$), and retention rate ($r = .470$, $p < .01$). Automated applicant tracking systems were positively correlated with recruitment efficiency ($r = .433$, $p < .01$), candidate experience ($r = .455$, $p < .01$), diversity and quality of hires ($r = .446$, $p < .01$), and retention rate ($r = .460$, $p < .01$). Recruitment efficiency was positively correlated with candidate experience ($r = .463$, $p < .01$), diversity and quality of hires ($r = .515$, $p < .01$), and retention rate ($r = .447$, $p < .01$). Candidate experience was positively correlated with diversity and quality of hires ($r = .544$, $p < .01$) and retention rate ($r = .505$, $p < .01$). Finally, diversity and quality of hires were positively correlated with retention rate ($r = .438$, $p < .01$). As shown in Table 2.

**Table 2:** Pearson's Correlation Analysis

| | **Driven screening tools** | **Virtual interview platform** | **Data analysis evaluation techniques** | **Automated Applicant Tracking System (ATS)** | **Recruitment efficiency** | **Candidate experience** | **Diversity and quality of hires** | **Retention rate** |
|---|---|---|---|---|---|---|---|---|
| **Driven screening tools** | 1 | | | | | | | |
| **Virtual interview platform** | 0.454 * * | 1 | | | | | | |
| **Data Analysis Evaluation techniques** | 0.390 * * | 0.424 * * | 1 | | | | | |
| **Automatic Applicant Tracking System (ATS)** | 0.440 * * | 0.498 * * | 0.465 * * | 1 | | | | |
| **Recruiting efficiency** | 0.488 * * | 0.436 * * | 0.411 * * | 0.433 * * | 1 | | | |
| **Candidate experience** | 0.440 * * | 0.459 * * | 0.479 * * | 0.455 * * | 0.463 * * | 1 | | |
| **Diversity and quality of hires** | 0.434 * * | 0.463 * * | 0.431 * * | 0.446 * * | 0.515 * * | 0.544 * * | 1 | |
| **Retention rate** | 0.427 * * | 0.473 * * | 0.470 * * | 0.460 * * | 0.447 * * | 0.505 * * | 0.438 * * | 1 |
| *** p<0.05 ** p<0.01** | | | | | | | | |

Summary of Table 2: This table presents the Pearson's correlation coefficients, indicating statistically significant positive relationships between all independent variables (AI-driven screening tools, virtual interview platforms, data analysis evaluation techniques, ATS) and all dependent variables (recruitment efficiency, candidate experience, diversity and quality of hires, retention rate). This analysis helps identify the impact factors (Objective 1) by showing the strength and direction of the relationships between advanced technologies and various recruitment outcomes.

**Regression Analysis**

The results of the multiple linear regression analysis are presented below to analyze the specific impact of advanced technologies on human resource recruiting outcomes in higher education (Objective 2).

**Regression Analysis of Recruitment Efficiency**

A multiple linear regression analysis was conducted to examine the relationships between the four independent variables (AI-driven screening tools, virtual interview platforms, data analysis evaluation techniques, and automated applicant tracking systems) and the dependent variable, recruitment efficiency. The results showed that the model was statistically significant ($F(4, 200) = 25.924$, $p = .000$), explaining 34.1% of the variance in recruitment efficiency (Adjusted $R^2 = .328$). All four independent variables were statistically significant predictors of recruitment efficiency. AI-driven screening tools had the largest unique contribution ($\beta = .284$, $p = .000$), followed by virtual interview platforms ($\beta = .163$, $p = .022$), data analysis evaluation techniques ($\beta = .160$, $p = .020$), and automated applicant tracking systems ($\beta = .153$, $p = .034$). The Durbin-Watson statistic (1.915) indicated no significant autocorrelation of the residuals. Multicollinearity was not a concern, as all Variance Inflation Factor (VIF) values were below 2 and tolerance values were above .6. As shown in Table 3.

**Table 3:** The regression analysis examining the relationships between the independent and dependent variables (Recruitment efficiency).

| | Non-standardized coefficient | | Standardization coefficient | T | P | Collinearity diagnosis | |
|---|---|---|---|---|---|---|---|
| | B | Standard Error | Beta | | | 2 VIF is based | Tolerance |
| **Constant** | 0.801 | 0.266 | - | 3.011 | 0.003 * * | - | - |
| **Driver's screening tool (H1a)** | 0.286 | 0.069 | 0.284 | 4.175 | 0.000 * * | 1.405 | 0.712 |
| **Virtual interview platform (H2a)** | 0.171 | 0.074 | 0.163 | 2.308 | 0.022 * | 1.520 | 0.658 |
| **Data analysis evaluation techniques (H3a)** | 0.171 | 0.073 | 0.160 | 2.353 | 0.020 * | 1.402 | 0.713 |
| **Automatic Applicant Tracking System (ATS) (H4a)** | 0.149 | 0.070 | 0.153 | 2.129 | 0.034 * | 1.559 | 0.642 |
| **$R^2$** | 0.341 | | | | | | |
| **Adjust $R^2$** | 0.328 | | | | | | |
| **F** | F (4,200)=25.924,p=0.000 | | | | | | |
| **D-W value** | 1.915 | | | | | | |
| **Note: Dependent variable = recruitment efficiency** | | | | | | | |
| *** p<0.05 ** p<0.01** | | | | | | | |

Summary of Table 3: This table presents the results of the multiple linear regression analysis for recruitment efficiency. The model is statistically significant ($p < .001$) and explains 34.1% of the variance in recruitment efficiency. All four independent variables, particularly AI-driven screening tools ($\beta = .284$, $p = .000$), are significant positive predictors of recruitment efficiency, providing analytical insights into the impact of these technologies (Objective 2*)*.

**Regression Analysis of Candidate experience**

A multiple linear regression analysis was conducted to examine the relationships between the four independent variables (AI-driven screening tools, virtual interview platforms, data analysis evaluation techniques, and automated applicant tracking systems) and the dependent variable, candidate experience. The results showed that the model was statistically significant ($F(4, 200) = 28.382$, $p = .000$), explaining 36.2% of the variance in candidate experience (Adjusted $R^2 = .349$). All four independent variables were statistically significant predictors of candidate experience. Data analysis evaluation techniques had the largest unique contribution (β = .251, p = .000), followed by virtual interview platforms (β = .187, p = .008), AI-driven screening tools (β = .186, p = .006), and automated applicant tracking systems (β = .163, p = .022). The Durbin-Watson statistic (1.779) was within the acceptable range, indicating no significant autocorrelation of the residuals. Multicollinearity was not a concern, as all Variance Inflation Factor (VIF) values were below 2 and tolerance values were above .6. As shown in Table 4.

**Table 4:** The regression analysis examining the relationships between the independent and dependent variables (Candidate experience).

| | **Non-normalized coefficient** | | **Coefficient of standardization** | **T** | **P** | **Collinearity diagnosis** | |
|---|---|---|---|---|---|---|---|
| | B | Standard Error | Beta | | | 2 VIF is based | Tolerance |
| **Constant** | 0.393 | 0.287 | - | 1.371 | 0.172 | - | - |
| **Driven screening tool (H1b)** | 0.205 | 0.074 | 0.186 | 2.775 | 0.006 * * | 1.405 | 0.712 |
| **Virtual interview platform (H2b)** | 0.215 | 0.080 | 0.187 | 2.691 | 0.008 * * | 1.520 | 0.658 |
| **Data analysis Evaluation techniques (H3b)** | 0.294 | 0.078 | 0.251 | 3.756 | 0.000 * * | 1.402 | 0.713 |
| **Automatic Applicant Tracking System (ATS) (H4b)** | 0.175 | 0.076 | 0.163 | 2.308 | 0.022 * | 1.559 | 0.642 |
| **$R^2$** | 0.362 | | | | | | |
| **Adjust $R^2$** | 0.349 | | | | | | |
| **F** | F (4,200)=28.382,p=0.000 | | | | | | |
| **D-W value** | 1.779 | | | | | | |
| **Note: Dependent variable = candidate experience** | | | | | | | |
| *** p<0.05 ** p<0.01** | | | | | | | |

Summary of Table 4: This table presents the results of the multiple linear regression analysis for candidate experience. The model is statistically significant (p < .001) and accounts for 36.2% of the variance in candidate experience. Data analysis evaluation techniques (β = .251, p = .000) show the strongest positive predictive power, followed by virtual interview platforms, AI-driven screening tools, and ATS, indicating that these technologies significantly enhance the overall candidate experience. This further analyzes the impact (Objective 2) of advanced technologies on the candidate's journey.

**Regression Analysis of Candidate experience**

A multiple linear regression analysis was conducted to examine the relationships between the four independent variables (AI-driven screening tools, virtual interview platforms, data analysis evaluation techniques, and automated applicant tracking systems) and the dependent variable, diversity and quality of hires. The results showed that the model was statistically significant ($F(4, 200) = 25.398$, $p = .000$), explaining 33.7% of the variance in diversity and quality of hires (Adjusted $R^2 = .324$). All four independent variables were statistically significant predictors of diversity and quality of hires. Virtual interview platforms had the largest unique contribution ($\beta = .213$, $p = .003$), followed by AI-driven screening tools ($\beta = .189$, $p = .006$), data analysis evaluation techniques ($\beta = .188$, $p = .006$), and automated applicant tracking systems ($\beta = .169$, $p = .020$). The Durbin-Watson statistic (1.943) was within the acceptable range, indicating no significant autocorrelation of the residuals. Multicollinearity was not a concern, as all Variance Inflation Factor (VIF) values were below 2 and tolerance values were above .6. As shown in Table 5.

**Table 5:** The regression analysis examining the relationships between the independent and dependent variables (Candidate experience).

| | **Non-normalized coefficient** | | **Coefficient of standardization** | **T** | **P** | **Collinearity diagnosis** | |
|---|---|---|---|---|---|---|---|
| | B | Standard Error | Beta | | | 2 VIF is based | Tolerance |
| **Constant** | 0.623 | 0.272 | - | 2.288 | 0.023 * | - | - |
| **Drive the screening tool (H1c)** | 0.194 | 0.070 | 0.189 | 2.771 | 0.006 * * | 1.405 | 0.712 |
| **Virtual interview platform (H2c)** | 0.227 | 0.076 | 0.213 | 2.998 | 0.003 * * | 1.520 | 0.658 |
| **Data analysis Evaluation techniques (H3c)** | 0.205 | 0.074 | 0.188 | 2.762 | 0.006 * * | 1.402 | 0.713 |
| **Automatic Applicant Tracking System (ATS) (H4c)** | 0.169 | 0.072 | 0.169 | 2.348 | 0.020 * | 1.559 | 0.642 |
| **$R^2$** | 0.337 | | | | | | |
| **Adjust $R^2$** | 0.324 | | | | | | |
| **F** | F (4,200)=25.398,p=0.000 | | | | | | |
| **D-W value** | 1.943 | | | | | | |
| **Note: Dependent variable = Diversity and quality of hires** | | | | | | | |
| *** p<0.05 ** p<0.01** | | | | | | | |

Summary of Table 5: This table presents the results of the multiple linear regression analysis for diversity and quality of hires. The model is statistically significant ($p < .001$) and explains 33.7% of the variance. Virtual interview platforms ($\beta = .213$, $p = .003$) are the strongest positive predictors, followed by AI-driven screening tools, data analysis evaluation techniques, and ATS, indicating their significant role in enhancing the diversity and overall quality of new hires. This analysis directly contributes to understanding the impact of advanced technologies on hiring quality (Objective 2).

**Regression Analysis of Retention rates of new hires**

A multiple linear regression analysis was conducted to examine the relationships between the four independent variables (AI-driven screening tools, virtual interview platforms, data analysis evaluation techniques, and automated applicant tracking systems) and the dependent variable, retention rates of new hires. The results showed that the model was statistically significant (F(4, 200) = 28.234, p = .000), explaining 36.1% of the variance in retention rates (Adjusted $R^2$ = .348). All four independent variables were statistically significant predictors of retention rates. Data analysis evaluation techniques had the largest unique contribution (β = .237, p = .001), followed by virtual interview platforms (β = .213, p = .002), automated applicant tracking systems (β = .172, p = .015), and AI-driven screening tools (β = .162, p = .017). The Durbin-Watson statistic (2.045) was within the acceptable range, indicating no significant autocorrelation of the residuals. Multicollinearity was not a concern, as all Variance Inflation Factor (VIF) values were below 2 and tolerance values were above .6. As shown in Table 6.

**Table 6:** The regression analysis examining the relationships between the independent and dependent variables (Retention rates of new hires).

| | **Non-normalized coefficient** | | **Coefficient of standardization** | **T** | **P** | **Collinearity diagnosis** | |
|---|---|---|---|---|---|---|---|
| | **B** | **Standard Error** | **Beta** | | | **2 VIF is based** | **Tolerance** |
| **Constant** | 0.632 | 0.263 | - | 2.408 | 0.017 * | - | - |
| **Driver's screening tool** | 0.163 | 0.068 | 0.162 | 2.417 | 0.017 * | 1.405 | 0.712 |
| **Virtual interview platform** | 0.224 | 0.073 | 0.213 | 3.063 | 0.002 * * | 1.520 | 0.658 |
| **Data analysis Evaluation techniques** | 0.254 | 0.072 | 0.237 | 3.537 | 0.001 * * | 1.402 | 0.713 |
| **Automatic Applicant Tracking System (ATS)** | 0.169 | 0.069 | 0.172 | 2.442 | 0.015 * | 1.559 | 0.642 |
| **$R^2$** | 0.361 | | | | | | |
| **Adjust $R^2$** | 0.348 | | | | | | |
| **F** | F (4,200)=28.234,p=0.000 | | | | | | |
| **D-W value** | 2.045 | | | | | | |
| **Note: Dependent variable = Retention rate of new hires** | | | | | | | |
| *** p<0.05 ** p<0.01** | | | | | | | |

Summary of Table 6: This table presents the results of the multiple linear regression analysis for retention rates of new hires. The model is statistically significant ($p < .001$) and explains 36.1% of the variance. Data analysis evaluation techniques ($\beta = .237$, $p = .001$) are the strongest positive predictors, followed by virtual interview platforms, ATS, and AI-driven screening tools, indicating their collective positive influence on improving employee retention rates in higher education institutions. This directly addresses the analysis of the impact of advanced technology on human resource recruiting (Objective 2) by quantifying the effects on retention.

Based on the findings, a conceptual framework was developed as follows.

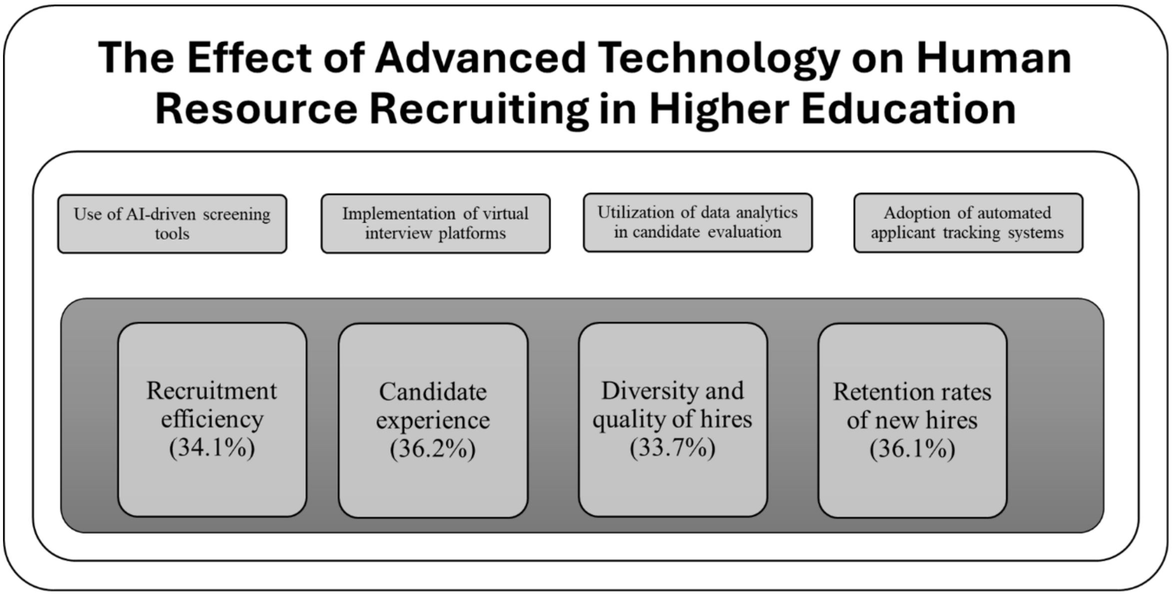


**Figure 2:** Presented the conceptual framework for the study examining the effects of advanced technology on human resource recruitment in higher education.

This figure visually summarizes the four independent variables (AI-driven screening tools, virtual interview platforms, data analytics, and ATS) and their respective positive impacts on the four dependent variables (recruitment efficiency, candidate experience, diversity and quality of hires, and retention rates of new hires), along with the percentage of variance explained for each outcome. This framework serves to identify the impact factors (Objective 1) and visually represent their analyzed impacts (Objective 2) on recruitment outcomes.

## Conclusion

This study aimed to explore the impact of advanced technologies on human resource recruitment in Chinese higher education institutions, focusing on recruitment efficiency, candidate experience, quality of hires, and employee retention. Specifically, this research successfully identified the key impact factors of advanced technology on human resource recruiting and subsequently analyzed their specific effects on various recruitment outcomes, directly addressing the study's objectives. The findings revealed that AI-driven screening tools, virtual interview platforms, data analysis evaluation techniques, and automated applicant tracking systems were all positively associated with the four dependent variables, supporting the proposed hypotheses. These advanced technologies contributed to increased recruitment efficiency, enhanced candidate experience, improved hire quality, and higher retention rates of new hires. The analysis of these impacts provides clear evidence of how each technological factor contributes to specific recruitment improvements, thereby fulfilling the study's second objective. However, the adoption of advanced technologies in recruitment necessitates careful consideration of various challenges, such as data security, ensuring fairness and transparency, and mitigating potential biases. These findings underscore the strategic value of advanced technologies in enhancing organizational capabilities, aligning with the Resource-Based View, and their crucial role in optimizing human capital acquisition and retention, as posited by Human Capital Theory. This study provides valuable insights and practical recommendations for HR practitioners and policymakers to enhance their recruitment strategies in response to digital transformations. These insights can help higher education institutions attract, select, and retain highly qualified personnel in an increasingly competitive environment.

## Discussion

The findings of this study align with previous research indicating the significant role of advanced technologies in enhancing recruitment efficiency (Singh & Sahoo, 2023; Memon et al., 2024). Specifically, AI-driven screening tools help reduce the time and resources required for candidate screening and facilitate the identification of candidates whose qualifications closely match job requirements (Kurek et al., 2024). Virtual interview platforms offer increased flexibility and reduce time and location constraints in interviewing candidates (Palos-Sanchez & Saura, 2018). Data analysis evaluation techniques enable accurate analysis of candidate information and prediction of job success (Nocker & Sena, 2019). Automated applicant tracking systems streamline the recruitment process and enhance efficiency (Andrews, 2012). Furthermore, this study highlights the importance of candidate experience as a crucial factor in attracting and retaining talent. The use of technologies such as mobile applications and social media platforms can enhance candidate satisfaction and foster engagement with the institution (Dhiman & Arora, 2018; Rana & Singh, 2015). However, the adoption of advanced technologies requires careful consideration and mitigation of potential challenges, including data security (Ikram et al., 2017), ensuring fairness and transparency (Tumasjan et al., 2020), and addressing potential biases (e.g., Lal & Aggarwal, 2013). Future research should investigate the long-term impact of technology on recruitment and conduct comparative studies across different regions and types of institutions to provide comprehensive insights and recommendations for effective implementation. The present study's findings not only corroborate previous research but also provide a more nuanced understanding of the specific contributions of various advanced technologies to different facets of human resource recruitment in higher education. For instance, while AI-driven screening tools were found to be most influential for overall recruitment efficiency, data analytics emerged as the strongest predictor for enhancing candidate experience and retention rates. This differentiation extends the existing literature by providing granular insights into which technologies yield optimal results for specific recruitment outcomes, offering practical implications for strategic investment. Furthermore, these results can be interpreted through the lens of established theoretical frameworks. The significant positive impact of AI-driven tools and data analytics on recruitment efficiency and quality aligns with the Resource-Based View (RBV), suggesting that these technologies serve as valuable, inimitable resources that provide a competitive advantage to higher education institutions in attracting top talent (Hamilton & Sodeman, 2020). The enhanced candidate experience and improved retention rates, particularly influenced by data analytics and virtual platforms, resonate with the Social Exchange Theory, where positive, transparent, and flexible interactions foster trust and commitment between candidates/employees and the institution (Andrews, 2012). Moreover, the overall positive impact on hiring quality and retention rates directly supports the tenets of Human Capital Theory, indicating that strategic technological adoption effectively contributes to the acquisition and development of high-quality human capital within the academic sector (Kurek et al., 2024). This research offers critical reflection on the practical implications for HR practitioners and policymakers. The identified strengths of specific technologies for different recruitment outcomes suggest that a tailored approach to technology adoption is more effective than a one-size-fits-all strategy. For example, institutions prioritizing candidate satisfaction should heavily invest in robust data analytics for personalized experiences, while those focused on efficiency might prioritize AI screening tools. These insights provide actionable guidance for optimizing resource allocation and developing targeted training programs for HR personnel to maximize the benefits of these advanced tools. While the findings strongly support the hypotheses, limitations exist. The study is geographically limited to Chinese universities, and while diverse institutional types were included, the findings may not fully capture global variations in recruitment technology adoption. Additionally, self-reported data from HR professionals may introduce response bias, as participants' perceptions could be influenced by social desirability or their personal experiences. Future research could incorporate objective measures or triangulate data from multiple sources to mitigate this. Thirdly, the study employed a cross-sectional design, which captures data at a single point in time. This limits the ability to establish causal relationships or observe the long-term impacts of technology adoption on recruitment outcomes. Longitudinal studies would be beneficial to track changes over time. Finally, while the study identified key technological impact factors, it did not delve deeply into the specific technical, financial, or organizational barriers that institutions might face during implementation. Future research could explore these practical challenges in more detail to provide actionable insights for digital transformation strategies.

## Suggestion

**Application Suggestions**

1. To enhance recruitment efficiency, universities were encouraged to utilize AI-powered screening tools and ATS systems to streamline the recruitment process, saving time and resources. This was considered particularly beneficial for universities with limited resources or during peak hiring seasons. Additionally, universities were encouraged to expand the use of mobile applications and virtual interview platforms to provide real-time tracking and transparent communication to candidates. This was expected to enhance candidate satisfaction and improve the institution's appeal.

2. The use of big data analytics to assess candidate fit was recommended as a strategy to reduce turnover rates and improve the quality of hires. Universities were also encouraged to develop social media recruitment strategies to expand their candidate pool and enhance their employer brand.

3. The use of AI-driven tools with clear, objective criteria was highlighted as a crucial step in ensuring fairness and building trust with candidates.

**Future Research Directions**

1. Future research was recommended to investigate the long-term impact of technology on recruitment, employing longitudinal studies to analyze the effects of technology on retention rates, job performance, and cultural alignment.

2. Comparative studies across different regions and types of institutions were suggested to identify best practices and unique challenges associated with technology adoption.

3. Evaluating the effectiveness of AI in mitigating bias was deemed crucial to promote inclusivity in university hiring practices.

4. Gathering detailed feedback from candidates was recommended to refine digital recruitment tools and enhance the overall candidate experience.

5. Finally, it was suggested that future research should investigate the technical, financial, and organizational barriers to adopting recruitment technologies to support a smooth digital transformation in higher education.

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# The Correlation between the Attributes of Contemporary School Administrators and the Competencies of the $21^{st}$- Century Teachers under Songkhla Primary Educational Service Area Office 2

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## Abstract

This research aimed to: 1) study the attributes of contemporary school administrators under Songkhla Primary Educational Service Area Office 2, 2) study the competencies of the $21^{st}$-century teachers under Songkhla Primary Educational Service Area Office 2, and 3) explore the correlation between the attributes of contemporary school administrators and the competencies of the 21st-century teachers under Songkhla Primary Educational Service Area Office 2. The research sample was 297 teachers under Songkhla Primary Educational Service Area Office 2, selected according to Krejcie and Morgan's sample size table. Following by simple random sampling using the lottery method. The research instrument was a 3-part questionnaire with a 5-level scale. The statistics were percentage values. average standard deviation and the Pearson correlation coefficient.

The results of the research found that: 1) The overall of the attributes of contemporary school administrators was at a high level. 2) The overall of the competencies of the $21^{st}$-century teachers was at a high level. 3) The correlation between the attributes of contemporary school administrators and the competencies of the $21^{st}$-century teachers under Songkhla Primary Educational Service Area Office 2 was is moderately positive with statistically significant at the .01 level.

**Keywords:** Attributes of Contemporary School Administrators, Competencies of The $21^{st}$-Century Teachers

# Introduction

The National Education Plan 2017-2036 focuses on enhancing the effectiveness of teaching and developing essential skills for the 21$^{st}$ century, particularly in the development of educational leaders and education personnel with skills for effective school management. (The Office of the Education Council, 2017) Contemporary school administrators should possess good attributes and be able to apply new ideas in the management, as well as inspire staff and students to improve the quality of teaching. (Musikarangsir, 2021) The appropriate attributes of leaders are crucial in promoting collaboration within an organization. Additionally, the attributes of leaders in the Next Normal era clearly highlight the virtues of management. Educational institutions serve as a crucial mechanism and variable in managing education to ensure quality. They have a significant influence on the outcomes of successful management, which can respond to competition and remain relevant to the changes of the 21$^{st}$ century. Therefore, the school administrators must possess outstanding and appropriate qualities, including knowledge of theoretical principles, skills, roles and responsibilities, and experience in modern educational management to lead organizations toward success. (Wannapairo and Sritep, 2024) The Attributes of contemporary school administrator show the behavior that reflects the knowledge, abilities, and expertise of leaders in their roles and responsibilities. It involves setting a clear vision, innovative thinking, building relationships with others, creative thinking to build a learning community, and effectively utilizing technology and digital tools in school operation. This is done in alignment with objectives to ensure the highest efficiency and effectiveness. (Khuanwang, 2024)

Education in Thailand has become highly proactive in the changes of the 21$^{st}$ century. The 21$^{st}$ century skills are essential high-level competencies needed to adapt to the changes in the information society, to keep up with technology, and to manage and analize rapidly the information. These skills involve selecting, analyzing, and evaluating information, transforming it into products, and applying it in daily life. To ensure students are equipped, these skills should be taught and integrated into the existing curriculum through engaging learning opportunities in relevant contexts. (Durak and Ozudogru, 2023) Therefore developing highly competent teacher is crucial, as the competent teachers will help students develop into high-quality individuals. The competencies of the 21st-century teachers can create a positive learning environment and effectively foster student development. (Intraprawat Duangphrakes, and Klongdee, 2021) Teachers' competencies have a significant impact on student achievement. Being a facilitator, creating creative learning management, effective use of new technology in the classroom can further enhance students' skill development and provide opportunities to turn disadvantages into advantages, especially for students facing more challenging learning processes and evaluation. (Gumus, 2022)

The Songkhla Primary Education Service Area Office 2 has therefore implemented policies to ensure that educational administrators at all levels possess the necessary leadership qualities for effective management. It has a key mission to develop the essential skills needed in the 21st century for administrators, teachers, and education personnel, ensuring they meet quality standards. The office has defined strategies for developing educational leaders, teachers, and staff to have expertise, competence, and professional ethics to drive education towards higher quality and greater effectiveness. (Songkhla Primary Educational Service Area Office 2, 2023)

Based on the issues, the researcher believes that the attributes of contemporary school administrators are crucial for the development of teacher competencies, enabling teachers to be well-prepared and perform at their best in the $21^{st}$ century. Therefore, the researcher is interested in studying the correlation between the Attributes of Contemporary school administrators and the competencies of teachers in the 21st century.

## Objectives

1. To study the attributes of contemporary school administrators under Songkhla Primary Educational Service Area Office 2.

2. To study the competencies of the $21^{st}$-century teachers under Songkhla Primary Educational Service Area Office 2.

3. To explore the correlation between the attributes of contemporary school administrators and the competencies of the $21^{st}$-century teachers under Songkhla Primary Educational Service Area Office 2.

## Literature Review

**The attributes of contemporary school administrators concept**

Musikarangsir (2021) stated that the attributes of a contemporary educational administrator refer to traits that are unique to the individual, which may be inherent or developed through learning and practice. These traits are manifested in behaviors and actions that can be observed, both professionally and personally, reflecting the individual’s professional and personal qualities.

Wannapairo and Sritep (2024) stated that the attributes of contemporary school administrators refer to administrators who are able to understand and connect with their subordinates, adapt to the work context with independence, create a flexible working atmosphere within the societal rules, and foster thinking and collaboration with colleagues, network partners, and stakeholders of the school.

In summary, the attributes of a modern school administrator refer to a leader who possesses the knowledge and competence to guide the organization to success with effectiveness and sustainability. The leader should have good relationships with both internal and external stakeholders, possess communication skills and be proficient in using technology. They should be capable of creating a learning community, inspiring others, and encourages the team to perform better according to each individual's abilities and potential.

The researcher synthesized the components of the attributes of contemporary school administrators by examining those that were relevant and comprehensive, with a frequency of at least 50 percent, resulting in five core components for establishing the research framework in this study. These components include: 1) Knowledge and Competence 2) Interpersonal Relationships 3) Communication and Technology Skills 4) Creating a Learning Community and 5) Ability to Inspire

**Table 1**: The Synthesis of The Attributes of Contemporary School Administrators' Scope
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| The attributes of contemporary school administrators' scope | Kijwithee (2017) | Janto and Prasarnkarn (2017) | Singhmat (2017) | Sae-tu (2019) | Karnjanasakul (2022) | Suewai et al. (2022) | Kaewta (2022) | Sriwichai (2024) | Tekjinda (2024) | Thephasadin and Kamonworadet (2024) | Khueanwang (2024) | LIT Knowledge (2017) | Driscoll (2019) | Francis and Oluwatoyin (2019) | Em (2024) | Frequency |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Knowledge and Competence | | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | 9* |
| 2. Interpersonal Relationships | | | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | 9* |
| 3. Personality | | | | | | ✓ | | | ✓ | | | ✓ | ✓ | | ✓ | 5 |
| 4. Being a role model | | | | | | ✓ | | | | | | | | | | 1 |
| 5. Good vision | ✓ | | ✓ | | | ✓ | ✓ | ✓ | | | ✓ | | | | | 6 |
| 6. Communication and Technology Skills | ✓ | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | 10* |
| 7. Creativity | ✓ | | | | | ✓ | ✓ | | | | ✓ | | ✓ | | | 5 |
| 8. Creating a Learning Community | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | | | | ✓ | ✓ | | 9* |
| 9. Moral and Integrity | ✓ | | | | | ✓ | | | ✓ | | | ✓ | ✓ | | ✓ | 6 |
| 10. Determination and Perseverance | ✓ | ✓ | | ✓ | ✓ | | | | | | | | ✓ | | | 5 |
| 11. Ability to Inspire | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ | | ✓ | 10* |

**The competencies of the 21$^{st}$-century teachers concept**

The Office of the Basic Education Commission (2010) defines teacher competence as the fundamental attributes of an individual that are related to effective job performance or meeting established criteria, or achieving outstanding results in specific tasks or situations.

Intraprawat et.al. (2021) define teacher competence as the knowledge, skills, and individual attributes that enable teachers to adapt to their roles and perform effectively. This involves applying their knowledge and skills to facilitate students' academic success. Teacher competence is also described as an attribute that can be developed through learning and experience.

Fatah (2022) defines teacher competence as the quality or fundamental ability of an individual, relating to the capacity to perform duties effectively according to assigned roles. This encompasses knowledge, thinking, and skills, such as the ability to teach or carry out tasks in the field of education.

Teacher competency can be summarized as the fundamental attributes of an individual that are related to effective performance or meeting established criteria. It involves the application of skills, knowledge, abilities, and personal attributes in carrying out tasks, along with the ability to adapt to various work and environmental contexts.

The researcher synthesized the components of the competencies of the 21st-century teachers by examining those that were relevant and comprehensive, with a frequency of at least 50 percent, resulting in five core components for establishing the research framework in this study. These components include: 1) Being a facilitator 2) Teamwork 3) Learning Management 4) Measurement and Evaluation and 5) Technology Skills.

**Table 2**: The synthesis of the competencies of the 21st-century teachers' scope

| The competencies of the 21st-century teachers' scope | The Office of the Basic Education Commission (2010) | Panich (2015) | Wangmeejongmee and Naiphat (2017) | Inthaprabhat et al. (2021) | Suthasinobol (2021) | Aupalawong, Sriputharint, and Kheownamchum (2024) | McClelland (1973) | Department of Education and Training (2004) | European Commission (2005) | Zaragoza (2019) | Gümüs (2022) | Fatah (2022) | Frequency |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Achieving the outcomes | ✓ | | | | | | | ✓ | | | | | 2 |
| 2. Being a facilitator | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | | | 6* |
| 3. Self-Development | ✓ | | | | | | | | | | | ✓ | 1 |
| 4. Teamwork | ✓ | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | ✓ | ✓ | 8* |
| 5. Code of Ethics of Teaching Professions | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | | | | 5 |
| 6. Learning management | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | 7* |
| 7. Classroom management | ✓ | | | ✓ | | ✓ | | | | ✓ | | | 3 |
| 8. Analysis and research | ✓ | | | | | | | | | | | | 1 |
| 9. Teacher Leadership | ✓ | | | | | | ✓ | | | | | | 2 |
| 10. Learning Community | ✓ | | | | | | | ✓ | | ✓ | | | 3 |
| 11. Measurement and Evaluation | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | ✓ | 6* |
| 12. Individual Competency | | | | ✓ | | | ✓ | | | ✓ | | ✓ | 4 |
| 13. Technology Skills | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | | ✓ | | 6* |
| 14. Cultural understanding | | ✓ | ✓ | | ✓ | | | | ✓ | | | | 4 |
| 15. Thinking Skill | | ✓ | | | | | ✓ | | | ✓ | ✓ | | 4 |

## Research Conceptual Framework

From reviewing the literature and studying the concepts and theories that related the research. The researcher has synthesized a conceptual framework of the research into 2 factors; The Attributes of Contemporary school administrators contains 5 dimensions of Knowledge and Competence, Interpersonal Relationships, Communication and Technology Skills, Creating a Learning Community and Ability to Inspire. The competencies of the 21st-century teachers contains 5 dimensions of Being a facilitator, Teamwork, Learning Management, Measurement and evaluation, and Technology Skills as shown in Figure 1 as follows.

| **Factor 1** | | **Factor 2** |
|---|---|---|
| **The attributes of contemporary school administrators**<br><br>1. Knowledge and Competence<br>2. Interpersonal Relationships<br>3. Communication and Technology Skills<br>4. Creating a Learning Community<br>5. Ability to Inspire | ↔ | **The competencies of the 21st-century teachers**<br><br>1. Being a facilitator<br>2. Teamwork<br>3. Learning Management<br>4. Measurement and Evaluation<br>5. Technology Skills |

**Figure 1:** A conceptual framework of the attributes of contemporary school administrators and the competencies of the 21st-century teachers

## Research Methodology

The population in the research was teachers under Songkhla Primary Educational Service Area Office 2. There are a total of 1,251 people. The sample group in this research consisted of 297 teachers under Songkhla Primary Educational Service Area Office 2, selected according to Krejcie and Morgan's sample size table. Following by simple random sampling using the lottery method.

The research instrument is a questionnaire divided into 3 sections as follows: Section 1: General information of the respondents. Section 2: Questions about the attributes of contemporary school administrators under Songkhla Primary Educational Service Area Office 2. Section 3: Questions about the competencies of the 21st-century teachers under Songkhla Primary Educational Service Area Office 2. The instrument was analyzed item by item to determine the quality of the instrument by Index of Item Objective Congruence : IOC. In the process of actual operation, a total of 297 questionnaires were distributed, 294 questionnaires were returned, with a recovery rate of 98.99%. The variables were all measured in this thesis using a five-point scale with 1=strongly disagree and 5=completely agree. (Srisaad, 2017)

The try-out questionnaires were examined by 30 people who were not the research sample. The result shows that the questionnaire is suitable for factor analysis. All of choosen items are greater than 0.67. From the results of the reliability analysis, it can be seen that the reliability coefficients of the Attributes of Contemporary school administrators is 0.951 and the reliability coefficients of the competencies of the 21st-century teachers is 0.950. Therefore the questionnaire designed in this study has a relatively good credibility.

## Research Finding

This study uses Pearson correlation analysis, which is needed to verify whether the variables involved in this study are correlated with each other. If it passes the statistical significance test, it means that there is a significant correlation between the variables.

**Table 3:** The attributes of contemporary school administrators under Songkhla Primary Educational Service Area Office 2

| The attributes of contemporary school administrators | n = 294 | | Level of Opinion |
|---|---|---|---|
| | $\overline{x}$ | S.D. | |
| 1. Knowledge and Competence | 4.3158 | 0.5497 | High |
| 2. Interpersonal Relationships | 4.2497 | 0.5947 | High |
| 3. Communication and Technology Skills | 4.2544 | 0.5567 | High |
| 4. Creating a Learning Community | 4.2925 | 0.5864 | High |
| 5. Ability to Inspire | 4.1791 | 0.6587 | High |
| **Total** | **4.2549** | **0.5206** | **High** |

From Table 3, it is found that the attributes of contemporary school administrators under Songkhla Primary Educational Service Area Office 2 are generally at a high level, with an average score of ( $\overline{x}$ = 4.2549, S.D. = 0.5206). When considering individual aspects, the highest average score is for Knowledge and Competence ( $\overline{x}$ = 4.3158, S.D. = 0.5497), followed by Creating a Learning Community ( $\overline{x}$ = 4.2925, S.D. = 0.5864), Communication and Technology skills ( $\overline{x}$ = 4.2544, S.D. = 0.5567), Interpersonal Relationships ( $\overline{x}$ = 4.2497, S.D.= 0.5947), and Ability to Inspire ( $\overline{x}$ = 4.1791, S.D.= 0.6587).

**Table 4:** The competencies of the 21$^{st}$-century teachers under Songkhla Primary Educational Service Area Office 2

| The competencies of the 21st-century teachers | n = 294 | | Level of Opinion |
|---|---|---|---|
| | $\overline{x}$ | **S.D.** | |
| 1. Being a facilitator | 4.4286 | 0.5249 | High |
| 2. Teamwork | 4.3662 | 0.5488 | High |
| 3. Learning Management | 4.4252 | 0.4913 | High |
| 4. Measurement and Evaluation | 4.3730 | 0.4819 | High |
| 5. Technology Skills | 4.4388 | 0.5160 | High |
| **Total** | **4.4036** | **0.4603** | **High** |

From Table 4, it is found that the competencies of the 21st-century teachers under Songkhla Primary Educational Service Area Office 2 are generally at a high level, with an average score of ( $\overline{X}$ = 4.4036, S.D.= 0.4603). When considering individual aspects, the highest average score is for Technology Skills ( $\overline{X}$ = 4.4388, S.D.= 0.5160), followed by Being a facilitator ( $\overline{X}$ = 4.4286, S.D.= 0.5249), Learning Management ( $\overline{X}$ = 4.4252, S.D.= 0.4913), Measurement and Evaluation ( $\overline{X}$ = 4.3730, S.D.= 0.4819), and Teamwork ( $\overline{X}$ = 4.3662, S.D.= 0.5488).

**Table 5:** The correlation between the attributes of contemporary school administrators and the competencies of the 21st-century teachers under Songkhla Primary Educational Service Area Office 2

| **The attributes of contemporary school administrators** | **The competencies of the 21st-century teachers (n=294)** | | | | | |
|---|---|---|---|---|---|---|
| | **Being a facilitator ($Y_1$)** | **Teamwork ($Y_2$)** | **Learning Management ($Y_3$)** | **Measurement and Evaluation ($Y_4$)** | **Technology Skills ($Y_5$)** | **Total** |
| 1. Knowledge and Competence ($X_1$) | .432** | .582** | .533** | .622** | .421** | .583** |
| 2. Interpersonal Relationships ($X_2$) | .453** | .475** | .455** | .477** | .409** | .507** |
| 3. Communication and Technology Skills ($X_3$) | .445** | .508** | .492** | .508** | .435** | .534** |
| 4. Creating a Learning Community ($X_4$) | .689** | .677** | .663** | .633** | .582** | .724** |
| 5. Ability to Inspire ($X_5$) | .586** | .573** | .499** | .484** | .467** | .584** |
| **Total** | **.588**** | **.642**** | **.597**** | **.620**** | **.520**** | **.664**** |

**Note** ** Significantly Correlated at The .01 Level

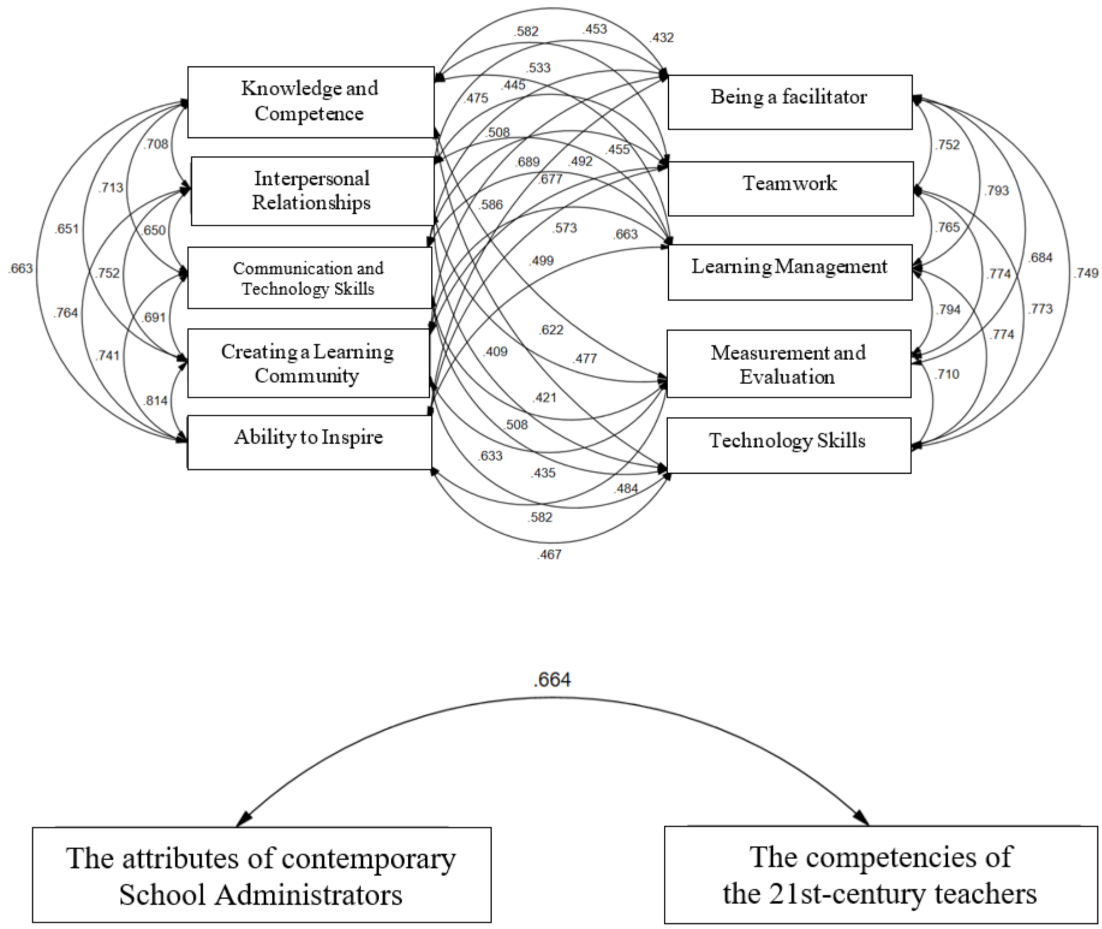


**Figure 2:** The correlation between the attributes of contemporary school administrators and the competencies of the 21st-century teachers under Songkhla Primary Educational Service Area Office 2

As shown in Table 5 and Figure 2, the correlation between the attributes of Contemporary school administrators and the competencies of the 21st-century teachers under Songkhla Primary Educational Service Area Office 2 is moderately positive overall (r = .664**). For each aspect, there is a statistically significant positive correlation at the .01 level.

## Discussion/Conclusion

The researcher aims to give the following discussion points derived from the examination of the correlation between the attributes of contemporary school administrators and the competencies of the $21^{st}$-century teachers under Songkhla Primary Educational Service Area Office 2.

Examining the correlation between the attributes of contemporary school administrators and the competencies of the $21^{st}$-century teachers under Songkhla Primary Educational Service Area Office 2 indicates a positive correlation at a statistically significant level of .01 with a correlation coefficient of .664. Since the correlation between the attributes of contemporary school administrators and the competencies of the 21$^{st}$-century teachers mutually supports each other, contemporary school administrators with knowledge and competence, good relationship, and the ability to support, encourage, and inspire teachers, staff, and students in their continuous personal and societal development, can create a learning community within the school. They also possess the ability to communicate effectively and apply technology for administrative benefits. Administrators with these appropriate attributes will drive teachers to fully develop their competencies in order to adapt to the changes of the 21$^{st}$ century and achieve positive outcomes for students and the organization as a whole.

The results of this study aligns with the research of Satam (2021), who examined the relationship between change management of the school administrators and teachers' 21$^{st}$ century competencies in Rompho School Network, Primary Educational Service Pattani Province Area 2. The research found that the relationship between change management of the school administrators and teachers' 21$^{st}$ century competencies in Rompho School Network, Primary Educational Service Pattani Province Area 2 was positive with the statistically significant at 0.01. This aligns with the research of Chatprayoon (2021), who studied the relationship between school administrator competencies and teachers skills in the 21$^{st}$ century under the office of Phranakhon Si Ayutthaya Primary Educational Service Area 1. The findings showed that the school administrators' competencies are associated with the skills of the teachers in the 21$^{st}$ century significantly higher statistically correlated at the .01 level. This aligns with the research of Kaewta (2022), who studied the characteristics of school administrations in new age affecting teacher competency for 21$^{st}$ century under secondary educational service area office Phetchabun. The research found that the correlation between the characteristics of school administrationsin in new age and teacher competency for 21$^{st}$ century was moderately to highly positive and statistically significant at the 0.01 level. This is consistent with the research of Tongsakorn et al. (2023), who studied the relationship between the transformational leadership of school administrators and teacher competency of private schools in Chiang Rai. The research found a moderate positive relationship between the transformational leadership of school administrators and teachers' competencies. This is also consistent with the research of Khammoon (2023), who studied Administrative Skills of School Administrators Affecting to Teacher Competencies in the 21$^{st}$ century in Private Schools Under Nongbualamphu Provincial Education Office. The research found that the correlation was positive with a statistical significance of 0.01. This aligns with the research of Aupalawong et al. (2024), who studied skills of school administrators affecting teacher competencies in the 21$^{st}$ century of schools under Nakhon Phanom Primary Educational Service Area Office 1. The research found that the skills of school administrators and teacher competencies in the 21st century revealed quite a significant positive correlation at the .01 level. Similarly, the research of Taengnoi et al. (2024) who studied the relationship between transformational leadership of school administrators and teachers competency in the 21$^{st}$ century under the Lopburi Primary Educational Service Area Office 1. The study found that overall there was a positive relationship with statistical significance at the .05 level.

## Suggestion

1. Suggestions for Applying Research Findings

1.1 The contemporary school administrators under Songkhla Primary Educational Service Area Office 2 should develop the contemporary that related to the ability to inspire by acting as a role models who motivate and encourage staff in performing their work.

1.2 The contemporary school administrators under Songkhla Primary Educational Service Area Office 2 should promote teachers' competencies in teamwork by supporting collaboration in their work and emphasizing the importance of teamwork.

1.3 Songkhla Primary Educational Service Area Office 2 should support the contemporary school administrators in creating a learning community by fostering teamwork collaboration and supporting the establishment of networks for knowledge exchange within the school and between other schools.

2. Suggestions for Future Research

2.1 The correlation between the attributes of contemporary school administrators and the competencies of the 21st-century teachers should be studied in other educational areas to benefit the development opportunities.

2.2 There should be a study on the variables of the attributes of contemporary school administrators that affect the competencies of 21st-century teachers.

2.3 There should be a qualitative research to obtain in-depth information about the attributes of contemporary school administrators.

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# Factors Fostering a Research and Innovation Culture: a Case Study of a Technological College in Mianyang, China

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## Abstract

The objectives of this research were 1) to investigate the factors that fostered a research and innovation culture within an educational institution, and 2) to assess the impact of these factors on research output, innovation adoption, and cultural change. The methodology employed was quantitative. The population and sample consisted of 200 faculty members from Technological College in Mianyang, China. They were selected using a simple random sampling method, calculated by Yamane's formula. A questionnaire was used as the research instrument, and its content validity was verified by experts , yielding a Cronbach's alpha reliability coefficient of 0.81. The statistical methods used for data analysis included descriptive statistics, correlation analysis, and regression analysis.

The research findings revealed that 1) the factors fostering a research and innovation culture within the educational institution, comprising leadership style, resource allocation, professional development opportunities, and collaborative networks, all had a significant positive influence, and 2) the assessment of the impact of these factors showed that: leadership style significantly influenced cultural change ($\beta$=0.225), research output ($\beta$=0.167), and innovation adoption ($\beta$=0.160), resource allocation demonstrated the strongest positive influence on innovation adoption ($\beta$=0.350), cultural change ($\beta$=0.253), and research output ($\beta$=0.305), professional development opportunities significantly influenced research output ($\beta$=0.250), innovation adoption ($\beta$=0.217), and cultural change ($\beta$=0.181), and collaborative networks significantly impacted cultural change ($\beta$=0.261), innovation adoption ($\beta$=0.147), and research output ($\beta$=0.125). These research findings collectively underscored the importance of leadership style, resource allocation, professional development opportunities, and collaborative networks in fostering a strong research and innovation culture within the studied institution. These factors were found to contribute significantly to creating an environment that supported research, encouraged innovation, and facilitated cultural change, ultimately leading to improvements in educational quality. The research recommends that educational institutions prioritize effective leadership, ensure appropriate resource allocation, provide ample professional development opportunities, and cultivate strong collaborative networks to enhance their research and innovation capabilities, which will benefit the overall quality of education.

**Keywords:** Leadership, Resource Management, Professional Development, Collaboration, Educational Quality

## Introduction

In the 21st century's rapidly evolving global landscape, research and innovation have emerged as critical drivers of societal progress and economic development. Educational institutions, as primary cradles of knowledge dissemination and creation, bear a significant responsibility in cultivating individuals equipped with innovative spirits and practical skills. A thriving research and innovation culture within these institutions is paramount for fostering new ideas, promoting unconventional solutions, and applying cutting-edge methodologies. This environment not only empowers students, educators, and administrators to think critically but also encourages them to challenge established paradigms and contribute meaningfully to the advancement of knowledge (Martins & Terblanche, 2003; Hughes et al., 2022).

Despite the recognized importance of a research and innovation culture, its cultivation within educational settings, particularly within complex organizational structures, has encountered numerous challenges. Traditional educational concepts and models often hindered the stimulation and development of innovative thinking. Practical issues such as uneven resource allocation, insufficient incentive mechanisms, and barriers to interdisciplinary collaboration frequently constrained the effective development of research and innovation activities (Pasillas-Díaz et al., 2022). Furthermore, cultural differences and communication barriers between various levels and types of educational institutions within larger educational groups exacerbated the difficulty of establishing a unified and dynamic research and innovation culture (Trippl & Tödtling, 2022). These systemic problems collectively presented significant obstacles, underscoring an urgent need for systematic strategies to address them effectively, especially in the context of current global trends and future demands for adaptable and innovative workforces.

Recognizing these challenges, this study aimed to deeply analyze the prevailing situation, specific challenges, and underlying root causes hindering the development of a research and innovation culture within educational institutions. It sought to explore effective promotion and support strategies by identifying key factors influencing the formation of this culture, evaluating the efficacy and shortcomings of existing approaches, and proposing operational strategic recommendations. These recommendations were tailored to the unique characteristics of educational institutions, with the ultimate goal of promoting deep integration and sustainable development of research and innovation culture (Audretsch & Belitski, 2022). Through this comprehensive investigation, the study intended to provide a systematic framework to guide educational institutions in effectively fostering a research and innovation culture in practice, thereby cultivating high-quality talents with innovative spirits and practical abilities, and contributing significantly to long-term societal development.

## Research Objectives

1. To investigate the factors that fostered a research and innovation culture within an educational institution.
2. To assess the impact of these factors on research output, innovation adoption, and cultural change.

## Literature Review

The researcher conducted a comprehensive review of relevant concepts, theories, and research to inform the development of research guidelines.

**Research and Innovation Culture**

A research and innovation culture in educational institutions refers to an environment that fosters and values research and innovation activities, crucial for enhancing educational quality and generating new knowledge. Key components include: (Hughes et al., 2022) Values: Emphasizing the pursuit of new knowledge, critical thinking, experimentation, and development, which are fundamental for innovation and knowledge creation. Beliefs: Confidence in the potential of research and innovation to improve education, solve problems, and contribute to societal development. Behaviors: Encouraging behaviors that support research and innovation, such as collaboration, knowledge sharing, continuous learning, and the application of research findings. Norms: Establishing norms that encourage experimentation, acceptance of failure, and learning from mistakes. Symbols: Using symbols to represent a commitment to fostering research and innovation, such as logos, awards, and events. Building a research and innovation culture requires collaboration from all stakeholders to cultivate values, promote supportive behaviors, and create an enabling environment. This fosters educational advancement and contributes to sustainable national development.

**Organizational Factors Influencing Research and Innovation Culture**

A research and innovation culture is essential for driving academic progress and generating new knowledge. Organizational factors play a significant role in fostering this culture (Audretsch & Belitski, 2022). Key factors include: Leadership: Leaders with vision and a commitment to research and innovation are crucial. They should provide resources, funding, and encouragement, empowering personnel to explore and develop new ideas. Organizational Structure: Organizational structures should be flexible and promote collaboration to facilitate knowledge exchange and joint innovation. Resources: Adequate resource allocation, including budget, personnel, and equipment, is essential for research and innovation activities. Systems and Processes: Systems and processes, such as evaluation, reward, and support mechanisms, should be designed to incentivize and promote research and innovation. Strategy: The organization's strategy should explicitly prioritize and support research and innovation, ensuring that personnel understand its importance and actively participate in its development. Developing these factors creates an environment and culture conducive to research and innovation, leading to sustainable knowledge generation and academic advancement.

**Individual Factors Contributing to Research and Innovation Culture**

Building a research and innovation culture requires factors at multiple levels, with individual factors being fundamental, as individuals are the ones who conceive, develop, and create innovations (Hughes et al., 2022). Key individual factors include: Motivation: Both intrinsic motivation, such as interest, curiosity, and the desire for self-improvement, and extrinsic motivation, such as rewards and recognition, are crucial for encouraging personnel to engage in research and innovation activities. Skills and Knowledge: Personnel should be developed to possess the necessary skills and knowledge for research and innovation, such as critical thinking, problem-solving, domain-specific expertise, and technology skills. Attitude: A positive attitude toward research and innovation, including openness to new ideas, acceptance of failure, and a commitment to improvement, is essential for fostering this culture. Personality: Personality traits such as open-mindedness, creativity, adaptability, perseverance, and responsibility contribute to innovation. Developing these qualities in individuals will help promote a strong research and innovation culture, leading to the continuous generation of new knowledge and ongoing development.

**External Factors Shaping Research and Innovation Culture**

A research and innovation culture is not solely determined by internal organizational factors; it is also influenced by various external factors (Trippl & Tödtling, 2022) that can shape its direction and development. These factors include: Government Policies: Government policies play a crucial role in setting the direction and providing support for research and innovation, such as through financial incentives, tax breaks, and promoting collaboration between the public sector, private sector, and educational institutions. Economic Environment: The economic climate affects investment and support for research and innovation. For example, during periods of economic growth, there is often increased investment and support for research and innovation. Social Environment: Societal values and norms influence the research and innovation culture. Societies that value knowledge and development tend to have a stronger research and innovation culture. Technology: Technological advancements are key drivers of innovation, such as digital technologies, artificial intelligence, and the internet. Globalization: Globalization facilitates knowledge exchange and international collaboration, which positively influences the development of a research and innovation culture. Monitoring and analyzing these external factors allows educational institutions to adapt and formulate strategies to develop a research and innovation culture that aligns with the social and economic context.

## Research Methodology

**Research Design**

This study employed a quantitative research design to investigate the relationships between independent and dependent variables. The data were collected using a questionnaire, which utilized a 5-point Likert-type scale for attitude measurements, ranging from 1 to 5.

**Population and Sample Size**

The population of this study comprised all faculty members at Technological College in Mianyang, China, numbering over 400 faculty and administrative staff. This institution, formerly known as Southwest University of Science and Technology City College, was approved by the Ministry of Education in 2006 and renamed Mianyang City College in 2021.The sample group consisted of 200 teachers from Technological College in Mianyang, China. The sample size was determined using Yamane's formula (Wongkumchai, T., & Kiattisin, S., 2021) for a finite population, with a 95% confidence level and a margin of error of ±5%:

**Research Tools**

The primary research instrument was a questionnaire developed based on a comprehensive review of relevant theories, academic concepts, and empirical research. Validity Test: The content validity of the questionnaire was assessed and deemed acceptable by subject matter experts. However, empirical data such as an Index of Item-Objective Congruence (IOC) was not explicitly provided in this study. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.849, and Bartlett's Test of Sphericity yielded a Chi-Square value of 384.434 with 21 degrees of freedom and a p-value of 0.00, indicating that the data were suitable for factor analysis and that there was significant correlation between variables. Reliability Test: To ensure the internal consistency of the questionnaire, a pilot test was conducted with 30 sample respondents. The reliability was assessed using Cronbach's Alpha, which yielded an overall coefficient of 0.81, indicating good internal consistency reliability (values equal to or greater than 0.7 are generally considered acceptable). The Corrected Item-Total Correlation (CITC) values for most indicators were above 0.4, further supporting the consistency of the items.

**Data collection**

Data collection was conducted according to the following process 1) the questionnaire was developed based on a comprehensive review of relevant theories, academic concepts, and empirical research, serving as reference materials, 2) the questionnaire was designed and disseminated to the sampled population through online channels, including various website communities and social media platforms (e.g., www.weibo.com, WeChat, QQ, Facebook, Google Document, www.wjx.cn), and 3) a random sampling survey was conducted with 200 respondents between January 2024 and March 2024.

**Data Analysis**

Data analysis employed the following statistical methods: descriptive statistics for summarizing data, reliability analysis using Cronbach's alpha, correlation analysis to determine relationships between variables, and regression analysis to assess the impact of independent variables on dependent variables and test hypotheses.

**Conceptual Framework**

The conceptual framework presented in Figure 1 visually depicted the hypothesized relationships between the independent variables (Leadership Style, Resource Allocation, Professional Development Opportunities, and Collaborative Networks) and the dependent variables (Research Output, Innovation Adoption, and Cultural Change in Education). This framework guided the study by illustrating how these key factors were expected to collectively foster a research and innovation culture within private higher education institutions.

Independent Variables:

- Leadership Style: This refers to the manner in which leaders influence, motivate, and guide their followers. As depicted in Figure 1, leadership style was hypothesized to play a pivotal role in shaping the overall direction and culture of an educational institution. Transformative leaders, in particular, were expected to inspire and empower their followers to embrace new ideas, take risks, and strive for excellence, thereby positively influencing research output, innovation adoption, and cultural change (H1).
- Resource Allocation: This pertains to the strategic distribution of financial, material, and human resources within an institution. The framework hypothesized that adequate and strategic resource allocation was critical for supporting research and innovation activities (H2). When resources were effectively distributed, innovative projects could be executed and sustained over time, leading to higher research output, increased innovation adoption, and positive cultural change.
- Professional Development Opportunities: These are avenues provided for educators and researchers to enhance their skills, knowledge, and competencies. As illustrated, professional development opportunities were hypothesized to be essential for fostering a culture of continuous learning and innovation (H3). By allowing individuals to update their knowledge and master new methodologies, these opportunities were expected to enhance research capabilities, promote innovative practices, and contribute to cultural transformation.
- Collaborative Networks: These refer to the partnerships and interactions established both internally (within departments) and externally (with other institutions, industries, research organizations, and government agencies). The framework hypothesized that robust collaborative networks facilitated knowledge sharing, resource pooling, and interdisciplinary collaboration (H4). These networks were expected to lead to the creation and

dissemination of innovative educational practices, significantly contributing to cultural change and the adoption of new innovations.

Dependent Variables:

- Research Output: This represents the tangible results of research activities, including publications, projects, and patents. The framework posited that a supportive environment created by the independent variables would lead to a higher quantity and quality of research output.
- Innovation Adoption: This refers to the speed and effectiveness with which new ideas, technologies, and methodologies are embraced and implemented within the institution. The framework suggested that the interplay of the independent variables would improve the institution's ability to adapt to change and integrate innovations into educational programs and practices.
- Cultural Change in Education: This denotes a transformation in the institution's underlying values, attitudes, and behaviors, prioritizing research, innovation, and continuous improvement. The framework hypothesized that the combined influence of the independent variables would drive this cultural shift, fostering an environment conducive to exploration and experimentation.

In summary, the conceptual framework posited that Leadership Style, Resource Allocation, Professional Development Opportunities, and Collaborative Networks interact dynamically to foster an innovative cultural education environment. This synergy was hypothesized to lead to enhanced Research Output, increased Innovation Adoption, and significant Cultural Change within educational institutions.

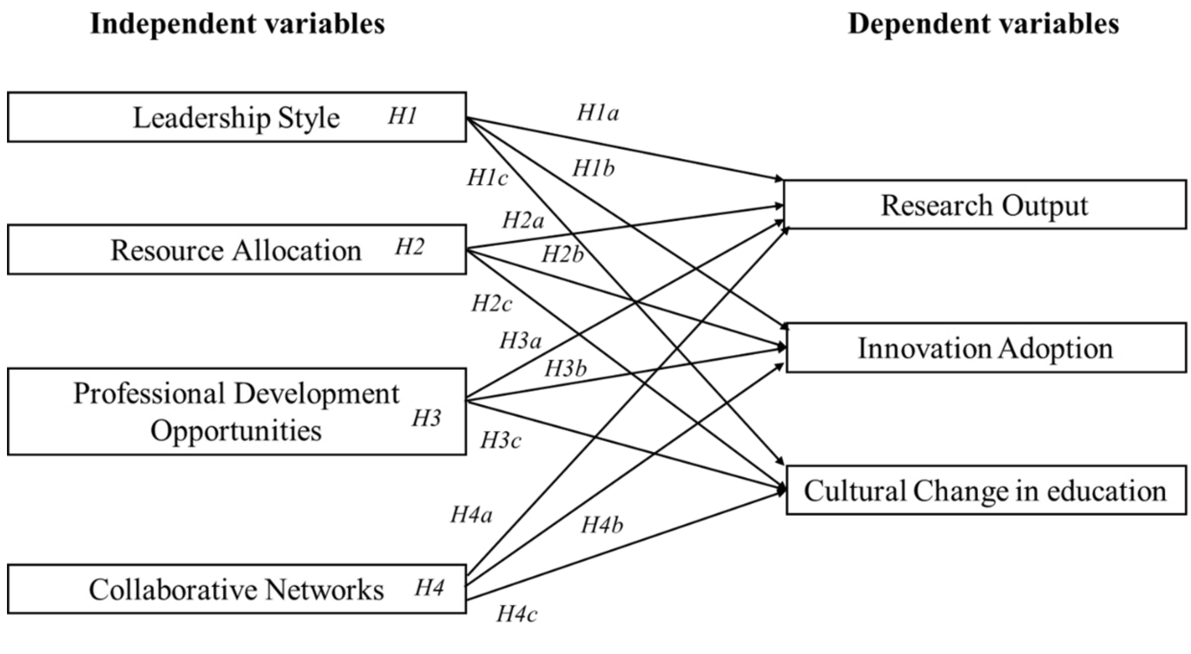


**Figure 1:** Conceptual Framework

Based on the provided diagram (Figure 1), the following research hypotheses can be formulated:

H1: Leadership Style has a positive influence on: H1a: Research Output, H1b: Innovation Adoption, and H1c: Cultural Change in education.

H2: Resource Allocation has a positive influence on: H2a: Research Output, H2b: Innovation Adoption, and H2c: Cultural Change in education.

H3: Professional Development Opportunities have a positive influence on: H3a: Innovation Adoption, H3b: Cultural Change in education., and H3c: Research Output.

H4: Collaborative Networks have a positive influence on: H4a: Research Output, H4b: Innovation Adoption, and H4c: Cultural Change in education.

## Research Finding

The following presents the findings of the study, derived from the collected data and subsequent analysis.

**Demographic Analysis**

The demographic characteristics of the 200 respondents who participated in the study. Frequency analysis revealed the following: The majority of respondents were teachers (55%), followed by administrators (37.5%) and researchers (7.5%). The high proportion of teachers underscores their central role in educational practices and their valuable perspectives on educational reform and curriculum design. The significant proportion of administrators highlights the importance of leadership and management in shaping institutional direction and quality. Respondents with 0-5 years and 6-10 years of experience constituted the largest groups (28.5% and 27% respectively), indicating a considerable proportion of early-career professionals in the sample. This allows for insights into the challenges and needs of individuals in the initial stages of their careers. The remaining respondents were distributed across those with 11-15 years (18%), 16-20 years (17%), and 21+ years (9.5%) of experience, providing a valuable perspective on long-term career development and professional growth within the field. Overall, the demographic data suggests that the sample was diverse and representative of various roles and experience levels within educational and research institutions. This diversity strengthens the study's ability to provide a comprehensive understanding of the factors influencing research and innovation culture in these settings. As shown in Table 1.

**Table 1:** Demographic Characteristics of Respondents

| Name | Categories | N | Percent (%) |
|---|---|---|---|
| **Position** | Administrator | 75 | 37.5 |
| | Teacher | 110 | 55 |
| | Researcher | 15 | 7.5 |
| **Years of Experience** | 0-5 years | 57 | 28.5 |
| | 6-10 years | 54 | 27 |
| | 11-15 years | 36 | 18 |
| | 4. 16-20 years | 34 | 17 |
| | 21+ years | 19 | 9.5 |
| **Summarize** | | 200 | 100 |

**Note:** 'n' denotes the sample count for each category.

**Correlation Analysis**

The Pearson correlation coefficients between the variables examined in the study. All reported correlations were statistically significant ($p < 0.05$ or $p < 0.01$).

Leadership Style was positively correlated with all other variables: Resource Allocation ($r = 0.397$), Professional Development Opportunities ($r = 0.358$), Collaborative Networks ($r = 0.264$), Research Output ($r = 0.410$), Innovation Adoption ($r = 0.416$), and Cultural Change ($r = 0.459$). These positive correlations suggest that leadership style plays a role in facilitating resource allocation, professional development, collaboration, research output, innovation adoption, and cultural change within educational institutions.

Resource Allocation was also positively correlated with all other variables: Professional Development Opportunities ($r = 0.264$), Collaborative Networks ($r = 0.278$), Research Output ($r = 0.472$), Innovation Adoption ($r = 0.512$), and Cultural Change ($r = 0.463$). This indicates that the allocation of resources is associated with increased opportunities for professional development, collaboration, research productivity, and the adoption of innovations, ultimately contributing to cultural change.

Professional Development Opportunities showed positive correlations with: Collaborative Networks ($r = 0.203$), Research Output ($r = 0.416$), Innovation Adoption ($r = 0.397$), and Cultural Change ($r = 0.381$). This suggests that providing professional development opportunities may foster collaboration, enhance research output, and promote the adoption of innovations, leading to cultural change within institutions.

Collaborative Networks were positively correlated with: Research Output ($r = 0.305$), Innovation Adoption ($r = 0.330$), and Cultural Change ($r = 0.428$). This highlights the importance of collaborative networks in facilitating research, promoting innovation, and driving cultural change in educational settings.

Overall, the correlation analysis revealed a network of positive relationships between the variables. These findings suggest that leadership, resource allocation, professional development, and collaboration are interconnected and contribute to research productivity, innovation adoption, and cultural change within educational institutions. As shown in Table 2.

**Table 2**: Pearson Correlation Coefficients

| Pearson Correlation | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Leadership Style** | **Resource Allocation** | **Professional Development Opportunities** | **Collaborative Networks** | **Research Output** | **Innovation Adoption** | **Cultural Change** |
| **Leadership Style** | 1 | | | | | | |
| **Resource Allocation** | 0.397** | 1 | | | | | |
| **Professional Development Opportunities** | 0.358** | 0.264** | 1 | | | | |
| **Collaborative Networks** | 0.264** | 0.278** | 0.203** | 1 | | | |
| **Research Output** | 0.410** | 0.472** | 0.416** | 0.305** | 1 | | |
| **Innovation Adoption** | 0.416** | 0.512** | 0.397** | 0.330** | 0.375** | 1 | |
| **Cultural Change** | 0.459** | 0.463** | 0.381** | 0.428** | 0.535** | 0.434** | 1 |
| *** p<0.05 ** p<0.01** | | | | | | | |

## Regression Analysis

Correlation analysis was a prerequisite for regression analysis, as the latter aimed to establish a quantitative relationship model between a dependent variable and one or more independent variables. If no correlation existed between variables, regression analysis would be meaningless. Only when a certain degree of correlation was present could regression analysis identify specific relationship patterns and predict or explain the dependent variable. In this study, the significant correlations between variables provided a foundation for further regression analysis, which helped to explore causal relationships and influencing mechanisms in depth. The details are as follows:

Table 3: (details below) presents the results of a linear regression analysis with Research Output as the dependent variable and Leadership Style, Resource Allocation, Professional Development Opportunities, and Collaborative Networks as independent variables. The model was statistically significant ($F(4, 195) = 26.776$, $p = 0.000$), with an R-squared of 0.355, indicating that the four independent variables explained 35.5% of the variance in Research Output. The regression coefficients for all four independent variables were positive and statistically significant: Leadership Style: ($B = 0.193$, $t = 2.521$, $p = 0.012$). This suggests that leadership style had a significant positive impact on research output. Effective leadership can create a supportive and stimulating environment for research, influencing resource allocation, professional development, and collaboration. Resource Allocation: ($B = 0.306$, $t = 4.741$, $p = 0.000$). Resource allocation also had a significant positive impact on research output. Adequate resources, including funding, equipment, and personnel, are essential for supporting research activities and achieving research goals. Professional Development Opportunities: ($B = 0.260$, $t = 3.997$, $p = 0.000$). Professional development opportunities positively influenced research output. Opportunities for training, academic exchange, and skill enhancement can improve researchers' competence and innovation capacity, leading to increased research productivity. Collaborative Networks: ($B = 0.124$, $t = 2.044$, $p = 0.042$). Collaborative networks also contributed positively to research output. Collaboration with experts and scholars from diverse fields can facilitate knowledge sharing, stimulate creativity, and enhance research outcomes.

**Table 3:** Regression Analysis of the Dependent Variable (Research Output)

| Parameter Estimates (n=200) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Unstandardized Coefficients** | | **Standardized Coefficients** | **t** | **p** | **Collinearity diagnosis** | |
| | **B** | **Std. Error** | **Beta** | | | **VIF** | **Tolerance** |
| **Constant** | 0.560 | 0.316 | - | 1.775 | 0.078 | - | - |
| **Leadership Style** | 0.193 | 0.077 | 0.167 | 2.521 | 0.012* | 1.319 | 0.758 |
| **Resource Allocation** | 0.306 | 0.064 | 0.305 | 4.741 | 0.000** | 1.253 | 0.798 |
| **Professional Development Opportunities** | 0.26 | 0.065 | 0.250 | 3.997 | 0.000** | 1.181 | 0.847 |
| **Collaborative Networks** | 0.124 | 0.06 | 0.125 | 2.044 | 0.042* | 1.128 | 0.886 |
| $R^2$ | 0.355 | | | | | | |
| Adjust $R^2$ | 0.341 | | | | | | |
| F | $F(4,195) = 26.776$, $p = 0.000$ | | | | | | |
| D - W | 1.412 | | | | | | |
| Note：Dependent Variable = Research Output | | | | | | | |
| * $p < 0.05$ ** $p < 0.01$ | | | | | | | |

Table 4: (details below) presents the results of a linear regression analysis with Innovation Adoption as the dependent variable. The model, which included Leadership Style, Resource Allocation, Professional Development Opportunities, and Collaborative Networks as independent variables, was statistically significant (F (4, 195) = 29.949, p = 0.000) and explained 38.1% of the variance in Innovation Adoption (R-squared = 0.381). The analysis revealed that all four independent variables had a statistically significant positive impact on Innovation Adoption: Leadership Style: (B = 0.159, t = 2.474, p = 0.014). This indicates that leadership style played a significant role in fostering innovation adoption within educational institutions. Leaders who promote innovation, provide support, and encourage experimentation are likely to create a culture conducive to adopting new ideas and practices. Resource Allocation: (B = 0.300, t = 5.549, p = 0.000). Resource allocation also had a strong positive influence on innovation adoption. Adequate financial resources, infrastructure, and support systems are crucial for facilitating the implementation and integration of innovations. Professional Development Opportunities: (B = 0.193, t = 3.548, p = 0.000). Opportunities for professional development were positively associated with innovation adoption. By providing training, workshops, and opportunities for knowledge sharing, institutions can equip their staff with the skills and knowledge necessary to embrace and implement innovations effectively. Collaborative Networks: (B = 0.124, t = 2.450, p = 0.015). Collaborative networks also played a significant role in promoting innovation adoption. Collaboration and knowledge sharing within and across institutions can facilitate the dissemination of best practices and encourage the adoption of new ideas.

**Table 4**: Regression Analysis of the Dependent Variable (Innovation Adoption)

| Parameter Estimates (n=200) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Unstandardized Coefficients | | Standardized Coefficients | t | p | Collinearity diagnosis | |
| | B | Std. Error | Beta | | | VIF | Tolerance |
| **Constant** | 0.914 | 0.264 | - | 3.457 | 0.001** | - | - |
| **Leadership Style** | 0.159 | 0.064 | 0.16 | 2.474 | 0.014* | 1.319 | 0.758 |
| **Resource Allocation** | 0.300 | 0.054 | 0.35 | 5.549 | 0.000** | 1.253 | 0.798 |
| **Professional Development Opportunities** | 0.193 | 0.055 | 0.217 | 3.548 | 0.000** | 1.181 | 0.847 |
| **Collaborative Networks** | 0.124 | 0.051 | 0.147 | 2.45 | 0.015* | 1.128 | 0.886 |
| **$R^2$** | 0.381 | | | | | | |
| **Adjust $R^2$** | 0.368 | | | | | | |
| **F** | F (4,195) = 29.949, p = 0.000 | | | | | | |
| **D - W** | 0.322 | | | | | | |
| **Note: Dependent Variable = Innovation Adoption** | | | | | | | |
| *** p < 0.05 ** p < 0.01** | | | | | | | |

Table 5: (details below) displays the results of a linear regression analysis with Cultural Change as the dependent variable. The model, incorporating Leadership Style, Resource Allocation, Professional Development Opportunities, and Collaborative Networks as independent variables, was statistically significant (F(4, 195) = 32.628, p = 0.000) and accounted for 40.1% of the variance in Cultural Change (R-squared = 0.401). All four independent variables demonstrated a statistically significant positive impact on Cultural Change: Leadership Style: (B = 0.217, t = 3.529, p = 0.001). This suggests that leadership style played a crucial role in driving cultural change within educational institutions. Leaders who champion innovation, embrace new ideas, and foster a collaborative environment are likely to be more effective in facilitating cultural shifts. Resource Allocation: (B = 0.211, t = 4.080, p = 0.000). Resource allocation also had a significant positive influence on cultural change. Providing adequate resources, such as funding, infrastructure, and technology, can support the implementation of new initiatives and facilitate the adoption of new practices, ultimately leading to

cultural change. Professional Development Opportunities: (B = 0.157, t = 3.006, p = 0.003). Opportunities for professional development were positively associated with cultural change. By offering training, workshops, and mentoring programs, institutions can empower their staff to embrace new ideas, develop new skills, and contribute to cultural transformation. Collaborative Networks: (B = 0.215, t = 4.434, p = 0.000). Collaborative networks emerged as a strong predictor of cultural change. Collaboration and knowledge sharing within and between institutions can facilitate the dissemination of innovative practices and create a shared understanding of the need for change, thereby accelerating cultural shifts.

**Table 5:** Regression Analysis of the Dependent Variable (Cultural Change)

| Parameter Estimates (n=200) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Unstandardized Coefficients** | | **Standardized Coefficients** | **t** | **p** | **Collinearity diagnosis** | |
| | **B** | **Std. Error** | **Beta** | | | **VIF** | **Tolerance** |
| | 0.983 | 0.253 | - | 3.881 | 0.000** | - | - |
| **Leadership Style** | 0.217 | 0.062 | 0.225 | 3.529 | 0.001** | 1.319 | 0.758 |
| **Resource Allocation** | 0.211 | 0.052 | 0.253 | 4.08 | 0.000** | 1.253 | 0.798 |
| **Professional Development Opportunities** | 0.157 | 0.052 | 0.181 | 3.006 | 0.003** | 1.181 | 0.847 |
| **Collaborative Networks** | 0.215 | 0.049 | 0.261 | 4.434 | 0.000** | 1.128 | 0.886 |
| **$R^2$** | 0.401 | | | | | | |
| **Adjust $R^2$** | 0.389 | | | | | | |
| **F** | F (4,195) = 32.628, p = 0.000 | | | | | | |
| **D - W** | 1.83 | | | | | | |
| **Note: Dependent Variable = Cultural Change** | | | | | | | |
| *** p < 0.05 ** p < 0.01** | | | | | | | |

**Note:** Dependent Variable = Cultural Change
* p<0.05 ** p<0.01

This study highlighted the importance of leadership, resource allocation, professional development, and collaboration in promoting research productivity, innovation adoption, and cultural change within educational institutions. To foster research and innovation, institutions should prioritize the development of effective leadership, ensure adequate resource allocation, provide opportunities for professional growth, and build strong collaborative networks.

Hypotheses H1 (H1a, H1b, H1c), H2 (H2a, H2b, H2c), H3 (H3a, H3b, H3c), and H4 (H4a, H4b, H4c) were supported, as detailed in Table 6.

Table 6 (details below) presents the results of hypothesis testing for the study. All hypotheses were supported by the data.

**H1: Leadership Style**

The results confirmed that leadership style had a significant positive influence on all three dependent variables: H1a: Research Output (β = 0.167, p = 0.012). This indicates that effective leadership contributed to increased research productivity within educational institutions. Leaders who inspire, motivate, and provide intellectual stimulation are likely to foster a more productive research environment. H1b: Innovation Adoption (β = 0.160, p = 0.014). Leadership style also played a significant role in promoting the adoption of innovations. Leaders who encourage experimentation, provide support for new ideas, and create a culture of openness to change can facilitate the successful implementation of innovations. H1c: Cultural Change (β = 0.225, p = 0.001). Furthermore, leadership style significantly influenced cultural change within institutions. Leaders who champion innovation, embrace new ideas, and foster collaboration can effectively drive cultural transformation towards a more innovative and dynamic environment.

**H2: Resource Allocation**

The findings supported the hypothesis that resource allocation positively influenced the dependent variables: H2a: Research Output ($\beta = 0.305$, $p = 0.000$). Resource allocation had a strong positive impact on research productivity. Adequate funding, equipment, and personnel are essential for supporting research activities and achieving research goals.H2b: Innovation Adoption ($\beta = 0.350$, $p = 0.000$). Similarly, resource allocation significantly influenced innovation adoption. Providing the necessary resources for implementing and integrating new ideas and technologies is crucial for successful innovation. H2c: Cultural Change ($\beta = 0.253$, $p = 0.000$). Resource allocation also played a significant role in facilitating cultural change. Investing in resources that support new initiatives and practices can enable institutions to embrace change and create a more innovative culture.

**H3: Professional Development Opportunities**

The results confirmed the positive influence of professional development opportunities on the dependent variables: H3a: Research Output ($\beta = 0.250$, $p = 0.000$). Providing opportunities for professional development significantly enhanced research output. Training, workshops, and mentoring programs can improve researchers' skills and knowledge, leading to increased research productivity. H3b: Innovation Adoption ($\beta = 0.217$, $p = 0.003$). Professional development opportunities also promoted innovation adoption. Equipping staff with the necessary skills and knowledge through professional development can facilitate the effective implementation of new ideas and technologies. H3c: Cultural Change ($\beta = 0.181$, $p = 0.000$). Furthermore, professional development opportunities contributed to cultural change. By empowering staff to embrace new ideas and develop new skills, institutions can foster a culture that is more receptive to innovation and change.

**H4: Collaborative Networks**

The findings supported the hypothesis that collaborative networks positively influenced the dependent variables: H4a: Research Output ($\beta = 0.125$, $p = 0.042$). Collaborative networks had a positive impact on research productivity. Collaboration and knowledge sharing within and across institutions can enhance research outcomes by facilitating the exchange of ideas and resources. H4b: Innovation Adoption ($\beta = 0.147$, $p = 0.015$). Collaborative networks also promoted innovation adoption. By sharing best practices and collaborating on the implementation of new ideas, institutions can accelerate the adoption of innovations. H4c: Cultural Change ($\beta = 0.261$, $p = 0.000$). Furthermore, collaborative networks played a significant role in driving cultural change. Collaboration can foster a shared understanding of the need for change and facilitate the dissemination of innovative practices, leading to cultural transformation.

In summary, the results of hypothesis testing provide strong evidence for the importance of leadership, resource allocation, professional development, and collaboration in fostering a culture of research and innovation within educational institutions. These findings have important implications for policymakers and administrators seeking to promote innovation and enhance the quality of education.

**Table 6:** Hypothesis Testing Results

| Hypothesis | Independent Variable | Dependent Variable | Result | Coefficient (Beta) | p-value |
|---|---|---|---|---|---|
| **H1: Leadership Style has a positive influence on** | | | | | |
| **H1a** | Leadership Style | Research Output | Supported | 0.167 | 0.012* |
| **H1b** | Leadership Style | Innovation Adoption | Supported | 0.160 | 0.014* |
| **H1c** | Leadership Style | Cultural Change | Supported | 0.225 | 0.001** |
| **H2: Resource Allocation has a positive influence on** | | | | | |
| **H2a** | Resource Allocation | Research Output | Supported | 0.305 | 0.000** |
| **H2b** | Resource Allocation | Innovation Adoption | Supported | 0.350 | 0.000** |
| **H2c** | Resource Allocation | Cultural Change | Supported | 0.253 | 0.000** |
| **H3: Professional Development Opportunities have a positive influence on** | | | | | |
| **H3a** | Professional Development Opportunities | Research Output | Supported | 0.250 | 0.000** |
| **H3b** | Professional Development Opportunities | Innovation Adoption | Supported | 0.217 | 0.003** |
| **H3c** | Professional Development Opportunities | Cultural Change | Supported | 0.181 | 0.000** |
| **H4: Collaborative Networks have a positive influence on** | | | | | |
| **H4a** | Collaborative Networks | Research Output | Supported | 0.125 | 0.042* |
| **H4b** | Collaborative Networks | Innovation Adoption | Supported | 0.147 | 0.015* |
| **H4c** | Collaborative Networks | Cultural Change | Supported | 0.261 | 0.000** |

Based on the findings, a conceptual framework was developed as follows Figure 2. This result-based conceptual framework highlights that leadership style, resource allocation, professional development opportunities, and collaborative networks collectively explain 34.10% of the variance in research output, 36.80% in innovation adoption, and 38.90% in cultural change. This visual representation consolidates the key findings regarding the predictive power of the identified factors.

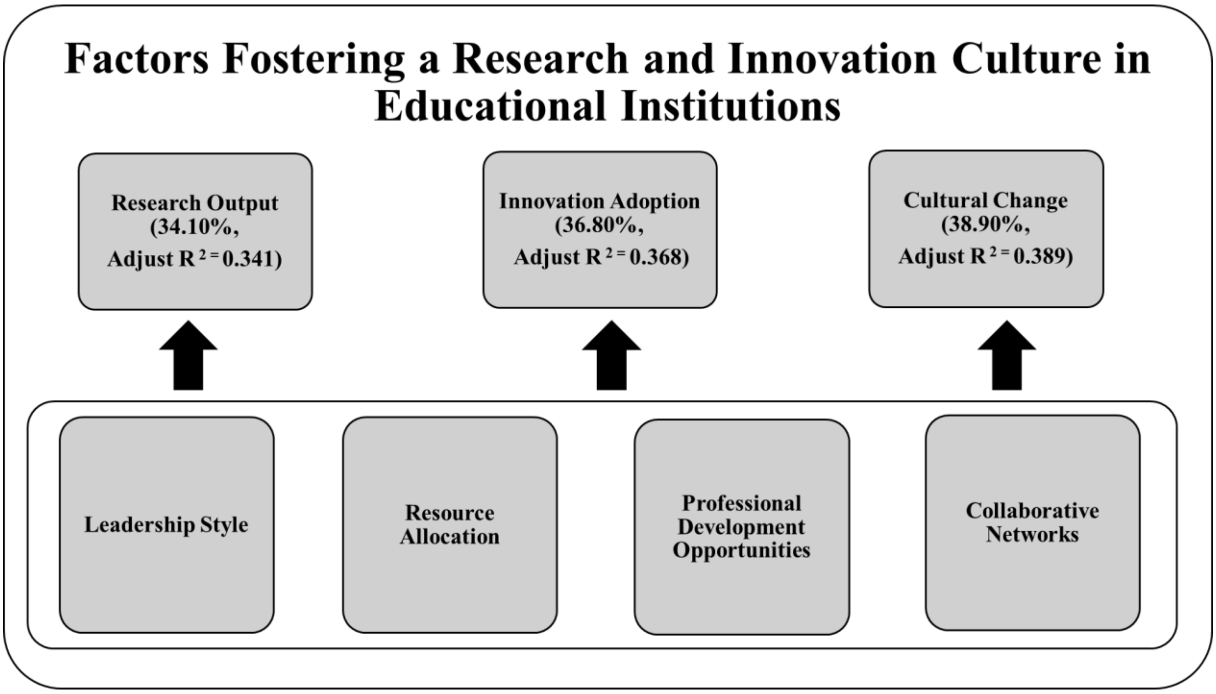


**Figure 2:** Conceptual Framework of Factors Fostering a Research and Innovation Culture in Educational Institutions

## Conclusion

This study aimed to explore the factors that foster a research and innovation culture in educational institutions, focusing on four key factors: leadership, resource allocation, professional development opportunities, and collaborative networks. The findings revealed that all four factors positively influence research output, innovation adoption, and cultural change within educational institutions. This study provided insights into the complex dynamics of research and innovation culture, particularly highlighting the importance of participation from all levels of personnel in creating an enabling environment. The findings can benefit policymakers and administrators in developing strategies and initiatives to promote research and innovation culture and enhance the quality of education sustainably.

## Discussion

The findings of this study largely align with and extend existing literature on fostering research and innovation culture in educational settings, while also providing nuanced insights specific to a technological college in Mianyang, China.

Leadership Style: The significant positive influence of leadership style on research output, innovation adoption, and cultural change ($\beta$ values ranging from 0.160 to 0.225) corroborates previous research emphasizing the crucial role of leadership in fostering a research and innovation culture (Hughes et al., 2022). Transformational leaders, with their vision, creativity, and ability to champion change, were shown to inspire and motivate personnel to engage in research and innovation activities (Bush & Glover, 2023; Bass & Riggio, 2020). This study reinforces that leaders should actively participate in creating an environment that encourages experimentation, learning, and knowledge sharing (Somech, 2023), including providing resources and supporting personnel development. The qualitative interview data further supported this, highlighting the importance of leaders who clarify vision, empower teams, encourage feedback, and lead by example.

Resource Allocation: Resource allocation emerged as a consistently strong predictor across all dependent variables, particularly for innovation adoption ($\beta$=0.350, p=0.000). This finding strongly supports the notion that adequate resources, including budget, equipment, and personnel, are fundamental for conducting research and adopting innovations (Audretsch & Belitski, 2022; Lee et al, 2019). The qualitative data underscored that insufficient resources can indeed hinder research development and innovation adoption. The results emphasize that strategic allocation, prioritizing key projects, and flexible adjustment of resources are vital for ensuring the smooth progress of research and innovation initiatives.

Professional Development Opportunities: Professional development opportunities significantly enhanced research capabilities and innovative practices, positively impacting all three dependent variables (e.g., $\beta$=0.250 for research output). This aligns with literature suggesting that such opportunities improve personnel's knowledge, skills, and experience (Poekert et al., 2022; Asbari et al, 2020). The study's findings suggest that supporting access to comprehensive professional development programs is a valuable investment that directly contributes to increased research output, innovation adoption, and cultural change by equipping staff with necessary skills and fostering a continuous learning environment. Qualitative data further highlighted the value of continuing education, international exchanges, and internal promotion mechanisms.

Collaborative Networks: Collaborative networks demonstrated a significant positive influence on cultural change ($\beta$=0.261, p=0.000), innovation adoption, and research output. This reinforces the established understanding that both internal and external collaborative networks play a vital role in promoting research and innovation culture (Gajda & Kozielska, 2022; Chou et al, 2019). The exchange of knowledge, experiences, and resources among individuals and organizations stimulates creativity and new innovations. The interview analysis further emphasized the benefits of industry-academia-research integration and cross-disciplinary cooperation in breaking down disciplinary barriers and fostering new ideas.

## Suggestion

**Suggestions for Research Utilization**

1. Develop leadership training programs: Educational institutions should develop leadership training programs that focus on enhancing transformational leadership skills, such as inspiring others, communicating effectively, and promoting collaboration. This would enable leaders to effectively foster a research and innovation culture within their organizations.

2. Allocate resources strategically: Institutions should strategically allocate resources to support research and innovation, considering project needs and potential impact. This includes providing modern equipment and technology to promote innovation development.

**Suggestions for Future Research**

1. Conduct in-depth studies on individual factors: Future research should delve deeper into individual factors, such as motivation, skills, and personality, that influence research and innovation culture to gain a more comprehensive understanding.

2. Expand the scope of research: The scope of research should be expanded to include other types of educational institutions, such as schools and colleges, to enhance the generalizability and applicability of the findings.

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# The Analysis of Cause Related Marketing Factors Value Creation Marketing and Purchase for Laundry Product in Thailand

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## Abstract

This research aimed to: 1) examine the personal factors influencing consumers' decisions to purchase laundry products, 2) investigate consumers' opinions on cause-related marketing, marketing value creation, and purchasing decisions, and 3) analyze the influence of cause-related marketing on value creation and purchasing decisions for laundry products. A quantitative research design was adopted, and data were collected using a structured questionnaire from a sample of 400 consumers across five provinces in the lower northeastern region of Thailand. Descriptive statistics-comprising percentage, mean, and standard deviation-were employed alongside inferential statistics. Structural Equation Modeling (SEM) was used to test causal relationships based on a theoretical framework incorporating the Company-Cause-Consumer Fit Model, the Elaboration Likelihood Model, and Value creation theory.

The questionnaire demonstrated strong reliability (Cronbach's alpha = 0.969) and content validity (IOC range = 0.67-1.00). SEM results showed excellent model fit indices ($\chi^2/df = 1.347$, RMSEA = 0.044, CFI = 0.921, GFI = 0.970), confirming model adequacy. Findings indicated that cause-related marketing had a significant indirect effect on purchasing decisions through marketing value creation. Cause-related marketing accounted for 66.6% of the variance in marketing value creation ($R^2 = 0.666$), while the combined influence of cause-related marketing and value creation explained 72.8% of purchasing decisions ($R^2 = 0.728$). Major influencing factors included consumer concern for social issues, perceived price-value, and word-of-mouth recommendations.

The study highlights the critical importance of integrating cause-related marketing strategies with value-based communication to effectively promote eco-friendly laundry products. These insights offer valuable implications for marketers aiming to influence environmentally conscious consumer behavior in emerging markets.

**Keywords:** Consumer Purchasing Behavior, Cause-Related Marketing, Value Creation in Marketing, Purchasing Decision of Laundry Products

# Introduction

Currently, environmental issues have become increasingly significant due to the impact of climate change, the degradation of natural resources, and environmental pollution. These challenges require all sectors of society and the economy to adapt in order to address them. Environmental impacts, such as natural disasters and rapid temperature increases, affect various business sectors, especially industries that rely on natural resources and sustainable production (Sangon, 2022; Pollution Control Department, 2024). These changes have driven rapid growth in the market for eco-friendly products, particularly in the laundry product industry. Laundry products made from natural ingredients and free from chemicals have gained increasing popularity.

The global sustainable laundry product market is expected to grow rapidly, with an estimated market value of approximately USD 10.5 billion in 2024 and an average annual growth rate (CAGR) of around 7.5% until 2030 (Global Market Insights, 2024). In Thailand, the sustainable laundry product market has grown by an average of 12% annually over the past five years. Approximately 35% of these products are made from natural ingredients, and 25% are chemical-free, reflecting changes in consumer purchasing behavior as they increasingly prioritize health and environmental impacts (Kasikorn Research Center, 2024). About 60% of Thai consumers are likely to choose eco-friendly laundry products due to concerns about health and environmental impacts (Khan, Smith & Brown, 2024)

Theories and research on Cause-Related Marketing (CRMK) suggest that CRMK is a strategy that effectively connects businesses with social and environmental issues. Companies can enhance their image and increase consumer confidence in their products by supporting charitable activities or social causes that align with consumer values (Kotler & Lee, 2005). Cause-Related Marketing can also create emotional and social value, helping to stimulate consumer interest and purchasing decisions (Khan, Smith & Brown, 2024). From a behavioral standpoint, CRM initiatives that align closely with consumer beliefs and societal concerns are more likely to elicit favorable responses, contributing to enhanced consumer engagement and loyalty.

Research on consumer perception shows that approximately 45% of consumers who choose eco-friendly laundry products prioritize marketing information that emphasizes environmental conservation and corporate practices related to this issue (Phiothongon, 2024). Additionally, around 20% of companies producing sustainable laundry products in Thailand utilize Cause-Related Marketing strategies to enhance popularity and boost sales (Chuenyen, 2024). The literature review highlights the importance of using Cause-Related Marketing strategies to create marketing value and influence consumer purchasing decisions in the eco-friendly laundry product market. By presenting marketing approaches that focus on environmental conservation and social responsibility, companies can effectively engage with environmentally conscious consumers.

## Objective

1. To study consumer personal factors influencing purchasing decisions for laundry products in Thailand.
2. To examine the level of consumer opinions on cause-related marketing, marketing value creation, and purchasing decisions for laundry products in Thailand.
3. To analyze the impact of cause-related marketing factors on marketing value creation and purchasing decisions for laundry products in Thailand.

## Literature Review

The researcher reviewed six key concepts and theories relevant to this study as follows

**Basic Theory of Cause-Related Marketing**

Cause-related marketing (CRM) is a strategic component of corporate social responsibility (CSR) that integrates marketing efforts with initiatives supporting social or environmental causes. This approach is increasingly employed by businesses to differentiate their brands, enhance customer loyalty, and contribute positively to society (Kotler & Lee, 2021). The fundamental idea behind CRM is that aligning a company's marketing strategies with social causes can create a win-win situation: companies achieve their business goals, while society benefits from their contributions. This balance makes CRM an effective strategy in fostering goodwill and engaging socially conscious consumers (Chang, Tseng & Wang, 2023). One of the key theoretical frameworks in CRM is the Company-Cause-Consumer Fit model, which posits that the success of CRM initiatives largely depends on the degree of alignment, or "fit," between the company's values, the cause it supports, and the values of its target consumers. When this alignment is perceived as strong, consumers are more likely to develop a positive attitude toward the brand, view it as authentic, and ultimately make a purchase decision. For instance, a company that manufactures eco-friendly products partnering with an environmental conservation organization exemplifies a high fit, as both share a common goal of sustainability. The concept of "fit" is further supported by theories of consumer behavior, such as the Elaboration Likelihood Model (ELM). According to ELM, consumers are more likely to process and respond positively to marketing messages when the cause aligns with their personal values and interests. This alignment enhances cognitive and emotional engagement, making the marketing message more persuasive (Petty & Cacioppo, 1986). Conversely, a weak or unclear fit may lead to skepticism or even negative perceptions of the company, as consumers may question the authenticity of its intentions (Becker-Olsen, Cudmore, & Hill, 2006). Additionally, CRM can leverage the principles of Social Exchange Theory, which suggests that consumers evaluate their relationship with a company based on perceived benefits and costs. When consumers see that a company's support for a cause benefits society while also delivering value to them—such as quality products or fair pricing-they are more likely to reciprocate by supporting the company through their purchases (Homans, 1958). This reciprocal relationship reinforces customer loyalty and contributes to long-term business success.

Research has also highlighted the importance of communication transparency in CRM. Consumers are more likely to support CRM campaigns when companies clearly articulate how their contributions to the cause are implemented and the tangible outcomes achieved (Du, Bhattacharya & Sen, 2010). For example, communicating the percentage of sales donated to the cause or showcasing measurable impacts (e.g., the number of trees planted or lives improved) can build consumer trust and encourage participation. In recent years, CRM has evolved to include more diverse causes and innovative approaches, reflecting shifts in consumer priorities. For instance, Millennials and Gen Z consumers-who represent a growing portion of the market-are particularly drawn to brands that demonstrate genuine commitment to social justice, environmental sustainability, and community development (Cone Communications, 2017). This generational shift underscores the need for companies to align their CRM strategies with contemporary social and environmental issues.

In conclusion, cause-related marketing is a powerful tool for companies seeking to combine business objectives with social impact. The effectiveness of CRM is deeply rooted in the Company-Cause-Consumer Fit model, supported by theories such as the Elaboration Likelihood Model and Social Exchange Theory. By ensuring a strong alignment between their values, the chosen cause, and the interests of their target audience, companies can build stronger relationships with consumers, enhance their brand reputation, and contribute meaningfully to society. This multifaceted approach not only drives business success but also helps address pressing global challenges, making CRM an essential strategy in the modern marketing landscape.

**Consumer Perception and Behavior**

Consumer perception and behavior play critical roles in determining the effectiveness of cause-related marketing (CRMK) strategies. Recent research emphasizes that consumers tend to respond positively to CRMK campaigns that align with their personal values and social identities. Emotional factors, such as guilt, pride, and altruism, significantly influence how consumers perceive and engage with these campaigns. For example, studies have shown that invoking feelings of guilt can encourage greater consumer engagement. However, such an approach should be used carefully and contextually, ensuring it matches the product and cause being promoted. For instance, guilt appeals are often more effective for health-related or environmental causes but may fail or even backfire if the cause or product appears inauthentic (Khan, Singh & Rao, 2024). Consumer trust is another vital factor in CRMK effectiveness. When consumers perceive a company’s CRMK campaigns as genuine and authentically supporting social causes, their concerns about the company’s motivations are alleviated. This perception of authenticity can foster trust, loyalty, and a willingness to support the brand. Gupta & Pirsch (2023) argue that transparency in communicating how funds are allocated and how campaigns contribute to societal well-being enhances consumer trust. For example, providing clear details about the percentage of sales donated or the tangible outcomes of the campaign can strengthen consumer belief in the company's commitment to social good. Case studies and global trends have demonstrated the success of CRMK initiatives in industries such as health, environmental conservation, and education. During the COVID-19 pandemic, many companies launched health-focused CRMK campaigns to support frontline workers or promote public health awareness. These initiatives resonated strongly with consumers, especially in cultures where communal values and altruism are deeply ingrained. Phiothongon (2024) noted that in markets with strong cultural and religious values, such campaigns not only gained consumer loyalty but also led to significant increases in sales. Similarly, CRMK campaigns focusing on environmental sustainability have seen success as consumer awareness of ecological issues grows. Brands that emphasize sustainability and support initiatives like tree planting, renewable energy, or pollution reduction have found favor with eco-conscious consumers. Emotional appeals are further supported by theories such as the Theory of Planned Behavior (TPB) and the Elaboration Likelihood Model (ELM). According to TPB, consumers are more likely to support CRMK campaigns if they believe their actions can positively impact the cause (Ajzen, 1991). ELM suggests that emotionally resonant messages encourage consumers to process marketing messages more deeply, especially when the cause aligns with their values

(Petty & Cacioppo, 1986). As a result, CRMK campaigns that effectively incorporate emotional engagement and demonstrate a strong cause fit are more likely to succeed. Despite its potential, CRMK's effectiveness depends on several factors, including cultural sensitivity, market conditions, and campaign design. Marketers must carefully design campaigns that align with consumer expectations and societal values. For example, in collectivist cultures, CRMK campaigns emphasizing community benefits are likely to outperform those focused solely on individual rewards (Kotler & Lee, 2021). Moreover, the success of CRMK lies in understanding consumer behavior trends, as these insights allow businesses to tailor their products and marketing strategies to meet consumer needs effectively.

In conclusion, consumer perception and behavior provide valuable insights for developing successful CRMK campaigns. Emotional factors, trust in the company's authenticity, and cultural considerations all play pivotal roles in shaping consumer responses to CRMK. When well-executed, CRMK not only enhances corporate image but also fosters long-term consumer loyalty and boosts sales. Future research should continue to explore how emotional engagement and cultural factors influence the effectiveness of CRMK strategies in diverse markets and industries.

**Concept of Value Creation in Marketing**

The concept of value creation plays a significant role in modern marketing. Value creation promotes sustainable relationships between consumers and products or brands, resulting from consumers receiving social, emotional, and financial value from the products or services they use. This concept has been extensively researched, with a focus on how brands can build consumer engagement and loyalty.

**Theory of Value Creation in Marketing**

Value creation is a central concept in marketing that refers to the process of delivering benefits to consumers that satisfy their needs and enhance their overall experience. One of the most prominent theories related to value creation is Holbrook (1999) Consumer Value Framework, which categorizes consumer value into various dimensions, including utilitarian, aesthetic, emotional, and social value. This framework has been widely applied and developed in contemporary marketing contexts to analyze how brands can foster stronger relationships with consumers.

**Emotional value**

refers to the feelings and experiences a consumer derives from a product or service. It encompasses emotions such as happiness, pride, comfort, or security. Brands create emotional value by addressing psychological needs, often through storytelling, personalization, or cause-related marketing initiatives. For instance, products promoting health, sustainability, or ethical production often evoke pride and satisfaction among consumers, fostering long-term loyalty (Kim & Hall, 2023). Emotional value is particularly critical in industries like fashion, cosmetics, and wellness, where consumer decisions are heavily influenced by the emotional connection to the brand.

**Social value**

is created when consumers perceive that their purchasing decisions contribute positively to society or help them enhance their social status. This form of value often ties closely with corporate social responsibility (CSR) initiatives and cause-related marketing (CRM). For example, campaigns that donate a portion of profits to social or environmental causes allow consumers to feel that their purchases have a positive impact beyond personal benefits (Chang, Tseng, & Wang, 2023). Social value is also linked to the desire for social approval or belonging, as consumers are more likely to support brands that align with their social identity and values.

**Economical value**

focuses on the cost-benefit balance that consumers perceive when purchasing a product or service. It reflects the extent to which consumers feel they are getting good value for their money. Marketers create economical value by offering competitive pricing, discounts, or additional benefits that enhance the perceived financial worth of their offerings. Wang & Zhang (2023) highlight that transparency in pricing and delivering consistent quality are critical in reinforcing economical value. This dimension is especially important in price-sensitive markets or for products targeting budget-conscious consumers.

**Quality value**

pertains to the performance and reliability of a product or service. Consumers associate quality with durability, functionality, and adherence to promised standards. Brands that consistently deliver high-quality products can establish trust and foster customer loyalty. Quality value is often evaluated through factors like product durability, innovation, or adherence to environmental standards. For example, brands that produce sustainable products or incorporate advanced technology into their offerings often appeal to consumers seeking quality and innovation (Kotler & Keller, 2022).

**Integration of Value Dimensions**

The integration of emotional, social, economical, and quality value is essential for comprehensive value creation in marketing. Successful brands often combine these dimensions to create a holistic experience that satisfies diverse consumer needs. For example, a sustainable fashion brand might deliver emotional value through eco-conscious messaging, social value by supporting fair trade practices, economical value by offering competitive prices, and quality value through durable, stylish designs.

Conclusion value creation in marketing is a dynamic process that requires addressing multiple dimensions to meet consumer expectations and enhance brand loyalty. Emotional, social, economical, and quality value each play a unique role in shaping consumer perceptions and decisions. By strategically integrating these dimensions, businesses can build stronger relationships with their customers, increase satisfaction, and achieve long-term success.

**Theories and Concepts on Consumer Behavior**

Consumer behavior is a dynamic field influenced by psychological, social, and environmental factors. Several theoretical frameworks and concepts provide insights into understanding why consumers make certain purchasing decisions, particularly in the context of sustainable products.

**Theory of Planned Behavior**

Ajzen's (1991) Theory of Planned Behavior (TPB) posits that consumer purchasing decisions are driven by their intentions, which are influenced by three key factors: attitudes toward the behavior, subjective norms, and perceived behavioral control. Attitudes reflect a consumer's positive or negative evaluation of a behavior—in this case, purchasing eco-friendly products. Subjective norms pertain to social pressures or expectations, such as friends and family advocating for environmentally friendly choices. Finally, perceived behavioral control refers to the consumer's belief in their ability to perform the behavior, such as accessing or affording eco-friendly products.

In the context of sustainable laundry products, TPB has been widely applied to analyze consumer behavior. Yadav & Pathak (2023) found that beliefs about the positive environmental impact of eco-friendly products strongly influence purchase intentions. For example, consumers are more likely to buy sustainable laundry products when they perceive that their choice contributes to reducing environmental harm. These findings highlight the importance of aligning marketing strategies with consumers' environmental beliefs and making eco-friendly products more accessible to enhance perceived behavioral control.

**Green Consumer Behavior**

Smith & Brown (2023) introduced a model for understanding green consumer behavior, emphasizing that awareness of the negative impacts of conventional, non-eco-friendly products is a critical driver of purchasing decisions. Their research shows that consumers who are informed about the environmental damage caused by traditional laundry detergents, such as water pollution or harm to aquatic life, are more likely to switch to sustainable alternatives. Additionally, clear and transparent communication from brands about how their products mitigate environmental impacts plays a significant role in shaping consumer attitudes. Modern consumers increasingly prioritize environmental information when making purchasing decisions. Santos, Pereira, & Barata (2023) highlighted that access to detailed environmental data about products, such as carbon footprint, biodegradability, or sustainable sourcing, reinforces consumer trust and positive attitudes. This finding is consistent with the growing demand for transparency and corporate responsibility in global markets. Brands that effectively communicate these environmental benefits are more likely to build loyalty and encourage repeat purchases among environmentally conscious consumers.

**Integration of Theories**

Combining TPB with models of green consumer behavior provides a comprehensive framework for understanding consumer decision-making. While TPB explains the psychological and social underpinnings of behavior, the emphasis on environmental awareness and transparency offers practical applications for businesses aiming to promote sustainable products. For instance, marketing campaigns that highlight the environmental benefits of eco-friendly laundry products and address social norms-such as the growing acceptance of green living-can effectively influence attitudes and intentions.

**Conclusion**

Theories such as the Theory of Planned Behavior and green consumer behavior models provide valuable insights into consumer decision-making for sustainable products. Research suggests that consumers are increasingly influenced by environmental concerns, social norms, and transparent communication about product benefits. Businesses can leverage these insights to develop marketing strategies that resonate with consumer values, ultimately promoting more sustainable purchasing behaviors.

**Purchasing Decisions for Eco-Friendly Products**

Purchasing decisions for eco-friendly products are increasingly influenced by environmental consciousness, social responsibility, and transparent marketing strategies. Recent studies highlight the growing consumer preference for sustainable products, particularly in the laundry product sector, driven by awareness of environmental issues and trust in corporate initiatives.

**Role of Environmental and Social Responsibility**

Environmental factors play a pivotal role in shaping consumer behavior toward eco-friendly products. Kumar, Gupta, & Singh (2023) found that consumers with strong social and environmental responsibility are significantly more likely to purchase sustainable laundry products. These consumers value brands that demonstrate a commitment to environmental conservation and ethical practices, making corporate social responsibility (CSR) a critical aspect of influencing purchasing decisions. Furthermore, CSR-driven marketing campaigns that focus on reducing environmental impact and showcasing tangible outcomes, such as contributions to reforestation or pollution reduction, have been shown to enhance consumer trust and brand loyalty (Kumar, Singh & Verma, 2023)

**Willingness to Pay for Sustainability**

An important trend identified in the literature is consumers' willingness to pay a premium for eco-friendly products. Research by Sharma, Gupta, & Das (2023) revealed that many consumers are prepared to invest in products certified as environmentally safe, recognizing the long-term benefits of supporting sustainable practices. Certifications and eco-labels serve as critical indicators of a product's environmental credentials, influencing purchasing decisions by reducing uncertainty and building consumer confidence. For example, labels such as biodegradable, certified organic, or low carbon footprint" help consumers make informed choices aligned with their values.

**Importance of Transparency and Eco-Labels**

Transparency in communication about ingredients, production processes, and environmental impact is another crucial factor affecting purchasing decisions. Studies show that clear and credible information about the sustainable aspects of a product significantly influences consumer behavior. Lee, Park & Kim (2023) emphasized that brands that provide detailed disclosures about their sourcing, manufacturing, and sustainability practices are more likely to gain consumer trust. Eco-labels, in particular, play a vital role in this context, serving as visible markers of a product's eco-friendly attributes. Sharma, Gupta & Das (2023) noted that consumers are more inclined to purchase products with recognized certifications, as they provide assurance of the product's quality and adherence to sustainability standards.

**Implications for Marketers**

These findings suggest that marketers must focus on environmental and social factors to effectively target eco-conscious consumers. Highlighting CSR initiatives, offering transparent information about sustainable practices, and obtaining credible certifications are essential strategies for influencing purchasing decisions. Additionally, brands can enhance their appeal by emphasizing the long-term benefits of eco-friendly products, such as cost savings from efficient use or contributions to environmental preservation.

**Conclusion**

The decision to purchase eco-friendly products, particularly sustainable laundry products, is driven by a combination of environmental awareness, social responsibility, and transparent marketing. Consumers are willing to pay a premium for products that align with their values and demonstrate verifiable environmental benefits. To succeed in this competitive market, businesses must adopt strategies that prioritize transparency, eco-labeling, and CSR initiatives, ensuring they meet the expectations of environmentally conscious consumers.

**Trends in the Eco-Friendly Laundry Product Market**

The eco-friendly laundry product market has experienced substantial growth in recent years, driven by increasing consumer awareness of environmental and health concerns. Conventional laundry products, often criticized for their chemical content and reliance on single-use plastics, have prompted consumers to seek sustainable alternatives. Eco-friendly laundry products that are biodegradable and contain environmentally safe ingredients have become the preferred choice for many households.

**Global Market Trends**

Globally, the eco-friendly laundry product market is experiencing steady expansion. According to Global Market Insights (2024), the market is projected to reach a value of USD 10.5 billion by 2024, with a compound annual growth rate (CAGR) of approximately 7.5% through 2030. This growth is primarily fueled by a shift in consumer behavior, as more individuals prioritize reducing their environmental impact through their purchasing decisions. Younger generations, in particular, are at the forefront of this trend, emphasizing sustainability and environmental preservation. Marketing strategies that emphasize the environmental benefits of eco-friendly products play a critical role in influencing purchasing decisions. Grand View Research (2023) highlights that companies focusing on sustainability and environmental messaging are better positioned to attract eco-conscious consumers. For example, campaigns highlighting the reduction of water pollution and the use of recyclable packaging resonate strongly with these demographics. Additionally, governmental policies worldwide are driving market growth by implementing stricter regulations on harmful chemicals and incentivizing the adoption of certified eco-safe products.

**Regional Insights: Thailand**

In Thailand, the sustainable laundry product market has demonstrated significant growth, particularly over the past five years. A survey by Kasikorn Research Center (2024) revealed that the market is expanding at an average annual rate of around 12%. This growth is driven by increasing consumer awareness of the benefits of eco-friendly products, both for health and the environment. Thai consumers are increasingly demanding laundry products made from natural and safe ingredients, which now account for approximately 35% of the total market. This preference aligns with global trends emphasizing health, safety, and environmental sustainability. Additionally, Thai companies are transitioning towards more environmentally friendly production processes, further driving the growth of the sustainable laundry product market. For instance, many domestic brands are investing in innovations such as biodegradable packaging and plant-based detergents to meet consumer demands and align with global environmental standards.

**Key Drivers of Market Growth**

Several factors contribute to the growth of the eco-friendly laundry product market 1

1. Consumer Awareness: Growing knowledge about the environmental and health impacts of conventional products has led to a shift in consumer preferences.
2. Marketing Strategies: Brands emphasizing environmental preservation and sustainability have a competitive advantage in attracting eco-conscious consumers.
3. Government Regulations: Policies promoting eco-safe products and limiting the use of harmful chemicals are accelerating market expansion globally.
4. Generational Trends: Younger generations, particularly Millennials and Gen Z, are driving demand for sustainable products due to their heightened environmental awareness.

5. Innovation: Advancements in product formulations and packaging, such as biodegradable and reusable materials, are making eco-friendly options more accessible and appealing.

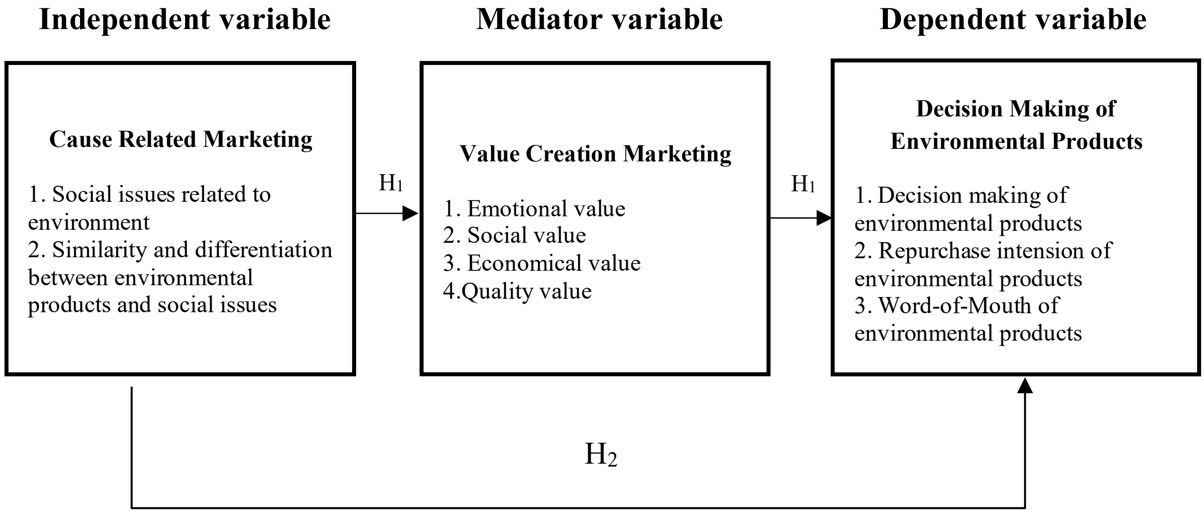



**Figure 1:** Conceptual Framework

## Research Methodology

This research, titled "Analysis of Cause-Related Marketing Factors, Marketing Value Creation, and Consumer Purchase Decisions for Laundry Products in Thailand," employs a quantitative research approach. Data will be collected using a survey method. The details are as follows:

The research population consists of consumers with experience in purchasing laundry products in the lower northeastern region of Thailand, specifically in the provinces of Nakhon Ratchasima, Buriram, Surin, Si Sa Ket, and Ubon Ratchathani. This focus is due to the researcher's previous work on environmentally-friendly products in Ubon Ratchathani and the interest in understanding consumer behavior in the lower northeastern region. The total population for this study is 8,993,580 people (Department of Provincial Administration, Ministry of Interior, 2024)

### Sample

The sample group for this study consists of consumers with experience in purchasing laundry products. This includes higher education institutions, shopping centers, and provincial government centers in the five target provinces. These locations were chosen because they represent areas with target groups who can provide valuable data for the research and are knowledgeable about environmentally-friendly products.

The sample size was determined using Structural Equation Modeling (SEM) techniques, with the criterion for sample size being 20 times the number of variables used for sample determination in the AMOS program (Diamantopoulos & Siguaw, 2000). Given that this study involves 9 variables, the required sample size is 20 * 9 = 180 samples. However, to enhance the effectiveness of the research, data was collected from 400 samples. A simple random sampling method was used to select participants who have experience purchasing laundry products. Data collection for the research was conducted from January to June 2024.

**Research Instrument**

The research instrument used in this study is a questionnaire developed by the researcher based on theoretical frameworks derived from literature reviews and related studies. The questionnaire is divided into three sections as follows:

1. Section 1: General Information of the Respondent This section includes demographic details such as gender, age, highest level of education, monthly personal income, occupation, experience with laundry products, and environmentally-friendly products that consumers decide to purchase.
2. Section 2: Information on Cause-Related Marketing and Environmental Products. This section covers social issues related to the environment and the alignment between environmental products and social issues. The questions in this section are designed using a Likert Rating Scale (Wanishbanchao, 2018)
3. Section 3: Information on Value Creation in Marketing. This section assesses emotional value, social value, price value, and quality value. The questions are also formatted using a 5-point Likert Scale (Wanishbanchao, 2018)
4. Section 4: Information on Purchase Decisions for Environmental ProductsThis section focuses on the intention to purchase, repurchase intention, and word-of-mouth recommendations for environmental products. The questions are structured with a 5-point Likert Scale (Wanishbanchao, 2018)

The interpretation of responses follows the criteria set by the researcher, based on the average importance level as outlined

**Test Reliability**

The reliability of the questionnaire was tested by presenting the revised version to the primary advisor for further review. The questionnaire was then piloted with 30 consumers who had no experience with purchasing environmental products. The reliability analysis was conducted using SPSS PC Windows Version 21.0, employing the Alpha Coefficient formula.

The results of the reliability analysis for the sections measuring cause-related marketing and value creation in marketing showed Alpha Coefficients ranging from 0.918 to 0.952. Overall, the entire questionnaire achieved a reliability coefficient of 0.969, which exceeds the acceptable threshold of 0.70 (Cronbach, 2003). Thus, the questionnaire is deemed suitable for use in collecting actual data.

**Verification of the research instrument quality**

To assess the content validity of the research instrument, the questionnaire was reviewed by experts to determine whether each question aligned with the behavioral objectives. The Index of Item-Objective Congruence (IOC) was calculated, with values ranging from 0.67 to 1.00. All questions met the acceptance criterion of 0.50 or higher, indicating that they are suitable for data collection (Wanishbanchao, 2018)

**Data collection**

Data collection took place from January to June 2024, spanning a total of 6 months. The methods used were: Data Collection via Google Forms: A total of 300 samples were collected through an online questionnaire distributed via Google Forms. This method facilitated broader reach and easier, more convenient access to the target sample group. On-Site Data Collection: Assistance was sought for collecting 100 samples by explaining the details of the questionnaire in person across the 5 provinces. In total, 400 samples were gathered using these methods.

**Data analysis**

Data analysis was performed using SPSS version 23.0 and AMOS version 18.0 as follows:

**Descriptive analysis**

To analyze the general data on the model of cause-related marketing, market value creation, and purchasing decisions for laundry products, descriptive statistics were used, including frequency distribution, percentages, mean, standard deviation, skewness, and kurtosis.

**Structural Equation Modeling (SEM)**

To examine the relationships between cause-related marketing factors, market value creation, and purchasing decisions for laundry products, SEM was employed. This approach was used to test the research model and hypotheses, analyzing causal relationships based on the conceptual framework and theories applied. The SEM analysis aimed to assess whether the obtained data align with the theoretical relationships (Virutchai, 2000). Statistical measures for evaluating model fit were used to refine the model further.

## Research Finding

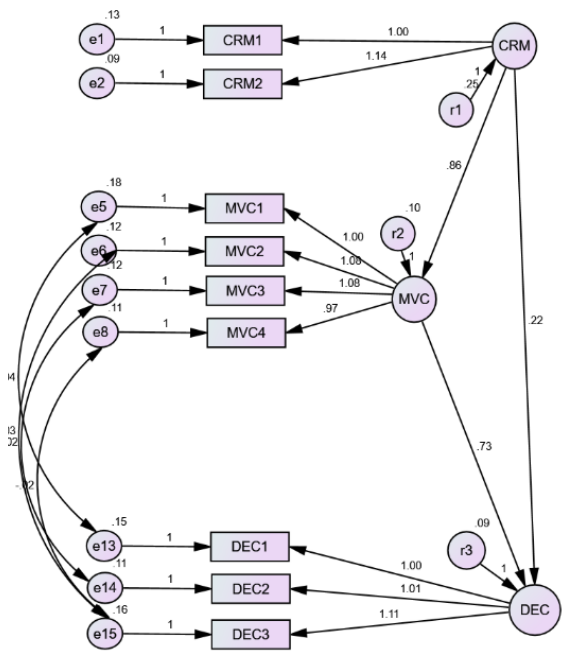
**Results of the Consumer Demographic Factors in Purchasing Decisions for Laundry Products**

This study surveyed a total of 400 participants. The majority of respondents were female, accounting for 71.5% (285 individuals). Most participants were between the ages of 18 and 38, comprising 61.50% (246 individuals). A significant portion of the respondents had attained a bachelor's degree, representing 68.75% (275 individuals). In terms of monthly income, the majority reported earning 10,000 THB or less, making up 58.00% (232 individuals). The largest occupational group was students, who constituted 60.75% (243 individuals). Additionally, the majority of participants had 1 to 3 years of experience using eco-friendly products, which accounted for 61.5% (245 individuals). Results of the Analysis of Opinions on Cause-Related Marketing, MarkTo enhance the contribution of this study, it is recommended that future analysis includes a more detailed examination of the predictive power of demographic factors and incorporates comparative references to domestic and international studies for theoretical and market relevanceeting Value Creation, and Purchasing Decisions for Laundry Products

The analysis revealed that overall opinions on the importance of cause-related marketing were rated as high (Mean = 4.20).The most important factor was social issues(Mean = 4.23) followed by the similarities and differences between eco-friendly products and social issues (Mean = 4.18) Regarding marketing value creation, the overall opinion was also rated as high (Mean = 4.23) The most emphasized factor was price value (Mean = 4.32) followed by social value (Mean = 4.25) and quality value (Mean = 4.18) For purchasing decisions on laundry products, the overall opinion was rated as high (Mean = 4.24) highest emphasis was placed on purchasing decisions influenced by word-of-mouth (Mean = 4.32) followed by purchase intention (Mean = 4.26) and repurchase decisions (Mean = 4.15)

**Results of the Analysis of the Cause-Related Marketing Model Affecting Marketing Value Creation and Purchasing Decisions for Laundry Products**

The findings indicate that the P-value was 0.137. Upon reviewing the specified index criteria for structural equation modeling, which require a value of 0.90 or higher, all indices met the criteria: CFI = 0.994, NFI = 0.978, GFI = 0.970, and AGFI = 0.933. Additionally, for indices with a threshold of less than 0.05, the RMR = 0.009 and RMSEA = 0.044 also met the criteria. Therefore, it can be concluded that the model of cause-related marketing, marketing value creation, and purchasing decisions for laundry products is consistent, as illustrated in Figure 2.




$\chi^2/df$ = 1.347, df = 20, P = 0.137, GFI = 0.970, RMR = 0.009, RMSEA = 0.044, CFI = 0.921, AGFI = 0.933 *P<0.05

**Figure 2:** Analytic result of cause related marketing, value creation, and decision making of Laundry Product according to conceptual framework.

**Table 1:** Evaluating the Data -Model Fit

| Evaluating the Data -Model Fit | Sign | Criteria Reference | Result | Interpretation |
|---|---|---|---|---|
| $\chi^2/df$ | $\chi^2/df$ | <3.00 | 1.347 | Pass |
| P-Vales | P-Vales | >0.05 | 0.137 | Pass |
| Comparative Fit Index | CFI | >0.90 | 0.921 | Pass |
| Goodness of Fit Inde | GFI | >0.90 | 0.970 | Pass |
| Root Mean Square Error of Approx | RMSEA | <0.05 | 0.044 | Pass |
| Root Mean Square Residual | RMR | <0.05 | 0.009 | Pass |

Figures1 and Table 1 The examination of the structural equation model's fit indices before and after model adjustment reveals that the statistics after model adjustment, as computed by the AMOS software, indicate a statistically insignificant difference from zero. The chi-square value is1.347 with degrees of freedom (df) of 20 and a p-value of 0.137, suggesting a good fit. Additionally, the goodness-of-fit index (GFI) is 0.970, the adjusted goodness-of-fit index (AGFI) is 0.933, the root mean square error of approximation (RMSEA) is 0.044., and root mean square residual is 0.009.

**Table 2**: The Direct Influence, the Indirect Influence, and the Total of the Influence

| **Antecedents** | **Consequences** | | |
|---|---|---|---|
| | **CRM** | **MVC** | **DEC** |
| **Market Value Creation (MVC)** | 0.864* | - | - |
| **DE** | - | - | - |
| **IE** | - | - | - |
| **TE** | 0.864* | - | - |
| **R2** | **0.666** | | |
| **Decision Making (DEC)** | 0.222 | 0.728* | |
| **DE** | 0.629* | - | - |
| **IE** | 0.850* | 0.728* | - |
| **TE** | - | - | - |
| **R2** | **0.728** | | |

**Note:** DE is Direct Effect, IE is Indirect Effect, TE is Total effect
** is statistically significant level at 0.05

**From Table 2: Analysis of the Causal Influence within the Structural Equation Model of Cause-Related Marketing, Marketing Value Creation, and Purchasing Decisions for Laundry Products**

The analysis reveals that cause-related marketing significantly impacts the marketing value creation for laundry products. Furthermore, marketing value creation influences the purchasing decisions for laundry products. Additionally, cause-related marketing has an indirect effect through purchasing decisions.

Based on the preliminary data analysis, the structural equation model (SEM) can be written as follows:

1. Marketing Value Creation = 0.864 (Cause-Related Marketing); R2=0.666

2. Purchasing Decisions for Laundry Products = 0.850 (Cause-Related Marketing) + 0.728 (Marketing Value Creation); R2=0.728

This study has established hypotheses to explore the causal relationships between cause-related marketing, marketing value creation, and purchasing decisions for laundry products. The findings are presented in Table 3.

**Table 3:** Summary of Hypothesis Testing Results in the Study

| Research Hypotheses | Effect | Accept/Reject |
|---|---|---|
| Hypothesis 1: Cause-related marketing has a significant impact on marketing value creation for laundry products. | 0.864* | Accepted |
| Hypothesis 2: Cause-related marketing has a significant impact on purchasing decisions for laundry products. | 0.222 | Rejected |
| Hypothesis 3: Marketing value creation has a significant impact on purchasing decisions for laundry products. | 0.728* | Accepted |

*Significant at $p < 0.05$

Based on Table 3, the hypothesis testing results indicate that cause-related marketing is positively correlated with marketing value creation, and marketing value creation is positively correlated with purchasing decisions for laundry products at a statistically significant level of 0.05 ($P < 0.05$). Both relationships show a positive correlation. However, the relationship between cause-related marketing and purchasing decisions for laundry products was not statistically significant at the 0.05 level ($P < 0.05$) and thus was rejected.

## Discussion/Conclusion

The results from the first research objective revealed that the majority of respondents were female, with 285 participants, accounting for 71.50%. Most respondents were between the ages of 18 and 38, with 246 participants, accounting for 61.50%. The majority had a bachelor's degree, with 275 participants, accounting for 68.75%. Most respondents had a personal monthly income of 10,000 baht or less, with 232 participants, accounting for 58.00%. The majority were students, with 243 participants, accounting for 60.75%. Additionally, most respondents had 1 to 3 years of experience using environmentally friendly products, with 245 participants, accounting for 61.50%. These findings align with prior research by Khan, Singh, &Rao (2024), which identified young, educated female consumers as the most receptive demographic group toward sustainable and eco-friendly products in emerging markets. Smith & Brown (2023) noted that the student population tends to exhibit higher levels of environmental awareness and social responsibility, particularly in urbanized or academic settings.

However, the current study lacks a deeper behavioral analysis to interpret how and why these demographic groups engage with eco-friendly laundry products. For example, it does not examine whether income level moderates purchasing behavior, or how education influences attitudes toward cause-related marketing campaigns. Moreover, the findings are not contextualized within a theoretical framework such as the Theory of Planned Behavior (Ajzen, 1991), which could offer insights into how attitudes, subjective norms, and perceived behavioral control shape purchase intentions among different demographic groups.

From a policy perspective, the dominance of low-income, student consumers suggests that affordability and value-for-money messaging are critical in influencing purchasing behavior. Brands targeting this segment may benefit from integrating social issue awareness and pricing strategies to build engagement.

To strengthen future research, it is recommended that demographic variables be analyzed using inferential statistics such as regression or moderation analysis, and interpreted in conjunction with relevant theories to provide clearer guidance for both academic and practical applications.

The findings from the second research objective, which analyzed the levels of opinion on cause-related marketing, value creation in marketing, and the decision to purchase environmentally friendly products, align with several recent studies from 2023. These studies underscore the significance of various marketing factors in influencing consumer behavior toward sustainable and eco-friendly products.

Recent research by Martinez & Gomez (2023) highlights the importance of social issues in cause-related marketing. Consumers are increasingly motivated to support brands that align with environmental and social causes, as these efforts are seen as contributing to broader societal goals. This supports the notion that cause-related marketing, particularly in areas related to environmental conservation and social responsibility, plays a crucial role in shaping consumer attitudes and behaviors.

Furthermore, Wang, Zhang & Li (2023) found that value creation in marketing, particularly related to pricing and perceived benefits, significantly influences green purchasing decisions. Their study suggests that consumers are willing to pay a premium for products that are perceived to contribute positively to the environment, which aligns with your findings regarding the importance of social value and environmental consciousness in influencing purchase decisions for laundry products.

Additionally, research by Johnson & Lee (2023) on word-of-mouth marketing highlights that consumer recommendations play a pivotal role in promoting environmentally friendly products. When consumers perceive a product as both socially and environmentally beneficial, they are more likely to recommend it to others, further enhancing the impact of cause-related marketing strategies. These findings are also consistent with prior research by Terblanche, which indicated that positive consumer attitudes toward cause-related marketing lead to increased purchasing intentions, as consumers view these purchases as a form of social responsibility. However, contrasting research, such as that by Andini, Smith, & Lee, (2022) demonstrates that in certain markets, like cosmetics, product attributes may outweigh cause-related marketing efforts in influencing purchasing decisions.

The collective insights from these studies reinforce the idea that cause-related marketing, when properly executed and aligned with consumer values, can significantly impact purchasing behavior, particularly in the context of environmentally friendly products.

The findings from research objective 3 can be supported by recent studies focusing on the relationship between cause-related marketing (CRM), value creation, and consumer purchasing behavior.

According to Pandey, Bajpai & Tiwari (2023), CRM campaigns, especially in the context of socially responsible initiatives, significantly influence customer purchase intentions. They emphasize that aligning the cause with the brand's values and effectively communicating this alignment enhances consumer trust and loyalty, which subsequently impacts purchasing decisions. This aligns with your findings on the indirect effect of CRM on purchasing decisions.

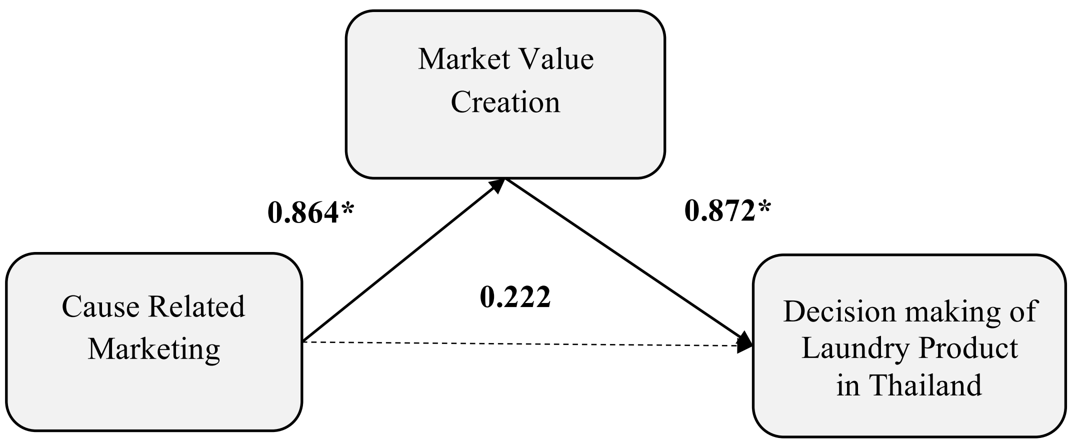
Patel, Thomas & Bhatt (2022) explored how the framing of donation messages in CRM campaigns can influence participation intentions, particularly when combined with eco-friendly or utilitarian products. They found that properly framed messages lead to higher engagement, which supports the idea that CRM campaigns, when well-executed, can indirectly affect purchasing behavior by creating positive brand associations.

Both studies reinforce the notion that CRM can create value and influence consumer behavior, though its direct impact on purchasing decisions might not always be statistically significant, depending on other influencing factors such as brand-cause fit and communication strategies.

**Conclusion**

The research reveals that consumers place significant importance on cause-related marketing that addresses social and environmental issues. This reflects a growing awareness and consciousness regarding social and environmental responsibility in contemporary times. This shift may be attributed to the fact that modern consumers perceive supporting products that contribute to solving social or environmental problems as a form of active participation in global problem-solving, rather than merely making a purchase. Marketing value creation linked to pricing also plays a crucial role. Consumers continue to consider the value for money spent, making it essential for products to offer appropriate pricing relative to their quality and value. Additionally, word-of-mouth remains a key factor in disseminating information about products, especially for environmentally friendly products. User experiences often significantly influence others' purchasing decisions.

Furthermore, cause-related marketing has an indirect effect on marketing value creation, which clearly leads to purchasing decisions. This indicates that consumers do not only consider product attributes but also evaluate the overall brand image and its support for social or environmental causes. Brands that effectively align themselves with social good or environmental conservation enhance their image and credibility, which positively impacts sales and business growth.




**Note:** ——► **means relation with statistical significance**
-------► **means relation without statistical significance**

$x^2$/df = 1.764, df = 23, P = 0.026, GFI = 0.997, AGFI = 0.974, NFI = 0.982, IFI = 0.993, CFI = 0.993, RMR = 0.009, RMSEA = 0.045 *P<0.05

**Figure 3**: Model of cause related marketing, value creation, and decision making of environmental Laundry Product in Thailand from empirical data.

## Suggestion

1. Increase Sample Diversity: Future research should expand the sample scope to include a more diverse population, such as different professions, income levels, or age groups. This will provide insights that reflect a broader range of consumer behaviors and perspectives, enhancing the applicability of the research findings.

2. Examine Additional Factors Influencing Purchasing Decisions: It is advisable to study other factors that might influence the decision to purchase environmentally friendly products, such as the role of digital technology, social media marketing, or online shopping behavior. This will offer a deeper understanding of consumer behavior in the digital age.

3. Employ Mixed Methods Research: Future studies should use a mixed-methods approach that combines quantitative and qualitative research to obtain more comprehensive and detailed data. Qualitative research methods, such as in-depth interviews or focus groups, can provide a better understanding of consumers' opinions and motivations.

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# The Impact of Customer Relationship Management (CRM) on Customer Loyalty: A Study Case of the W Automobile Sales Company

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## Abstract

This study investigated the impact of Customer Relationship Management (CRM) on Customer Loyalty at W Automobile Sales Company, a Toyota 4S dealership in Beihai, Guangxi, China. The research aimed to analyze how specific CRM dimensions influence customer loyalty, addressing a critical need for data-driven strategies in the automotive sector. The research employed a quantitative approach, utilizing a questionnaire survey to collect data from a random sample of 450 customers, with the analysis based on 380 responses from current customers, determined using a Sample Size Calculator with a 5% margin of error and a 95% confidence level. The study focused on five key CRM dimensions: Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience. Prior to data collection, a pre-test was administered to evaluate the suitability of the questionnaire, and its validity and reliability were established using Cronbach's alpha coefficient, with an overall alpha of 0.942. The analytical techniques utilized included descriptive analysis, Cronbach's alpha coefficient, Pearson correlation analysis, and multiple linear regression.

The results of the correlation analysis revealed statistically significant positive relationships between all five CRM dimensions and customer loyalty. This finding aligns with previous research emphasizing the multifaceted nature of CRM and its impact on customer loyalty. The regression analysis conducted in this study identified Customer Experience ($\beta = 0.211, p = 0.000$) as the strongest predictor of customer loyalty, followed by Communication ($\beta = 0.178, p = 0.000$), Customer Service ($\beta = 0.163, p = 0.001$), Personalization ($\beta = 0.142, p = 0.002$), and Technology Adoption ($\beta = 0.132, p = 0.007$). The overall model explained 40.3% of the variance in customer loyalty ($R^2 = 0.403, F = 59.901, p = 0.000$), indicating a significant predictive power. The study also revealed significant differences in customer experience and technology adoption across different age and income groups. Younger customers (18-25 years old) reported lower levels of customer experience, suggesting a need for tailored strategies to engage this demographic. Overall, this study contributes to the growing body of literature on CRM and customer loyalty, particularly within the automobile industry. The findings underscore the importance of a holistic approach to CRM, encompassing personalization, customer service, communication, technology adoption, and customer experience. These insights provide actionable recommendations for W Automobile Sales Company to enhance customer loyalty and achieve sustainable competitive advantage. In conclusion, the findings confirm that Customer Relationship Management (CRM) significantly impacts Customer Loyalty by fostering stronger customer relationships and driving repeat business.

**Keywords:** Customer Relationship Management, Customer Loyalty, Customer Service, Customer Experience, Automotive Industry

## Introduction

The automobile sales industry experienced continuous transformation and development due to technological advancements and intensified market competition. The marketing focus of businesses gradually shifted from a product-centric approach to customer-centric strategies. Customer relationship management (CRM) gained widespread recognition among companies, with maintaining positive customer relationships and maximizing customer lifetime value becoming key aspects of CRM implementation. Managing customer loyalty served not only as a vital means of retaining existing customers but also as an effective method of maximizing customer value across industries. With the rise of the internet, new sales models and service experiences emerged, propelling the automobile sales industry toward a more digital and personalized direction. Enhancing customer loyalty became a key driver for improving corporate competitiveness. Reinforcing the importance of loyalty, the traditional Pareto principle suggested that 80% of a company's profits originated from 20% of its core, loyal customers. Research conducted by W. Earl Sasser Jr. and Frederick F. Reichheld demonstrated that a mere 5% increase in customer loyalty could lead to a 25-85% increase in a company's profitability. From a business standpoint, achieving a level of operational excellence and market competitiveness hinged on cultivating a substantial base of loyal customers. In today's highly competitive business environment, customer loyalty emerged as a critical factor influencing organizational success. CRM became a crucial tool for businesses to enhance customer loyalty and maintain a competitive advantage. Customer satisfaction was generally recognized as a significant determinant of repeat sales, positive word-of-mouth marketing, and, ultimately, customer loyalty. Satisfied customers tended to return and make additional purchases, and they were also more likely to share their positive experiences with others (Fornell, 1992). CRM theory also emphasized customer lifecycle management, advocating for tailored management strategies corresponding to distinct customer lifecycle stages. During the acquisition phase, businesses focused on attracting customers through effective marketing techniques. In the maintenance phase, the emphasis shifted to enhancing customer experience and satisfaction. Finally, in the value-added stage, businesses could augment customer lifetime value through strategies such as cross-selling and upselling (Kotler & Keller, 2016). For instance, after a customer purchased a vehicle from W Automotive Sales Company, the company could cultivate a sense of belonging and loyalty through regular follow-up communications and after-sales service. Furthermore, CRM theory highlighted the importance of technology in managing customer relationships. With advancements in information technology, businesses could utilize CRM systems to collect and analyze customer data for precise marketing and service delivery. For example, CRM software solutions like Salesforce facilitated the integration of customer information, optimized customer communication, and improved service efficiency. If W Automotive Sales Company implemented such management tools, it could effectively elevate the quality of customer interactions, consequently strengthening customer loyalty.

Despite the extensive literature on CRM and customer loyalty, there remains a notable research gap concerning the specific application and impact of various CRM dimensions on customer loyalty within the unique context of the automobile sales industry in China, particularly for dealerships like W Automobile Sales Company. While general CRM principles are well-established, empirical studies that provide granular insights into how personalization, customer service, communication, technology adoption, and customer experience collectively and individually contribute to customer loyalty in this specific market are limited. This study aims to bridge this gap by offering a comprehensive quantitative analysis to inform targeted CRM strategies and enhance customer retention in a highly competitive automotive landscape.

Therefore, this study aims to analyze the key factors of CRM at W Automobile Sales Company, examine the impact of its CRM capabilities on customer loyalty, and propose effective strategies to enhance customer loyalty through improved CRM practices.

## Research Objectives

The specific objectives guiding this study are as follows:

1. To investigate the relationship between specific Customer Relationship Management (CRM) dimensions (Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience) and customer loyalty at W Automobile Sales Company.

2. To analyze the impact of each identified CRM dimension on customer loyalty at W Automobile Sales Company.

## Literature Review

### Customer Relationship Management (CRM)

Customer Relationship Management (CRM) has evolved significantly in recent years, driven by technological advancements and changing customer expectations. Contemporary CRM systems extend beyond basic customer data management, encompassing sophisticated analytics, artificial intelligence (AI), and automation capabilities to personalize customer experiences and build long-term relationships (Wirtz et al., 2021). Research highlighted the increasing importance of data privacy and ethical considerations within CRM practices, emphasizing the need for transparent data collection and usage policies (Davenport et al., 2020). Furthermore, the integration of CRM with other business systems, such as marketing automation platforms and e-commerce platforms, became crucial for creating a seamless and omnichannel customer journey (Kumar & Reinartz, 2020). Studies explored the impact of AI-powered CRM tools on customer service, noting their ability to provide personalized recommendations, automate responses to common queries, and predict customer needs (Huang & Rust, 2018). The focus of CRM shifted towards proactive customer engagement, with businesses leveraging data insights to anticipate customer needs and offer personalized solutions before problems arise (Brodie et al., 2021). Moreover, the rise of social media and digital channels prompted organizations to incorporate social CRM strategies, monitoring social media conversations, and engaging with customers on their preferred platforms (Tuten & Solomon, 2018). The effectiveness of CRM implementations became increasingly tied to organizational culture, with successful companies fostering a customer-centric mindset across all departments (Payne & Frow, 2017). Overall, CRM in the 2020s and beyond emphasized data-driven decision-making, personalized customer experiences, ethical data handling, and seamless integration across channels to cultivate enduring and profitable customer relationships.

### Customer Relationship Management (CRM) in the Automobile Industry

The automobile industry has witnessed a paradigm shift in its approach to customer engagement, with Customer Relationship Management (CRM) emerging as a critical tool for fostering customer loyalty and driving sales. CRM in this sector transcends traditional transactional interactions, evolving into a comprehensive strategy that encompasses personalized communication, targeted marketing, and proactive customer service (Krishnan et al., 2019). Automobile dealerships and manufacturers utilize CRM systems to amass a wealth of customer data, including purchase history, service records, preferences, and demographics. This data serves as the bedrock for tailoring marketing campaigns, anticipating customer needs, and delivering customized solutions (Jayachandran et al., 2005). For instance, CRM enables dealerships to send personalized service reminders, offer targeted promotions based on past purchases, and even anticipate potential vehicle upgrades based on customer profiles (Buttle, 2009). Moreover, CRM facilitates seamless communication across various touchpoints, such as email, phone calls, and social media, ensuring a consistent and personalized customer experience. The system enables service advisors to access a customer's complete interaction history prior to any contact, allowing them to provide informed and efficient support. Furthermore, manufacturers leverage CRM to manage leads, track customer inquiries, and analyze market trends, enabling them to make data-driven decisions about product development and marketing strategies (Hansotia, 2002). By harnessing the power of CRM, automobile companies strive to build enduring customer relationships, enhance customer satisfaction, and ultimately drive profitability in an increasingly competitive market. In recent years, the integration of AI and machine learning into CRM systems has further revolutionized the industry. These advanced technologies allow for more sophisticated customer segmentation, predictive analytics, and automated customer interactions, leading to even more personalized and effective CRM strategies.

**Customer Loyalty and their Application to CRM**

Customer loyalty, a cornerstone of sustainable business success, represents the consistent and positive attitude of customers towards a particular brand, product, or service, leading to repeat purchases and positive word-of-mouth referrals (Oliver, 1999). It encompasses both attitudinal loyalty, reflecting a positive emotional connection, and behavioral loyalty, demonstrated through repeated purchasing behavior (Dick & Basu, 1994). In the context of Customer Relationship Management (CRM), fostering customer loyalty became a central objective, with businesses implementing various strategies to cultivate and maintain strong customer relationships. CRM systems enabled businesses to collect and analyze customer data, providing insights into customer preferences, purchasing patterns, and service needs (Kottler & Keller, 2016). This information was then utilized to personalize interactions, tailor marketing campaigns, and provide customized customer service experiences, all aimed at enhancing customer satisfaction and building loyalty. CRM initiatives often included loyalty programs, offering rewards and exclusive benefits to repeat customers, thereby incentivizing continued patronage (Yi & Jeon, 2003). Furthermore, CRM facilitated proactive customer communication, allowing businesses to anticipate customer needs and address potential issues before they escalated, further strengthening customer trust and loyalty. By effectively leveraging CRM tools and strategies, businesses aimed to move customers along the loyalty ladder, from initial awareness to advocacy, ultimately creating a base of loyal customers who not only contribute to revenue but also act as brand ambassadors, influencing other potential customers. However, researchers also cautioned that customer loyalty was not solely dependent on CRM initiatives, but also influenced by factors such as product quality, brand reputation, and overall customer experience (Reichheld & Sasser, 1990).

### The Impact of CRM Components on Customer Loyalty

The impact of Customer Relationship Management (CRM) components on customer loyalty has been a subject of extensive research in recent years, with studies highlighting the multifaceted nature of this relationship. Effective CRM implementation, encompassing various interconnected components, significantly influenced customer loyalty by shaping customer perceptions, experiences, and behaviors (Morgan & Hunt, 1994). A primary component of CRM, data management, which included the collection, storage, and analysis of customer information, played a crucial role in personalizing customer interactions and tailoring services to individual needs (Kottler & Keller, 2021). Research indicated that personalized communication, enabled by robust data management, positively impacted customer satisfaction and trust, which are key drivers of loyalty (Brodie et al., 2011). Furthermore, service quality, enhanced through CRM-driven insights into customer preferences and needs, emerged as a critical factor influencing customer loyalty (Zeithaml et al., 2017). CRM systems facilitated efficient service delivery, prompt issue resolution, and proactive customer support, all of which contributed to positive customer experiences and increased loyalty. Another key component, relationship building, focused on fostering strong customer connections through personalized communication, loyalty programs, and community-building initiatives (Kumar & Reinartz, 2020). Studies demonstrated that customers who felt valued and connected to a brand were more likely to exhibit loyalty and advocacy behaviors. Moreover, technology, a fundamental enabler of modern CRM, played a crucial role in integrating various CRM components and facilitating seamless customer interactions across multiple channels (Turban et al., 2018). Cloud-based CRM solutions, mobile CRM applications, and social CRM platforms enabled businesses to engage with customers in real-time, provide consistent service experiences, and build stronger relationships. However, researchers emphasized that the impact of CRM components on customer loyalty was not uniform across all industries and customer segments, with contextual factors such as industry characteristics, customer demographics, and cultural nuances playing a moderating role (Singh & Khan, 2012). Despite these variations, the effective integration and utilization of CRM components consistently emerged as a significant driver of customer loyalty in the contemporary business landscape.

## Research Methodology

### Research Design

This study employed quantitative research methods, gathering data from both primary and secondary sources. Primary data were collected through a questionnaire survey, while secondary data were derived from existing reports, studies, and literature pertaining to customer relationship management and customer loyalty. The research specifically investigated the impact of customer relationship management on customer loyalty at W Automotive Sales Company. Customer Relationship Management at W Automotive Sales Company was designated as the independent variable, and Customer Loyalty at W Automotive Sales Company served as the dependent variable. Hypothesis testing was conducted to ascertain the relationship between these variables. A random sampling method was utilized for participant selection. Prior to data collection, a pre-test was administered to evaluate the suitability of the questionnaire. This study specifically adopted a quantitative, cross-sectional survey research design. This approach was chosen to systematically collect numerical data from a large sample, allowing for statistical analysis to identify relationships and impacts between CRM dimensions and customer loyalty. The cross-sectional nature facilitated data collection at a single point in time, providing a snapshot of customer perceptions and loyalty. This design is appropriate for testing hypotheses and generalizing findings to the broader population of W Automobile Sales Company customers.

**Population and Sample Size**

W Automobile Sales Company, the sole authorized Toyota 4S dealership in Beihai, Guangxi, China, primarily serves the Beihai market and its customer base is located within the same region. The population for this study comprised all customers who had interacted with W Automobile Sales Company, specifically those whose experiences encompassed the company's services and customer relationship management processes. To ensure data fairness and accuracy, the sample size was determined using a Sample Size Calculator, employing a 5% allowable margin of error and a 95% confidence level. This calculation indicated a requirement of 384 or more completed surveys to achieve a 95% confidence level, signifying that the true value resided within ±5% of the measured/surveyed value. Anticipating potential questionnaire return rates, a total of 450 questionnaires were distributed. The study utilized a random sampling method, wherein customers were randomly selected from the entire population. This approach was chosen to mitigate bias and ensure sample representativeness. To further enhance the study's validity and reliability, the questionnaires were designed to be comprehensive, covering various facets of customers' experiences with W Automobile Sales Company. These aspects included interactions with the company's services, customer relationship management processes, and overall satisfaction. Prior to broader distribution, the questionnaires underwent pre-testing with a small group of customers to ascertain clarity and comprehension. The random sampling method was specifically chosen to ensure that every customer in the population had an equal chance of being selected, thereby maximizing the representativeness of the sample and enhancing the generalizability of the findings to the entire customer base of W Automobile Sales Company. This method helps minimize sampling bias and strengthens the external validity of the study.

**Research Instruments**

The primary data collection tool was a structured questionnaire designed to evaluate the effectiveness and usability of various technologies across recruitment stages. A Likert scale was used to assess respondents' perceptions of technology features, such as the effectiveness of AI screening and the usability of data analytics tools. As can be seen from the table above: the KMO value is 0.920, and the KMO value is greater than 0.8, the research data is very suitable for extracting information. The research instrument was a structured questionnaire divided into two main parts. The development of the questionnaire items was based on a comprehensive review of existing literature and adapted to the specific context of the W Automobile Sales Company. A pre-test was conducted with a small group of customers (n=30) to assess clarity, comprehension, and face validity before the main data collection. To ensure the validity and reliability of the questionnaire, rigorous testing procedures were applied. Content validity was established through expert review by academic advisors and industry professionals to ensure that the questionnaire items adequately covered the intended constructs. Reliability was determined using Cronbach's Alpha coefficient for internal consistency. An overall Cronbach's Alpha coefficient of 0.942 was obtained, with individual dimension alphas ranging from 0.869 to 0.913, all exceeding the acceptable threshold of 0.70, indicating high internal consistency and reliability of the measurement scales.

### Data collection

The purpose of this survey is to study the impact of customer relationship management on customer loyalty at W Automobile Sales Company. The independent variable is "Customer Relationship Management of W Automobile Sales Company," and the dependent variable is "Customer Loyalty of W Automobile Sales Company." The survey questionnaire was structured in two parts. Part 1 collected sample information, including demographic details such as gender, age, and education level. Part 2 comprised a customer loyalty measurement scale specifically designed for W Automobile Sales Company. Based on a comprehensive review of relevant theories and literature, and considering the specific context of W Automobile Sales Company, this research further categorized "Customer Relationship Management of W Automobile Sales Company" into three key dimensions - Customer, Relationship, and Management - to inform questionnaire development. The questionnaire was meticulously created using the Chinese software platform Wenjuanxing and disseminated primarily through online social media platforms and email. The survey was conducted anonymously to ensure participant confidentiality and privacy. A total of 450 questionnaires were distributed, and all 450 were collected, resulting in a 100% response rate. This high response rate was attributed to the convenience of online distribution and the clear communication of the study's purpose and confidentiality measures. However, for the purpose of analyzing the impact of CRM on customer loyalty, only data from current customers (380 responses) were selected for further statistical analysis, as their experiences directly reflect the company's CRM practices. Data collection was conducted over a period of three months, from September 2024 to November 2024.

### Data Analysis

Data analysis was performed using SPSS, incorporating descriptive statistics, confirmatory factor analysis, exploratory factor analysis, Cronbach's α coefficient, Pearson correlation analysis, and multiple linear regression. The Statistical Package for the Social Sciences (SPSS) software was utilized for all statistical analyses. The choice of analytical techniques was driven by the study's quantitative nature and its objectives to identify relationships and analyze impacts. Descriptive statistics (frequencies, percentages, means, standard deviations) were used to summarize demographic data and respondent perceptions of CRM dimensions and customer loyalty, providing a foundational understanding of the dataset. Cronbach's Alpha coefficient was used for reliability testing to confirm the internal consistency of the scales. Pearson correlation analysis was conducted to examine the strength and direction of linear relationships between the independent CRM dimensions and customer loyalty, serving as a preliminary step to confirm associations. Finally, multiple linear regression analysis was performed to test the research hypotheses, determining the predictive power of each CRM dimension on customer loyalty and identifying the most influential factors. These robust statistical methods allowed for comprehensive data interpretation and the drawing of reliable conclusions.

### Limitations

Despite its rigorous methodology, this study has certain limitations that warrant consideration for future research. Firstly, the study's geographical scope was limited to customers of a single Toyota 4S dealership in Beihai, Guangxi, China. While this provided in-depth insights into a specific context, the findings may not be fully generalizable to other automobile dealerships, brands, or regions within China or globally. Secondly, the reliance on self-reported data from customers might introduce response bias, as participants' perceptions could be influenced by social desirability or their personal experiences. Future research could incorporate objective behavioral data or triangulate data from multiple sources to mitigate this. Thirdly, the study employed a cross-sectional design, which captures data at a single point in time. This limits the ability to establish causal relationships definitively or observe the long-term evolution of customer loyalty in response to CRM initiatives. Longitudinal studies would be beneficial to track changes over time. Finally, while the study identified key CRM dimensions impacting loyalty, it did not delve deeply into the specific operational challenges or internal organizational factors that might influence the effective implementation of CRM strategies within the dealership. Future research could explore these practical aspects in more detail to provide actionable insights for management.

## Conceptual Framework

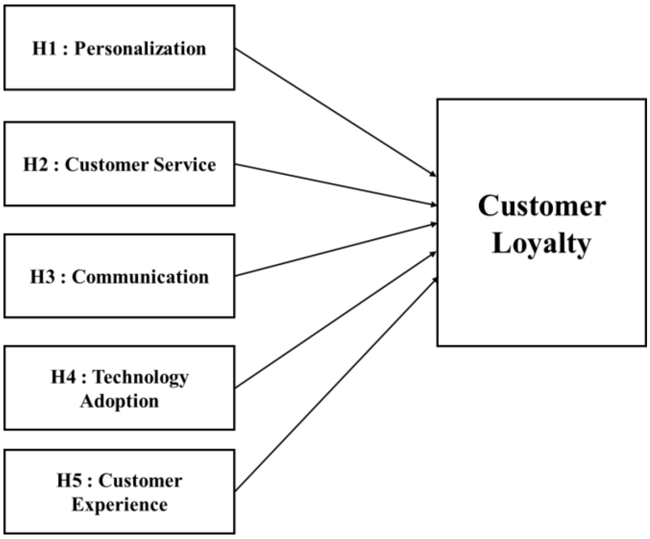


**Figure 1:** Conceptual Framework

As depicted in Figure 1, this conceptual framework is rooted in Customer Relationship Management (CRM) theory and customer loyalty theory, proposing that five key dimensions of CRM - Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience - are the primary independent variables. Each of these dimensions is hypothesized to positively influence Customer Loyalty, which serves as the dependent variable. These hypothesized causal relationships will be meticulously examined through quantitative analysis to confirm the role of each CRM dimension in driving customer loyalty within the context of W Automobile Sales Company.

**Research Hypothesis**

H1: Personalization (e.g., customized offers, product recommendations, personalized communication) positively influenced customer loyalty.

H2: Customer service quality (e.g., responsiveness, problem-solving, empathy, accessibility of support) positively influenced customer loyalty.

H3: Communication effectiveness (e.g., frequency, preferred channels, clarity, message consistency) positively influenced customer loyalty.

H4: Technology adoption (e.g., CRM software usage, website usability, mobile application features, online self-service options) positively influenced customer loyalty.

H5: Customer experience quality (e.g., ease of interaction, perceived value, brand image, emotional connection) positively influenced customer loyalty.

## Research Finding

This section presents the research findings obtained from the collected data. The primary objective of this study was to explore and analyze the Customer Relationship Management (CRM) factors influencing Customer Loyalty at W Automobile Sales Company. Additionally, the study aimed to analyze the specific impact of each CRM dimension on customer loyalty. The results will encompass descriptive statistics, reliability and validity analyses of the measurement instruments, subgroup difference analysis, correlation analysis, and regression analysis.

### Descriptive Statistics

The demographic profile of the 450 respondents reveals a strong representation of operational HR roles, with hiring specialists (45.37%) and hiring managers (40.98%) constituting the largest segments, indicating insights from those directly involved in recruitment processes. The sample predominantly comprises professionals from general undergraduate universities (51.71%), reflecting the broad representation of typical higher education institutions, complemented by insights from key universities (32.20%) and vocational colleges (16.10%). A significant proportion of the surveyed institutions (43.41%) engage in moderate-scale recruitment, hiring 11-50 new employees annually. Furthermore, the respondents collectively possess substantial experience in recruitment, with over half having 3 or more years in the field (37.07% with 3-6 years, 31.71% with over 6 years), lending credibility to their perceptions of CRM practices. Regarding technology integration, the most prevalent adoption level falls within the 41-60% range (37.56%), suggesting a moderate but not yet full embrace of digital tools in recruitment. A smaller segment (12.20%) reported minimal technology usage (0-20%), highlighting varying levels of digital maturity across institutions. As shown in Table 1.

**Table 1:** The demographic characteristics of the population and sample.

| Item | Option | Frequency | Percentage (%) |
|---|---|---|---|
| **1. Age** | 18-25 years | 38 | 8.44 |
| | 26-35 years | 142 | 31.56 |
| | 36-45 years | 122 | 27.11 |
| | 46-55 years | 97 | 21.56 |
| | 56 years and above | 51 | 11.33 |
| | **Total** | **450** | **100** |
| **2. Gender** | Male | 219 | 48.67 |
| | Female | 180 | 40 |
| | Other | 51 | 11.33 |
| | **Total** | **450** | **100** |
| **3. Annual Income Range** | Below 50,000 | 37 | 8.22 |
| | 50,000 - 100,000 | 79 | 17.56 |
| | 100,000 - 200,000 | 179 | 39.78 |
| | 200,000 - | 91 | 20.22 |

| Item | Option | Frequency | Percentage (%) |
|---|---|---|---|
| | 300,000 | | |
| | Above 300,000 | 64 | 14.22 |
| | **Total** | **450** | **100** |
| **4. Current Customer?** | Yes | 380 | 84.44 |
| | No | 70 | 15.56 |
| | **Total** | **450** | **100** |
| **5. Vehicle Ownership Duration (Current Customers Only)** | Less than 1 year | 141 | 37.11 |
| | 1-3 years | 89 | 23.42 |
| | 3-5 years | 82 | 21.58 |
| | More than 5 years | 68 | 17.9 |
| | **Total** | **450** | **100** |
| **6. Vehicle Type Purchased (Current Customers Only)** | Compact car | 194 | 51.05 |
| | Mid-size car | 108 | 28.42 |
| | SUV | 78 | 20.53 |
| | **Total** | **450** | **100** |

**Note:** The descriptive statistics and subsequent analyses in this study were conducted using data from the 380 current customers of W Automobile Sales Company, excluding the 70 respondents who were not current customers.

**Correlation analysis**

This section presents the results of Pearson correlation analysis to examine the linear relationships between the independent variables (CRM dimensions: Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience) and the dependent variable (Customer Loyalty). These findings serve to confirm preliminary associations prior to conducting multiple linear regression analysis.

**Table 2:** Correlation analysis of customer relationship management on customer loyalty

| | Personalization | Customer Service | Communication | Technology Adoption | Customer Experience | Customer Loyalty |
|---|---|---|---|---|---|---|
| **Personalization** | 1(0.000**) | | | | | |
| **Customer Service** | 0.513(0.000**) | 1(0.000**) | | | | |
| **Communication** | 0.408(0.000**) | 0.47(0.000**) | 1(0.000**) | | | |
| **Technology Adoption** | 0.501(0.000**) | 0.503(0.000**) | 0.521(0.000**) | 1(0.000**) | | |
| **Customer Experience** | 0.437(0.000**) | 0.536(0.000**) | 0.458(0.000**) | 0.503(0.000**) | 1(0.000**) | |
| **Customer Loyalty** | 0.457(0.000**) | 0.499(0.000**) | 0.478(0.000**) | 0.484(0.000**) | 0.509(0.000**) | 1(0.000**) |

**Note:** ** indicates significance at the 1% level.

Table 2 presents the correlation analysis across the different dimensions. The results revealed statistically significant positive correlations between all variables.

Personalization correlated with Customer Service at 0.513, Communication at 0.408, Technology Adoption at 0.501, Customer Experience at 0.437, and Customer Loyalty at 0.457. All p-values were less than 0.01, indicating highly significant positive correlations. This suggests that when W Automobile Sales Company provides more personalized services, such as customized offers or product recommendations, it tends to enhance customer satisfaction with service, improve communication effectiveness, increase acceptance of technology, enrich overall customer experience, and ultimately strengthen customer loyalty. This finding aligns with the general principle that tailoring services to individual needs makes customers feel valued, thereby fostering goodwill and positive perceptions across various touchpoints. The company should continue to optimize personalized services and explore more elements that meet diverse customer needs to drive positive development in other CRM dimensions.

Customer Service correlated with Communication at 0.470, Technology Adoption at 0.503, Customer Experience at 0.536, and Customer Loyalty at 0.499, with p-values also less than 0.01, demonstrating highly significant positive correlations. High-quality customer service, characterized by prompt responses and efficient problem-solving, is crucial. It not only enhances the effectiveness of communication with customers but also improves their acceptance of technological solutions, leads to a better overall customer experience, and consequently boosts customer loyalty. When customers feel well-cared for and supported, their trust and satisfaction with the company grow, influencing their perceptions across all interactions. Therefore, W Automobile Sales Company should prioritize strengthening its customer service team and continuously improving service quality to promote collaborative improvements across all CRM dimensions.

Communication correlated with Technology Adoption at 0.521, Customer Experience at 0.458, and Customer Loyalty at 0.478, all significant at the 0.01 level. Effective communication enables customers to better understand the company's personalized services and technological applications, which in turn enhances their customer service experience and ultimately improves customer loyalty. For instance, clear and timely delivery of product information and technical advantages through various communication channels can significantly increase customer recognition and appreciation for the company's services and products. W Automobile Sales Company needs to optimize its communication strategies to ensure accurate and timely information dissemination to customers, which is critical for fostering positive development across all dimensions of customer relationships.

Technology Adoption correlated with Customer Experience at 0.503 and Customer Loyalty at 0.484, with p-values less than 0.01, showing a highly significant positive correlation. The implementation of advanced and user-friendly automotive technologies, such as intelligent driver assistance systems or intuitive online car-buying platforms, can profoundly impact customer perceptions. These technologies not only improve customers' experience with specific technical services but also optimize customer service processes, enhance communication, and contribute to a superior overall customer experience, thereby strengthening customer loyalty. This suggests that W Automobile Sales Company should increase its investment in the research, development, and application of cutting-edge automotive technology to drive overall improvement in other CRM dimensions.

Finally, Customer Experience correlated with Customer Loyalty at 0.509, with all p-values less than 0.01, showing a highly significant positive correlation. A positive customer experience, which encompasses all touchpoints from personalized service and efficient customer service to effective communication and seamless technology adoption, is a strong predictor of customer loyalty. Optimizing these interconnected elements creates a virtuous cycle where each improvement contributes to a more satisfying overall experience, further reinforcing loyalty. W Automobile Sales Company should focus on comprehensively optimizing the entire customer journey, from the initial car purchase environment to post-sales service and ongoing vehicle usage, as this is of paramount importance for enhancing customer loyalty.

**Regression Analysis**

This section presents the results of the multiple linear regression analysis, which was conducted to examine the predictive power and unique contribution of each Customer Relationship Management (CRM) dimension on Customer Loyalty. The analysis aims to identify the most influential factors and provide actionable insights for W Automobile Sales Company to enhance customer loyalty.

**Table 3:** Regression model coefficient of customer relationship management on customer loyalty

| | Non-standardized coefficient | | Standardization coefficient | t | P | Collinear statistics | |
|---|---|---|---|---|---|---|---|
| | B | Standard error | Beta | | | Tol | VIF |
| **(constant)** | 0.719 | 0.183 | | 3.934 | 0.000** | - | - |
| **Personalization** | 0.128 | 0.041 | 0.142 | 3.094 | 0.002** | 0.641 | 1.561 |
| **Customer Service** | 0.162 | 0.048 | 0.163 | 3.355 | 0.001** | 0.571 | 1.751 |
| **Communication** | 0.174 | 0.045 | 0.178 | 3.905 | 0.000** | 0.644 | 1.552 |
| **Technology Adoption** | 0.129 | 0.047 | 0.132 | 2.718 | 0.007** | 0.57 | 1.753 |
| **Customer Experience** | 0.212 | 0.047 | 0.211 | 4.509 | 0.000** | 0.611 | 1.636 |
| **Dependent variable: Customer Loyalty** | | | | | | | |

**Note:** ** indicates significance at the 1% level.

Table 3 presents the results of the multiple linear regression analysis, examining the influence of various customer relationship management (CRM) components on customer loyalty. The findings revealed that all five CRM components (Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience) had a statistically significant positive impact on customer loyalty ($p < 0.01$). Customer Experience exhibited the strongest positive influence on customer loyalty (Beta = 0.211), followed by Communication (Beta = 0.178) and Customer Service (Beta = 0.163). Personalization and Technology Adoption also demonstrated significant positive effects, with Beta values of 0.142 and 0.132, respectively. The variance inflation factor (VIF) values for all predictor variables were below 10, suggesting no significant multicollinearity issues.

Personalization: The unstandardized coefficient (B = 0.128) and standardized coefficient (Beta = 0.142), with a p-value of 0.002 ($p < 0.01$), indicate a statistically significant positive effect of personalization on customer loyalty. This means that for every one-unit increase in personalized service, customer loyalty is expected to increase by approximately 0.128 units, holding all other factors constant. This finding underscores the critical importance for W Automobile Sales Company to provide highly personalized services that address the unique needs and preferences of individual customers, thereby effectively enhancing their loyalty.

Customer Service: With an unstandardized coefficient (B = 0.162) and standardized coefficient (Beta = 0.163), and a p-value of 0.001 ($p < 0.01$), customer service demonstrates a statistically significant positive impact on customer loyalty. Specifically, a one-unit improvement in customer service level is associated with an approximate 0.162-unit increase in customer loyalty. This highlights the crucial role of investing in strengthening the customer service team and continuously improving service quality to foster enhanced customer loyalty.

Communication: The unstandardized coefficient (B = 0.174) and standardized coefficient (Beta = 0.178), with a p-value of 0.000 ($p < 0.01$), indicate that communication has a statistically significant positive effect on customer loyalty. This implies that a one-unit increase in the company's communication effectiveness with customers is associated with an approximate 0.174-unit increase in customer loyalty. Optimizing communication strategies to ensure accurate, timely, and consistent information delivery to customers is therefore critical for improving customer loyalty.

Technology Adoption: Showing an unstandardized coefficient (B = 0.129) and standardized coefficient (Beta = 0.132), with a p-value of 0.007 ($p < 0.01$), technology adoption has a statistically significant positive impact on customer loyalty. For each one-unit increase in the adoption level of automotive technology, customer loyalty is estimated to increase by approximately 0.129 units. This suggests that W Automobile Sales Company should strategically increase its investment in the development and application of advanced and user-friendly automotive technology to enhance customer loyalty.

Customer Experience: Exhibiting the strongest influence, Customer Experience has an unstandardized coefficient (B = 0.212) and standardized coefficient (Beta = 0.211), with a p-value of 0.000 ($p < 0.01$). This indicates a highly significant positive effect of customer experience on customer loyalty. Specifically, a one-unit enhancement in customer experience is associated with an approximate 0.212-unit increase in customer loyalty. This emphasizes the paramount importance for W Automobile Sales Company to comprehensively optimize the entire customer experience, from the initial car purchase and usage phases to consistently meeting customer needs. This holistic approach is of great significance for sustainably enhancing customer loyalty.

Furthermore, the collinearity statistics, including Tolerance (all > 0.1) and Variance Inflation Factor (VIF, all < 10), confirm that there are no serious multicollinearity issues among the independent variables. This indicates that Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience, while potentially interrelated, independently contribute to explaining customer loyalty, thus ensuring the accuracy and reliability of the regression analysis results

**Hypothesis Testing Results**

Based on the correlation and regression analyses above, the hypothesis testing results can be summarized in the following Table 4.

**Table 4:** Hypothesis testing results

| Hypothesis | Correlation Analysis Results | Regression Analysis Results | Conclusion |
|---|---|---|---|
| **H1: Personalization positively influenced customer loyalty.** | Significant positive correlation ($r = 0.457, p < 0.01$) | Significant positive influence (Beta = 0.142, $p = 0.002$) | Hypothesis Accepted |
| **H2: Customer service quality positively influenced customer loyalty.** | Significant positive correlation ($r = 0.499, p < 0.01$) | Significant positive influence (Beta = 0.163, $p = 0.001$) | Hypothesis Accepted |
| **H3: Communication effectiveness positively influenced customer loyalty.** | Significant positive correlation ($r = 0.478, p < 0.01$) | Significant positive influence (Beta = 0.178, $p = 0.000$) | Hypothesis Accepted |
| **H4: Technology adoption positively influenced customer loyalty.** | Significant positive correlation ($r = 0.484, p < 0.01$) | Significant positive influence (Beta = 0.132, $p = 0.007$) | Hypothesis Accepted |
| **H5: Customer experience quality positively influenced customer loyalty.** | Significant positive correlation ($r = 0.509, p < 0.01$) | Significant positive influence (Beta = 0.211, $p = 0.000$) | Hypothesis Accepted |

## Conclusion

This study, conducted at W Automobile Sales Company, a Toyota 4S dealership in Beihai, Guangxi, China, aimed to investigate the relationships between specific Customer Relationship Management (CRM) dimensions and customer loyalty, and to analyze the impact of each identified CRM dimension on customer loyalty. Data for the analysis were collected from 380 current customers. In line with Objective 1, the correlation analysis revealed statistically significant positive relationships between all five CRM dimensions (Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience) and customer loyalty. This indicates that as the perceived quality or effectiveness of these CRM dimensions increases, customer loyalty also tends to increase. Addressing Objective 2, the multiple linear regression analysis demonstrated that all five CRM dimensions had a statistically significant positive impact on customer loyalty. Specifically, Customer Experience emerged as the strongest predictor (Beta = 0.211, $p = 0.000$), followed by Communication (Beta = 0.178, $p = 0.000$) and Customer Service (Beta = 0.163, $p = 0.001$). Personalization (Beta = 0.142, $p = 0.002$) and Technology Adoption (Beta = 0.132, $p = 0.007$) also showed significant positive effects. The overall model explained 40.3% of the variance in customer loyalty ($R^2 = 0.403$, $F = 59.901$, $p = 0.000$), confirming its significant predictive power. Furthermore, the study identified notable differences in customer experience and technology adoption across various age and income groups, suggesting the need for tailored

CRM strategies for different customer segments. Overall, the findings underscore that a comprehensive and integrated approach to CRM, focusing on enhancing personalization, customer service, communication, technology adoption, and especially customer experience, is crucial for fostering stronger customer relationships, driving repeat business, and achieving sustainable competitive advantage for W Automobile Sales

## Discussion

This study investigated the impact of customer relationship management (CRM) on customer loyalty in the context of the W Automobile Sales Company, a Toyota 4S dealership in Beihai, Guangxi, China. The research employed a quantitative approach, utilizing a questionnaire survey to collect data from a random sample of 450 customers. The study focused on five key CRM dimensions: Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience.

The results of the correlation analysis revealed statistically significant positive relationships between all five CRM dimensions and customer loyalty. This finding aligns with previous research emphasizing the multifaceted nature of CRM and its impact on customer loyalty. For instance, a 2023 study by Alghwery and Alzahrani highlighted the positive influence of personalized experiences on customer loyalty in the Saudi Arabian banking sector, underscoring the importance of tailoring services to individual customer needs. Similarly, a 2022 study by Kumar and Sharma, focusing on the Indian retail industry, demonstrated the significant role of effective communication in fostering customer loyalty, emphasizing the need for clear, consistent, and customer-centric messaging.

Furthermore, the regression analysis conducted in this study identified Customer Experience as the strongest predictor of customer loyalty, followed by Communication and Customer Service. This finding is consistent with research by Wirtz et al. (2021), who emphasized the increasing importance of customer experience in shaping loyalty and advocacy behaviors. Their study highlighted the role of technology in enhancing customer experience, particularly through the use of service robots and AI-powered tools. In the context of the W Automobile Sales Company, this suggests that investing in technologies that enhance the customer experience, such as personalized online platforms and interactive showrooms, could significantly contribute to increased customer loyalty.

The study also revealed significant differences in customer experience and technology adoption across different age and income groups. Younger customers (18-25 years old) reported lower levels of customer experience, suggesting a need for tailored strategies to engage this demographic. Similarly, customers with lower annual incomes (<50,000 yuan) reported lower levels of customer experience and technology adoption, indicating a potential need for targeted initiatives to improve their experience and engagement with the company. These findings are in line with research by Huang and Rust (2021), who emphasized the importance of considering demographic factors when designing and implementing CRM strategies.

Overall, this study contributes to the growing body of literature on CRM and customer loyalty, particularly within the automobile industry. The findings underscore the importance of a holistic approach to CRM, encompassing personalization, customer service, communication, technology adoption, and customer experience. By effectively leveraging these CRM components, the W Automobile Sales Company can cultivate stronger customer relationships, enhance loyalty, and achieve sustainable business growth.

The research findings can be synthesized into a conceptual model framework, as illustrated in Figure 2.

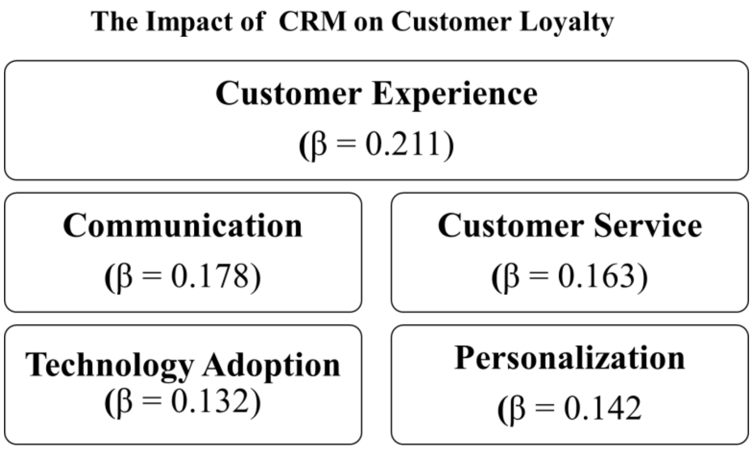


**Figure 2:** A conceptual model framework illustrating the impact of CRM on customer loyalty.

## Suggestion

1. Market Segmentation and Customer Characteristics: Future studies will track evolving needs of younger consumers (18-25) as their economic power increases. Research will refine understanding of the middle-aged market (26-35), analyzing how factors like income and family structure influence vehicle choices. Further exploration will investigate the underlying reasons for gender-based differences in car purchasing decisions.

2. Income Stratification and Consumption Preferences: Research will examine how income fluctuations impact car buying decisions across different income groups. Studies will explore market acceptance of high-end customized models, including consumer preferences for personalized features. Future research will investigate enhancing the competitiveness of cost-effective models through cost optimization and feature enhancement.

3. Customer Relationship Management and Loyalty Enhancement: Future studies will explore enhancing customer emotional connections through personalized services, such as customized consultations and after-sales support. Research will examine the role of social media in CRM to improve customer satisfaction and loyalty. Studies will develop customer loyalty prediction models to identify and target high-potential loyal customers.

4. Technology Application and Customer Experience Optimization: Future research will monitor automotive technology trends (e.g., intelligent driving, connected vehicles) to inform product strategies. Studies will investigate evolving customer acceptance of new automotive technologies and their impact on sales and services. Research will analyze customer feedback to optimize the car purchase and after-sales service processes.

5. Brand Building and New Customer Acquisition: Future studies will explore the relationship between brand loyalty and market share. Research will investigate innovative new customer acquisition strategies, such as social media and word-of-mouth marketing. Studies will examine the effectiveness of customer referral programs to attract potential customers.

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# Development of a Strategic Model to Enhance Parent-School Collaboration for Facilitating Smooth Transition to Primary School in Frontier Areas of Yunnan Province, China

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## Abstract

The transition to primary school is a critical period for children, particularly in frontier areas of Yunnan Province, China. This research explores this transition's influential pathway from the perspective of parent-school collaboration. It posits that active parental engagement and close collaboration with schools can lead to a more successful transition, though this relationship may be mediated by factors such as parental support, child-parent alienation, and parent empowerment.The study aimed to: (1) empirically test the direct and indirect effects of parent-school collaboration (PSC) on children's transition success using Partial Least Squares Structural Equation Modeling (PLS-SEM); (2) explore the mediating roles of parental support (PAS), parent-child alienation (PCA), and parental empowerment (PEW) in this relationship; and (3) propose and validate a strategic model for facilitating smooth transition. Through literature review and in-depth interviews, four key factors influencing 1st graders' school adaptation were identified: Parent-School Collaboration (PSC), Parental Empowerment (PEW), Parental Support (PAS), and Parent-Child Alienation (PCA). PLS-SEM was employed to analyze the relationships among these factors, including mediating and moderating effects. The study quantified the current levels of PSC, PEW, PAS, and PCA. PLS-SEM analysis revealed significant positive and negative relationships among these factors, confirming the mediating roles of PAS, PCA, and PEW between PSC and transition success. The proposed strategic model was implemented and empirically validated as effective. These findings offer valuable insights for educators, policymakers, and parents to collaboratively ensure a smooth and successful primary school transition. The validated strategic model provides a practical framework for enhancing transition outcomes in similar contexts.

**Keywords:** Strategic Model, Parent-School Collaboration, Transition to Primary School

## Introduction

Empirical evidence indicates that the parent-school relationship has favorable outcomes for children's academic performance, well-being, and social development (Epstein, 2018; Green et al., 2007; Hornby & Lafaele, 2011). Effective parent-school partnership is also a protector for Disadvantaged students, such as low socioeconomic status (SES) students, students with disabilities, students who come from complicated family environments, and students from underdeveloped areas, experience much greater challenges (Banerjee, 2016). Effective work between parents and school not only promotes student success but also prevents children from being negatively influenced by unpredictable life events, such as family changes, community violence, and school bullies (Ozer et al., 2017; Liu et al., 2021).

In recent years, the concept of "Neijuan" or "involution" has emerged in China, highlighting intense pressures within its educational system from resource disparities. This has significantly stressed students and parents, particularly in less developed areas, fueling debates about education's quality and purpose. Issues like school refusal and poor social adjustment are increasingly apparent, indicating deeper systemic problems. The "double reduction" policy of 2021, aimed at lessening homework and after-school tutoring, marks a pivotal attempt to mitigate these pressures. These changes pose new challenges as parents and schools figure out how to use increased free time to promote holistic development beyond academic success. Parents often feel unprepared for their educational role. Zhong et al. (2023) noted higher parental stress regarding children's academic achievements and attitudes than their physical health. Additionally, China's first *Family Education Promotion Law*, effective January 1st, 2022, sets a boundary between school and family education, aiming to instruct parents through legislation and support them via public systems. Thus, bridging parents with schools has become crucial. There is a need for schools and educators not only to identify effective strategies but also for researchers to explore the changing mechanisms of these strategies while working with vulnerable parents. Many 1st graders' parents are unaware of the importance of parent-school collaboration; most maintain merely supervisory relationships with schools and teachers. While many recognize the vital parental role, some feel inadequate in educating their children in Yunnan. Communication between parents and teachers is often one-sided, and trust varies between parents of kindergarteners and lower secondary students (Paccaud et al., 2021). Trust declines as children move to primary schools, complicating effective relationship building with teachers. Additionally, while practical strategies are implemented due to the need for change, theoretical work lags. Numerous studies have shown that parent-school collaboration strongly relates to children's academic success, yet researchers are still probing the mechanisms of change.

There is research conducted to discover barriers for parents to getting involved with children's school effectively and efficiently. In the past, what school administrators and teachers perceive as barriers to engaging families doesn't line up with families' experiences. "Only if our parents received more family education, there is a chance to improve the communication quality," said a head teacher from a rural school in Yunnan, China. Some barriers include time concern, childcare needs, school staff seeming too busy, transportation-related challenges, etc. Developing effective two-way communication requires several layers. First, consider the best method to reach families. Due to the massive amount of research results, schools and teachers believe that children's development history and family background are critical. Lack of communication between parents and children also creates alienation. Living apart may not necessarily create alienation if there is better child-parent communication. Teachers are taking over the parental roles while parents are stepping back. This is not a healthy cooperation between the school and the family.

This study is designed to review the multi-dimensional model of parent-school collaboration; and to understand the changing mechanism through multiple lenses. The research explores impacting factors that are relevant to parent-school collaboration and the transition to primary school, to further understand the changing mechanism.

## Objective

To development of a strategic model for facilitating smooth transition to primary school by exploring the influential pathways in frontier areas of Yunnan Province, China

## Literature Reviews

**Ecological System Theory**

Bronfenbrenner's Ecological Systems Theory (EST) is essential in developmental psychology and human ecology, offering a framework to understand human development through environmental interactions (Darling, 2007). EST describes multiple layers that affect development: microsystem, mesosystem, exosystem, macrosystem, and chronosystem. The microsystem, the innermost layer, includes direct interaction settings like family and school. EST's application spans psychology, education, and politics, emphasizing the reciprocal influences between environments and individuals. This theory has guided research on child and adolescent development and educational practices, highlighting the importance of supportive learning environments that integrate various systemic influences (Paat, 2013). In educational contexts, EST elucidates how student adjustment involves interactions across diverse settings, incorporating elements such as parent-child relationships, school support, and community programs (Blandin, 2017).

**Parent-School Collaboration**

Effective parent-school collaboration boosts academic outcomes, school climate, and parental satisfaction. Enhanced cooperation improves student grades, test performance, school attendance, and social skills, and increases the likelihood of graduation and higher education pursuits (Henderson & Mapp, 2002). However, the degree of parental involvement, such as attending conferences and participating in school events, significantly varies in its impact on student success (Pomerantz et al., 2007). Addressing barriers like economic constraints, cultural norms, and communication issues is crucial for fostering an inclusive partnership (Hornby & Lafaele, 2011). Providing resources and educational opportunities to parents helps support home learning (Avnet et al., 2019). Transparent, two-way communication and educational strategies tailored to diverse family backgrounds promote better parent-school interactions and student support (Tan et al., 2020; Levy, 2024).

Parental self-efficacy and alignment of perceptions between parents and educators about roles and responsibilities significantly influence engagement and student outcomes. Studies show that volunteering and participation in school events correlate positively with student achievement (Boonk et al., 2018; Chu, 2022). Effective collaboration, characterized by teacher commitment and regular, open discussions about student progress, creates a supportive environment and improves adaptation and behavior in young students (Paccaud et al., 2021).

Therefore, by addressing the challenges of parent-school collaboration, including enhancing communication and understanding cultural sensitivities, educators, parents, and policymakers can better support student academic and personal growth, creating an empowered and collaborative educational setting.

The literature identifies three main collaborative models that enhance parent-school interactions:

**Epstein's School/Family/Community Partnerships Model**

Developed by Joyce Epstein, this model emphasizes six types of involvement to foster comprehensive partnerships: parenting, communicating, volunteering, learning at home, decision-making, and collaborating with the community. Each type aims to integrate families into the educational process, enhancing student support through shared responsibilities and resources (Epstein, 1995; Epstein, 2018).

**Dual Capacity-Building Framework for Family-School Partnership**

Released by the U.S. Department of Education in 2013, this framework focuses on building capacities both in families and schools to support students' education effectively. It highlights the roles families play as learning supporters, encouragers, and advocates, stressing the importance of skills, knowledge, connections, beliefs, values, and self-efficacy in fostering productive collaborations (Mapp & Kuttner, 2013).

**Framework for Interdisciplinary Collaboration**

This model underscores the importance of trust and identity in collaborations that extend beyond educational settings, involving various stakeholders including families, schools, and community services. It promotes a level of cooperation where all parties understand and respect each other's contributions, facilitating a cohesive approach to supporting students' educational journeys (Gerdes et al., 2020a).

Addressing the barriers to effective collaboration involves enhancing communication channels, ensuring flexibility in engagement methods, and fostering an inclusive educational environment through cultural competency training and support for socioeconomic diversity. These strategies aim to create a welcoming atmosphere that encourages parental involvement, crucial for the holistic development of students. By implementing these models and strategies, schools can cultivate a supportive and collaborative educational ecosystem that benefits all students, fostering their academic success and social-emotional development.

**1st Graders' Transition to Primary School**

1st Graders, entering primary school, focus on adapting to new environments. School adaptation involves learning appropriate behaviors (Bandura, 1977) and includes cognitive preparation, social skills, learning quality, and interpersonal relationships (Wen, 2018). Transitioning impacts children's social and emotional development, influencing emotional management, social skills, and decision-making (Rose-Krasnor, 1997). However, challenges arise as children develop logical but limited abstract reasoning (Babakr et al., 2019). Pro-social behavior, positive school experiences, peer competence, and school routine adjustments are essential (Chi et al., 2018).

Mathur's (1999) school adjustment model emphasizes learning preferences, social interactions, and social skills. Learning adjustment balances needs, motivations, and habits, influencing long-term development (Feng, 2002; Yue & Ren, 2021). CASEL's framework identifies core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, essential for social-emotional learning (SEL), focusing on emotional management, empathy, and positive relationships (Skoog-Hoffman et al., 2023; Zhou & Ee, 2012; Mantz et al., 2018).

In Yunnan's frontier areas, minority students face language barriers with limited Mandarin exposure, affecting adaptation and academic success (Young, 1941; Meng et al., 2018; Lu, 2018). Language proficiency also impacts global competence and social integration (Valieva et al., 2020), while early language skills influence mental health and school transitions

(Jelen et al., 2023). Teachers often feel unprepared to support non-Mandarin-speaking students, highlighting a need for targeted educational support.

**Parental Support**

Family support encompasses each family member's oral and behavioral reactions that foster a child's development. Positive family support enhances children's outcomes through improved communication, partnerships, resource provision, and active participation, positively impacting academic and socio-emotional development (Wildmon et al., 2024). Parental support, a multifaceted construct, includes emotional, cognitive, and practical dimensions affecting children's physical, psychological, and academic growth. Challenges and opportunities exist in promoting effective parental support.

Emotional support, a key dimension, involves providing a nurturing environment that promotes emotional well-being and self-esteem. Cognitive support includes activities that stimulate intellectual growth, such as discussions and problem-solving, while practical support covers resources and assistance with daily tasks like homework and chores. Other forms, like instrumental, conditional, motivational, and informational support, are also significant (Beets & Alderman, 2010). Work demands and family commitments can limit the availability of support (Jafarov, 2015), prompting researchers to focus on the family as an entity rather than just the child.

**Child-Parent Alienation**

Parental Alienation Syndrome (PAS), introduced by Richard Gardner, describes the mental health impacts observed in children during high-conflict divorces, characterized by one parent manipulating a child against the other. This phenomenon, although controversial, emphasizes the significant psychological, emotional, and legal ramifications for all parties involved. Key contributors to child-parent alienation include unresolved parental conflicts and emotional manipulation, which may lead children to align with one parent over the other for emotional security (Harman et al., 2018).

Children affected by parental alienation often suffer from low self-esteem, anxiety, and depression, facing challenges in personal and academic realms. The legal system has increasingly acknowledged the need to preserve a child's relationship with both parents, often intervening in cases of evident alienation. Preventive strategies focus on co-parenting education and early intervention to mitigate these conflicts. Critics argue that PAS oversimplifies intricate family dynamics, while supporters value the recognition of alienating behaviors. This issue is not confined to Western contexts; Chinese scholars note its relevance in scenarios involving left-behind children, where separation from parents, regardless of marital status, affects children's psychosocial health. Studies indicate that robust family-school cooperation can cushion the adverse effects of parental separation on children's social-emotional skills (Qian & Cao, 2023).

In the last, understanding and addressing child-parent alienation requires a comprehensive approach that integrates psychological insights, therapeutic interventions, and legal expertise to protect the well-being of children involved in parental disputes.

**Parental Empowerment**

The concept of empowerment, introduced by Julian Rappaport (1981), gained attention in management research in the late 1980s as a key component of organizational effectiveness (Conger & Kanungo, 1988). It shifts focus from deficit-oriented to strength-oriented perceptions and is now found in management, continuing education, and self-help. Lee (2001) categorizes empowerment into individual, interpersonal, and social levels, emphasizing changes within individuals, collaborations, and the environment. Parental empowerment refers to equipping parents with the knowledge, skills, resources, and confidence to actively participate in and make informed decisions about their children's upbringing, education, and well-being (Figueroa et al., 2020a). Hsiao et al. (2018) define it as the degree to which parents feel confident in nurturing their children as expected by society.

Empowerment models are classified as outer-force and auto-force. The outer-force model focuses on the role of external forces in promoting the adapting abilities of the intervening object, while the auto-force model emphasizes exploring an individual's potential and enhancing their initiative and enthusiasm (Lee, 2001). Confident and knowledgeable parents are more likely to engage in various behaviors, including school activities and support at home, which improve student achievement (Chrispeels & Gonzalez, 2006). Parent training programs often emphasize knowledge and self-efficacy as a basis for developing additional participation linked to student performance (Chrispeels & Gonzalez, 2006; Mapp & Gehlbach, 2012). Resource empowerment involves mastering skills to obtain resources for family health and well-being, focusing on individual awareness and engagement with resources. Relationship empowerment requires individuals to identify causal agents in their environments and engage with them to achieve goals, highlighting the significance of interpersonal relationships in psychosocial dynamics (Figueroa et al., 2020b).

## Research Methodology

### Research Design

This research is a mixed-method design with qualitative and quantitative studies. Parents questionnaires were distributed in the study. Interviews were semi-constructed with intentioned questions. Parents questionnaire includes demographic information, general information, questions on Parent-School Collaboration, Parental Support, Parent Empowerment, and Parent-Child Alienation. The researcher will use the software of smart-PLS analysis to determine the relationship between each variable.

The study will also explain how the PLS-SEM model is tested, including any alternative models considered and the reasons for model modifications. Discuss the results of the model testing, including standardized path coefficients and significance levels. The research involves mediation or moderation analysis. Therefore, the incorporation of these factors will be described.

### Sample and Data Collection

According to China’s 7$^{th}$ population census, 38.56% of the population lives in 8 out of the 16 areas that are connected to Southeast Asia countries in Yunnan, such as Vietnam, Burman, and Laos. The total population in Yunnan is 47,209,277; 33.12% of the population in Yunnan is minority, and 5.4% of the population is aged from 5-9 years old; which result in an estimated 844,688 minority students between age of 5-9. To be more specific, the estimated population of this study is less than 325,573. Research samples are 1$^{st}$ graders’ parents from three cities in Yunnan. Parents are from schools located in Nujiang, Baoshan, and Dehong where many students are minorities, such as Lisu, Dai, Nu, and Jinpo. There are 13 minority groups living in Baoshan; 9 minority groups in Nujiang, and 5 major minority groups in Dehong. Particularly, 92% of the population living in Nujiang are minorities, and 45% of the population from Dehong are minorities. A total of 9 schools were selected to distribute the survey based on principle of convenience.

**Measurements**

The parent survey contains questions from several scales reviewed and designed based on past studies. The survey consists questions of demographic information, general questions, and questions to measure parent-school collaboration, parental support, parental empowerment, child-parent alienation, and 1st graders' transition to primary schools from parents' perspectives. Each measurement consists of 3-8 sub-scales. Each subscale is paired with 4-5 questions for comprehensive results. Questions are designed on a 7-point Likert scale. Parents will answer questions by making choices from "strongly disagree, mostly disagree, somewhat disagree, neutral, somewhat agree, mostly agree, and strongly agree" according to their experiences with school and students. 713 parents participated in the study, and 627 data were valid to analyze.

Surveys distributed to parents of 1st graders from selected school with supports from head teachers. Parents that could not read were pre-acknowledged to answer questions in person under their willingness. Data was imported into smart PLS 4.0 and SPSS 27 for data analysis. PLS-SEM was used to test the hypothesis. It shows if the data collected provides a response to a study hypothesis. Consequently, to ascertain the relationships between the variables influencing the transition to primary school, a structural equation model was developed and tested.

**Ethical Considerations**

The research strictly followed the data collection procedure, and survey distribution permission from selected schools' administrators. The study was approved by Stamford International University- Human Research Ethic Committee on May 1st, 2024.

## Researching Findings

**Demographic Analysis of Respondents**

The analysis covered several aspects, including parents' age, education level, marital status, family income, children's gender, primary caregivers. The detailed information is showed in Table 1.

**Table 1:** Demographic Data of Respondents

| Demographic Info. | Item | Frequency | Percentage |
|---|---|---|---|
| Gender of Participants | Male | 213 | 33.9 |
| | Female | 414 | 66.1 |
| Respondents' Age | 18 to 25 | 41 | 6.5 |
| | 26 to 30 | 171 | 27.3 |
| | 31 to 40 | 334 | 53.3 |
| | 41 to 50 | 66 | 10.5 |
| | 51 to 60 | 13 | 2.1 |
| | Over 60 | 2 | 0.3 |
| | Father | 204 | 32.54 |
| Parental Role | Mother | 309 | 49.28 |
| | Grandparent | 22 | 3.51 |
| | Others | 11 | 1.75 |
| Respondents' Education | Primary and Below | 131 | 20.9 |
| | Junior High School | 329 | 52.5 |

| Demographic Info. | Item | Frequency | Percentage |
|---|---|---|---|
| | High School/Technical Secondary School | 110 | 17.5 |
| | Junior College | 32 | 5.1 |
| | Undergraduate | 25 | 4.0 |
| Marital Status | Single | 8 | 1.3 |
| | Married | 559 | 89.2 |
| | Remarried | 49 | 7.8 |
| | Widowed | 5 | 0.8 |
| | Total | 627 | 100 |

**Validity and Reliability**

**Convergent Validity**

The convergent validity analysis in this study indicates that the measurements of the constructs and their dimensions exhibit high convergent validity, demonstrating that the scale has good explanatory power and internal consistency when assessing these constructs. Firstly, the standardized factor loadings (Loadings) are mostly above 0.7, indicating that each item strongly contributes to its corresponding construct, meaning that the items effectively reflect the dimensions being measured. The composite reliability (CR) exceeds 0.7 across all constructs, with certain dimensions such as knowledge sharing and trust in parent-school collaboration achieving CR values even above 0.9. This reflects the high internal consistency and stability of the dimensions, indicating strong reliability of the scale.

In terms of the average variance extracted (AVE), most constructs have AVE values above 0.5, demonstrating that the constructs explain the majority of the variance in their items, thereby possessing strong explanatory power. Particularly, the AVE values for dimensions such as parent-school collaboration and parental support are relatively high, with some dimensions, such as knowledge sharing and play support, even exceeding 0.8, further validating the extremely high convergent validity of these measurements. This suggests that the scale not only effectively evaluates these constructs but also captures the majority of relevant information with relatively few items.

Overall, the scale in this study exhibits high convergent validity when measuring constructs such as parent-school collaboration, parental empowerment, parental support, parent-child alienation, and school adaptation, ensuring both the reliability and validity of the scale. The measurement results of the scale are stable and credible, providing a solid foundation for future research and practical application.

**Table2:** Convergent Validity result

| Construct | Dimension | Loading | CR | AVE |
|---|---|---|---|---|
| Parents-School Collaboration | Knowledge sharing | 0.901~0.941 | 0.946 | 0.860 |
| | Agency | 0.800~0.887 | 0.865 | 0.707 |
| | Agentive Role | 0.821~0.912 | 0.909 | 0.782 |
| | Availability | 0.869~0.913 | 0.913 | 0.792 |
| | Equality | 0.837~0.894 | 0.886 | 0.740 |
| | Identity | 0.814~0.924 | 0.914 | 0.789 |
| | Trust | 0.861~0.919 | 0.922 | 0.807 |
| | Proximity | 0.563~0.883 | 0.871 | 0.653 |
| Parental Empowerment | CA | 0.834~0.886 | 0.890 | 0.751 |
| | RE | 0.787~0.918 | 0.907 | 0.770 |
| | RP | 0.765~0.847 | 0.878 | 0.671 |
| Parental Support | Educational Support | 0.847~0.936 | 0.920 | 0.803 |
| | Life Support | 0.763~0.866 | 0.862 | 0.701 |
| | Psychological Support | 0.782~0.854 | 0.886 | 0.683 |
| | Play Support | 0.886~0.936 | 0.940 | 0.838 |
| Parent Child Alienation | Communication | 0.834~0.893 | 0.893 | 0.755 |
| | Emotional Distance | 0.847~0.936 | 0.920 | 0.803 |
| School Adaptation | Academic Achievement | 0.865~0.915 | 0.915 | 0.797 |
| | Responsible Decision-Making | 0.668~0.889 | 0.884 | 0.701 |
| | Language Adaptation | 0.753~0.908 | 0.885 | 0.732 |
| | Relationship Skills | 0.845~0.910 | 0.906 | 0.779 |
| | Self-Awareness | 0.870~0.901 | 0.907 | 0.780 |
| | Self-Management | 0.869~0.901 | 0.910 | 0.786 |
| | Social-Awareness | 0.886~0.908 | 0.918 | 0.801 |

**Discriminant Validity**

The discriminant validity of the constructs was assessed using the Fornell-Larcker criterion, which requires that a construct's AVE square root (diagonal values) be greater than its correlations with other constructs (off-diagonal values). This ensures that each construct better explains its variance than shared variance with others. The AVE square roots are: PCA (0.922), PEW (0.795), PS (0.803), PSC (0.872), and SAD (0.876). All exceed their corresponding inter-construct correlations, indicating distinctiveness. For example, PCA's AVE square root (0.922) surpasses its correlations with other constructs (-0.485 to -0.507), confirming its statistical independence.

These findings confirm good discriminant validity, showing that each construct is unique and distinct, supporting the effectiveness of the measurement scale used in this study.

**Table 3:** Fornell-Larcker criterion

| Construct | PCA | PEW | PS | PSC | SAD |
|---|---|---|---|---|---|
| PCA | 0.922 | | | | |
| PEW | -0.485 | 0.795 | | | |
| PS | -0.493 | 0.635 | 0.803 | | |
| PSC | -0.507 | 0.653 | 0.664 | 0.872 | |
| SAD | -0.493 | 0.598 | 0.680 | 0.590 | 0.876 |

**Note:** PCA=Parent Child Alienation, PEW= Parental Empowerment, PS= Parental Support PSC= Parents-School Collaboration, SAD= School Adaptation

The study assessed discriminant validity using the Heterotrait-Monotrait Ratio of Correlations (HTMT), a modern criterion comparing inter-construct correlations. HTMT values below 0.85 or 0.90 indicate adequate distinction between constructs, ensuring discriminant validity. The HTMT values in this study are all below 0.85, confirming statistical distinctiveness. For example, PCA's HTMT values with other constructs range from 0.556 to 0.629, indicating clear differentiation. Similarly, PEW's highest HTMT value with PS is 0.839, below the 0.85 threshold, showing strong theoretical and statistical separation. PS and PSC have maximum HTMT values of 0.839 and 0.791, respectively, while SAD's values range from 0.556 to 0.782, all within acceptable limits.

Overall, the HTMT results demonstrate good discriminant validity, confirming that the constructs — PCA, PEW, PS, PSC, and SAD — are statistically distinct, ensuring the validity and reliability of the measurement scale.

**Table 4:** HTMT

| Construct | PCA | PEW | PS | PSC | SAD |
|---|---|---|---|---|---|
| PCA | | | | | |
| PEW | 0.629 | | | | |
| PS | 0.591 | 0.839 | | | |
| PSC | 0.570 | 0.791 | 0.729 | | |
| SAD | 0.556 | 0.719 | 0.782 | 0.620 | |

**Note:** PCA=Parent Child Alienation, PEW= Parental Empowerment, PS= Parental Support PSC= Parents-School Collaboration, SAD= School Adaptation

**Reliability Analysis**

The study assessed reliability using Cronbach's α coefficient, with values above 0.7 indicating good internal consistency. All constructs demonstrated strong reliability. Parents-School Collaboration had a total α of 0.954, with sub-dimensions including knowledge sharing (0.945), trust (0.920), identity (0.910), and proximity (0.818). Parental Empowerment scored α = 0.710, with control and authority (0.887), responsibility and engagement (0.899), and resource and power (0.877). Parental Support showed a total α of 0.801, with educational support (0.942), psychological support (0.931), and play support (0.935). Parent-Child Alienation had an α of 0.824, with communication (0.891) and emotional distance (0.918). School Adaptation achieved α = 0.949, with academic achievement (0.915), relationship skills (0.905), and self-management (0.909). These results confirm that the scales used in the study have high internal consistency, ensuring reliability and stability for further research.

**Hypotheses Test Results**

H1: There is a positive relationship between parent-school collaboration and parental empowerment.

H2: There is a negative relationship between parent-school collaboration and child-parent alienation.

H3: There is a positive relationship between parent-school collaboration and parental support.

H4: Parental empowerment positively predicts 1st graders' transition to primary school.

H5: Parental empowerment positively predicts parental support to children.

H6: Parental empowerment negatively explains child-parent alienation.

H7: Parental support to children positively relates to 1st graders' transition to primary school.

H8: Child-parent alienation is negatively related to 1st graders' transition to primary school.

H9: Parental support is negatively related to child-parent alienation.

H10: There is a positive relationship between parent-school collaboration and $1^{st}$ graders' transition to primary school.

**Table 5:** Path Analysis

| | Path relationship | β | T | P values | Decision |
|---|---|---|---|---|---|
| H1 | PSC -> PEW | 0.653 | 20.707 | <0.001 | Yes |
| H2 | PSC -> PCA | -0.331 | 6.548 | <0.001 | Yes |
| H6 | PEW -> PCA | -0.272 | 5.606 | <0.001 | Yes |
| H3 | PSC -> PAS | 0.392 | 8.687 | <0.001 | Yes |
| H5 | PEW -> PAS | 0.310 | 6.734 | <0.001 | Yes |
| H9 | PCA -> PAS | -0.143 | 4.432 | <0.001 | Yes |
| H4 | PEW -> SAD | 0.196 | 4.298 | <0.001 | Yes |
| H7 | PAS -> SAD | 0.405 | 8.005 | <0.001 | Yes |
| H8 | PCA -> SAD | -0.135 | 4.019 | <0.001 | Yes |
| H10 | PSC ->SAD | 0.120 | 2.655 | <0.001 | Yes |

**Note:** PCA=Parent Child Alienation, PEW= Parental Empowerment, PAS= Parental Support, PSC= Parents-School Collaboration, SAD= School Adaptation

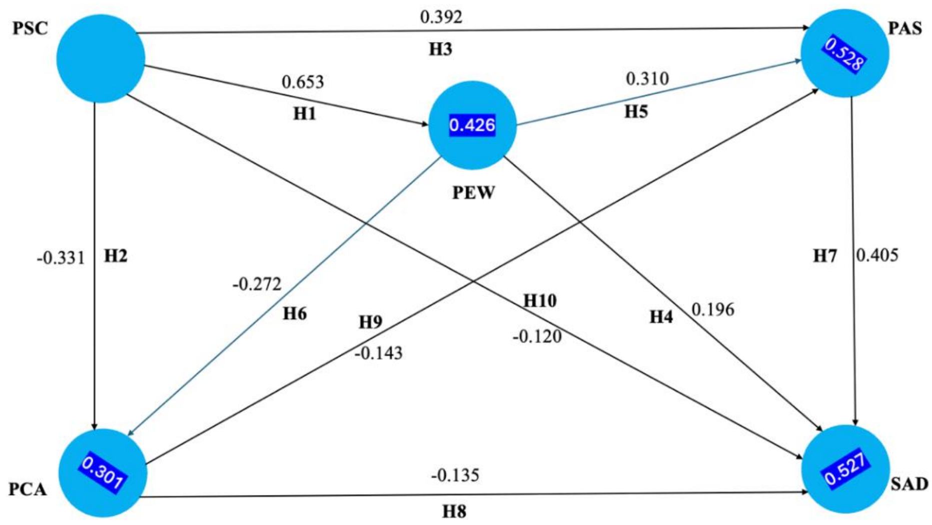


**Figure 1:** Path Analysis

**Mediation Effects Testing**

This study, through an analysis of mediation effects, reveals the indirect mechanisms by which Parents-School Collaboration (PSC) influences School Adaptation (SAD) in students. Specifically, PSC exerts multiple indirect effects on students' school adaptation through variables such as Parental Empowerment (PEW), Parent-Child Alienation (PCA), and Parental Support (PS). By examining path coefficients (Std Beta), standard errors (Std Error), t-values, p-values, and confidence intervals (LLCI and ULCI), the study systematically analyzes the complex relationships between these variables and their statistical significance.

**Table 5:** Assessment of Mediation Effect

| Indirect path relationship | Std Beta | Std Error | T | P | LLCI | ULCI |
|---|---|---|---|---|---|---|
| PSC -> PCA -> PAS -> SAD | 0.022 | 0.006 | 3.498 | 0.000 | 0.011 | 0.035 |
| PSC -> PEW -> PCA -> SAD | 0.027 | 0.008 | 3.651 | 0.000 | 0.014 | 0.043 |
| PSC -> PEW -> PAS -> SAD | 0.093 | 0.016 | 5.722 | 0.000 | 0.062 | 0.125 |
| PSC -> PEW -> SAD | 0.153 | 0.031 | 4.960 | 0.000 | 0.095 | 0.216 |
| PSC -> PAS -> SAD | 0.176 | 0.029 | 6.031 | 0.000 | 0.122 | 0.236 |
| PSC -> PCA -> SAD | 0.051 | 0.014 | 3.676 | 0.000 | 0.026 | 0.080 |
| PSC -> PEW -> PCA -> PAS -> SAD | 0.012 | 0.004 | 3.279 | 0.001 | 0.006 | 0.019 |

**Note:** PCA=Parent Child Alienation, PEW= Parental Empowerment, PS= Parental Support, PSC= Parents-School Collaboration, SAD= School Adaptation

**The Proposed Strategic Model**

Based on the model constructed in the study, the connotations involved in parent-school collaboration, parental support, parental empowerment, and parent child alienation were selected for proposing strategic model. the diagram outlines a comprehensive strategy to promote a smooth school transition for 1st graders, with a central focus on fostering effective parent-school collaboration and empowering parenting (see Figure 3). The model emphasizes the importance of creating a positive collaboration climate, where both parents and school staff respect each other's personal values, maintain open communication, and foster deeper understanding. Strengthening parental support plays a crucial role, encouraging parents to provide personal space for their children, value playtime, demonstrate emotional care, and actively participate in daily educational activities. Ensuring the child's success involves practical actions like building two-way trust, utilizing resources, and recognizing the child's unique potentials. Empowering parenting is highlighted as essential for reducing children's anxiety and alienation, emphasizing the importance of staying attuned to emotional needs and maintaining open communication. Lastly, enhancing parenting efficacy through daily care, emotional sharing, and providing companionship is vital to supporting the child's overall well-being. Together, these elements work to ensure a seamless and supportive transition into school life through strong parent-school partnerships and proactive parenting.

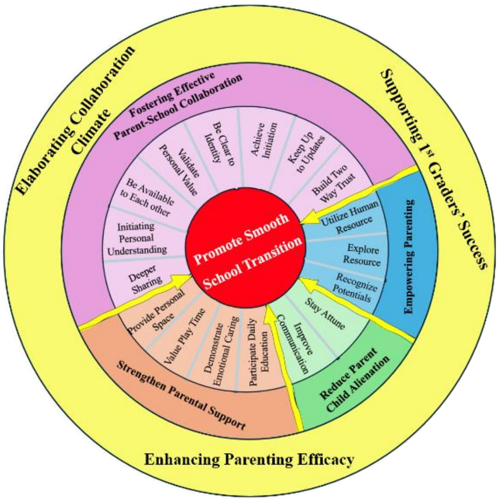


**Figure 2:** Proposed Strategic Model

## Discussion

The findings of this study provide important insights into the relationships between parent-school collaboration (PSC), parental empowerment (PEW), parental support (PAS), parent-child alienation (PCA), and school adaptation (SAD). These findings align with existing literature that emphasizes the importance of active parent engagement in the school environment and the positive impact it has on children's educational outcomes (Epstein, 2011; Hoover-Dempsey et al., 2005).

In particular, the positive relationship between PSC and PEW highlights how a strong partnership between parents and schools can empower parents to be more effective in supporting their children's learning and emotional well-being. This result reinforces the notion that when schools actively involve parents, parents feel more competent and confident in their role (Hornby & Lafaele, 2011). Similarly, the positive influence of PEW on PAS further supports the idea that empowered parents are more likely to provide substantial and meaningful support to their children, enhancing their overall school experience. Moreover, the negative relationship between PSC and PCA indicates that stronger parent-school collaboration reduces the likelihood of parent-child alienation. This finding is consistent with studies that suggest open communication and joint problem-solving between parents and schools can help parents stay connected with their children during critical transitional periods, such as entering a new school (Boonk et al., 2018). Additionally, PEW's negative influence on PCA implies that as parents become more empowered, they are less likely to experience alienation from their children. Empowered parents tend to engage more positively and constructively in their children's lives, fostering stronger emotional bonds and reducing the risks of alienation (Jones & Prinz, 2005). The data also demonstrate that parental support (PAS) is a key factor in promoting school adaptation (SAD), which supports the well-established idea that parental involvement plays a crucial role in helping children adjust to school (Fan & Chen, 2001). In contrast, parent-child alienation (PCA) negatively affects both parental support and school adaptation. This confirms previous research showing that strained parent-child relationships can hinder children's ability to thrive academically and socially within the school environment (Hoglund et al., 2015). Parents who feel capable and knowledgeable are better equipped to support their children's adaptation to new academic and social environments, reducing stress and enhancing children's resilience (Bower & Griffin, 2011). Overall, these findings underscore the importance of fostering strong, collaborative relationships between parents and schools while also empowering parents to support their children's development effectively.

This study advances and critically refines existing theoretical frameworks by revealing both the dynamic relational mechanisms and structural constraints that shape developmental and educational processes. While Bronfenbrenner's Ecological Systems Theory has traditionally emphasized system-level interactions between microsystems like family and school, our findings demonstrate that the qualitative nature of mesosystemic relationships - particularly the depth of parent-child and teacher-parent interactions—serves as a pivotal mediator of developmental outcomes, suggesting the need to move beyond structural linkages to examine how microsystems interrelate. Similarly, our work expands Epstein's School - Family-Community Partnership Model by uncovering how systemic power asymmetries and unequal resource distribution can undermine the model's assumption of equitable collaboration, arguing for an explicit integration of structural equity considerations into partnership frameworks. Most innovatively, we extend Empowerment Theory by documenting robust bidirectional empowerment processes between teachers and parents, where knowledge and agency are mutually reinforced through dialogic exchange - a significant departure from conventional unidirectional conceptualizations of professional-to-parent empowerment. Together, these contributions advocate for more dialectical theoretical models that simultaneously account for structural barriers and the transformative potential of relational agency in ecological systems, offering a more nuanced understanding of how individuals and institutions co-construct developmental pathways.

## Conclusions

To enhance the transition of first graders into school, this study focuses on parent-school collaboration. The research shows that improved communication and cooperation between parents and schools boost parental involvement and educational outcomes, thereby aiding children’s adaptation to school. The research introduces a school adaptation model that incorporates aspects of parent-school collaboration, including knowledge sharing, parental agency, and resource equality. This model supports theoretical development on transition strategies and underpins practical policy-making.

Strategies developed from the study include optimizing parent-school interactions, improving access to educational resources, and boosting parental educational capabilities. Initial strategy applications, such as multilingual materials, flexible meeting scheduling, and modern technology use, have shown positive results in enhancing first-grade adaptation. The analysis identifies strong parent-school collaboration as a key factor in successful school adaptation, demonstrating significant positive relationships between collaboration, parental empowerment, and school adaptation, while reducing parent-child alienation. These findings corroborate existing research on the importance of parent involvement in improving educational outcomes.

This study proposes three policy priorities to enhance school transitions in frontier regions. First, legislative reinforcement of the *Family Education Promotion Law* should institutionalize parental training programs and resource allocation, particularly for low-income families. In addition, structural integration of kindergartens and primary schools under unified educational frameworks is critical to standardize transition protocols. Last and also the most important, formal mandates requiring schools to develop parent-collaboration plans - with specific benchmarks for communication frequency and joint decision-making - will elevate collaboration from voluntary practice to accountable policy. The core finding shows equitable collaboration requires top-down support and ground-level action. These systemic interventions achieve both. Suggestions for usage include: 1) Culturally tailored teacher workshops integrating multilingual resources (e.g., Lisu/Dai language materials); 2) Monthly parent - teacher co-design sessions redistributing agenda-setting power to marginalized groups; 3) Community resource hubs partnering with local community supporters to provide after-school academic support; Crucially, Bidirectional empowerment requires teachers to value parental cultural assets while equipping parents with educational advocacy tools.

Based on the findings and limitations of this study, several potential directions for future research may be considered. 1) Longitudinal or quasi-experimental designs could be used to capture the evolving impact of parental engagement and school collaboration on student adaptation over time. 2) The integration of digital tools, including communication apps and virtual platforms, may be explored for their potential to enhance parent-school interaction. 3) Policy-related studies could examine how educational policies promoting parental involvement are implemented and adapted in different contexts. 4) Interdisciplinary research within inclusive education settings could evaluate how collaborative models involving teachers, specialists, and parents support diverse student needs. 5) Further studies may assess the specific effectiveness of school adaptation interventions and explore which components yield the most sustainable outcomes.

Overall, the study confirms the vital role of parent-school collaboration in facilitating smooth transitions to primary education and provides a grounded, practical approach for educators and policymakers to support young learners effectively.

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# High School Students' and Teachers' Perceptions of Global Englishes in China: Implications for English Language Teaching

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## Abstract

This study explores the perceptions and ideologies of Global Englishes among high school students and teachers in Pu'er No. 1 Middle High School, Yunnan Province, China, and their implications for English Language Teaching (ELT). Grounded in sociolinguistic theories, including Jenkins' English as a Lingua Franca (ELF) and Kachru's Three Circles Model, the research assesses how Global Englishes are understood and valued in an educational system traditionally focused on native-speaker norms, such as British and American English. Employing a mixed-methods design, data were collected through semi-structured interviews with 10 teachers and 20 students, alongside a questionnaire survey involving 133 students. The findings reveal that while students recognize the importance of Global Englishes for future career opportunities and international communication, many still prefer Standard English due to curricular emphasis and teacher influence. Teachers exhibit mixed ideologies; some support incorporating local varieties like Chinese English, whereas others avoid them, citing their perceived lower status globally. The study highlights the need for an inclusive curriculum that embraces diverse English varieties and teacher training programs that promote linguistic flexibility. Furthermore, it calls for revised assessment practices that prioritize communicative competence over strict native-speaker standards, ultimately preparing students for real-world, global communication.

**Keywords:** Global Englishes, Language Ideology, Chinese English, English Teaching

## Introduction

The role of English as a global lingua franca is well established, positioning it as a dominant language in international communication, academia, and business (Crystal, 2020). In countries like China, proficiency in English is often viewed as a key determinant of academic and professional success, reflecting its significance in educational policy and practice (Hu, 2021). Traditionally, English Language Teaching (ELT) in China has prioritized native-speaker norms, specifically British and American English, as the standard for "correct" language use (Piller, 2021). This approach is deeply rooted in language ideologies that value native-speaker varieties for their perceived prestige and legitimacy.

However, the increasing use of English as a lingua franca - a means of communication among non-native speakers - challenges the traditional focus on native-speaker standards. Scholars argue that ELT should reflect the realities of English use today, characterized by diverse accents, dialects, and linguistic practices (Jenkins, 2022). This perspective supports a shift toward recognizing Global Englishes, which encompasses the various forms of English spoken and adapted globally (Galloway & Rose, 2021). Integrating such a view in ELT can better prepare students for the real-world contexts in which they will use English, emphasizing communicative competence over native-like fluency.

Kachru’s Three Circles Model (1992) provides a useful framework for understanding the global spread of English, categorizing its use into three concentric circles: the Inner Circle, the Outer Circle, and the Expanding Circle. China’s position within the Expanding Circle implies that while English is not native, it plays a crucial role in education and global communication (Fang, 2020). This position challenges the traditional native-speaker norms and calls for an ELT approach that incorporates local adaptations and diverse English varieties.

Language ideology, or the beliefs and attitudes surrounding language, significantly shapes how languages are taught and perceived (Piller, 2021). In the context of China’s education system, language ideologies tend to favor native-speaker varieties, equating them with higher social and academic status (Hu, 2021). This emphasis influences both teaching practices and students' learning experiences, potentially limiting exposure to the full spectrum of English usage they will encounter in global contexts (Jenkins, 2022).

This study focuses on understanding how high school students and teachers in Pu’er No. 1 Middle High School, Yunnan Province, perceive Global Englishes and how these perceptions influence teaching and learning practices. The research is guided by the following questions: How do students’ perceptions of Global Englishes shape their learning experiences? What ideologies do teachers hold, and how do these influence their teaching practices? Finally, how can these perspectives inform more culturally and linguistically inclusive ELT practices?

The study applies Jenkins’ ELF framework and Kachru’s Three Circles Model to analyze data collected through a mixed-methods approach. This includes semi-structured interviews with 10 teachers and 20 students and a questionnaire survey completed by 133 students. These methods were chosen to capture both quantitative trends and qualitative insights, providing a comprehensive view of how Global Englishes are perceived and integrated - or neglected - in the classroom.

Preliminary research indicates that while students often recognize the importance of diverse English varieties for future career opportunities and effective communication, they continue to favor Standard English, a preference shaped by curriculum content and teacher influence (Galloway & Rose, 2021; Jenkins, 2022). Teachers, on the other hand, display mixed ideologies; some acknowledge the relevance of incorporating local English varieties such as Chinese English, whereas others maintain that native-speaker norms hold greater value due to their association with global status (Piller, 2021).

Understanding these perspectives is essential for shaping ELT practices that prepare students not just for exams but for the globalized world where English functions in diverse forms. This study highlights the need for curriculum reforms and teacher training programs that promote linguistic flexibility and communicative competence, aligning with the realities of English as an international language.

## Theoretical Background

Understanding how English is taught and perceived requires examining relevant linguistic and educational theories. The concept of Global Englishes encompasses the many varieties of English that have developed globally, driven by factors such as migration, trade, and cultural exchange (Galloway & Rose, 2021). Understanding the perceptions and ideologies of Global Englishes among students and teachers requires a solid theoretical framework. This study draws on Jenkins’ English as a Lingua Franca (ELF) framework, Kachru’s Three Circles Model, and the concept of language ideology to provide a comprehensive lens for examining ELT practices in China.

**Jenkins' English as a Lingua Franca (ELF) Framework**

The ELF framework, developed by Jenkins (2022), emphasizes the use of English as a medium for communication primarily among non-native speakers. Unlike traditional approaches that prioritize native-speaker models—often British or American English - the ELF framework advocates for an understanding of English that prioritizes mutual intelligibility and communicative effectiveness over strict adherence to native-speaker norms. This approach reflects the reality that English, in its global usage, often involves interactions where neither participant is a native speaker, making traditional benchmarks of "correct" usage less relevant (Jenkins, 2022).

In an ELF-informed ELT practice, the focus shifts from teaching students to mimic native-speaker pronunciation and grammar to equipping them with strategies that enhance effective communication in diverse settings. This perspective encourages the recognition of non-standard English forms and regional accents as valid components of English communication, which aligns with the realities of global English usage (Galloway & Rose, 2021).

The relevance of Jenkins' ELF framework to this study lies in its challenge to the conventional focus on native-speaker models in Chinese classrooms. By examining whether and how this approach is reflected in students' and teachers' perceptions, the study sheds light on the extent to which current ELT practices align with modern linguistic needs. The ELF framework helps frame the analysis of data collected from students and teachers, providing insights into whether the emphasis on native-speaker English in the curriculum meets or diverges from real-world communication demands.

**Kachru's Three Circles Model**

Kachru's Three Circles Model (1992) is another key theoretical framework that helps contextualize the status of English in different parts of the world. This model divides English use into three concentric circles: the Inner Circle, where English is spoken as a native language, the Outer Circle and the Expanding Circle, where English is learned as a foreign language without an official status. China's position in the Expanding Circle implies that English is primarily taught as a foreign language, with teaching practices often influenced by the norms of Inner Circle countries. This has led to a strong preference for British and American English in educational materials, curricula, and assessments, reinforcing the idea that these varieties represent the "gold standard" of English proficiency (Kachru, 1992). However, this model also highlights the potential for English to be adapted and localized in Expanding Circle contexts, where learners bring their cultural and linguistic backgrounds to the language.

The application of Kachru's model in this study helps illustrate why native-speaker norms continue to dominate ELT in China despite the increasing role of English as a global lingua franca. By exploring the perceptions of students and teachers, the study aims to uncover whether there is room for a more inclusive approach that acknowledges local English varieties like Chinese English as legitimate forms. This perspective is essential for understanding the gap between current ELT practices and the broader, more diverse use of English worldwide (Fang, 2020).

**Language Ideology**

Language ideology refers to the set of beliefs and attitudes about language and its users that shape how languages are taught, learned, and valued (Piller, 2021). In the context of ELT, language ideologies can influence curriculum design, teaching practices, and students' learning experiences. For example, the belief that native-speaker varieties are inherently superior often leads to teaching practices that prioritize British or American English, reinforcing the idea that these forms are the most “correct” or desirable (Hu, 2021). This can create a learning environment where local adaptations and non-standard forms are marginalized or dismissed.

In China, language ideology often aligns with the perception that mastering native-speaker English is a marker of academic and social success. This belief is reflected in high-stakes testing, university admissions, and employment qualifications that favor native-speaker models (Piller, 2021). Such ideologies can create significant pressure for teachers to conform to traditional norms and for students to strive for a native-like command of English, even if this does not reflect the linguistic diversity they will encounter in global interactions.

The concept of language ideology is relevant to this study as it helps explain why there may be resistance to integrating Global Englishes into ELT practices in China. By exploring the ideologies held by teachers and students, the study aims to reveal the underlying factors that sustain the dominance of native-speaker norms and to identify opportunities for promoting a more inclusive approach that values linguistic diversity.

**Research Methodology**

This study employed a mixed-methods approach to investigate the perceptions and ideologies of Global Englishes among high school students and teachers at Pu’er No.1 Middle High School, Yunnan Province, China. The use of both quantitative and qualitative methods allowed for a comprehensive exploration of how these perceptions impact English language teaching (ELT) practices, combining the strengths of statistical analysis with in-depth qualitative insights (Creswell & Plano Clark, 2018).

**Quantitative Component**

The quantitative component of the study involved a questionnaire survey distributed to 133 students. The survey was designed with Likert-scale items to assess students’ attitudes toward various English varieties, including their preferences for native-speaker norms versus local adaptations. The survey aimed to capture general trends and provide numerical data on the extent to which students recognize the importance of Global Englishes and how these perceptions align with their learning objectives and experiences.

Data analysis for the quantitative component was conducted using SPSS software. The analysis included reliability testing using Cronbach’s Alpha to ensure the internal consistency of the survey items, which confirmed the instrument's reliability with an alpha value of [X]. Descriptive statistics were used to summarize the mean responses, standard deviations, and frequency distributions, providing an overview of students’ attitudes and preferences (Field, 2018).

**Qualitative Component**

The qualitative component involved semi-structured interviews with 20 students and 10 teachers. This method was chosen to delve deeper into the attitudes, beliefs, and experiences behind the quantitative data, offering a richer understanding of how these perceptions influence teaching and learning practices. The interviews focused on participants’ views of different English varieties, their teaching or learning strategies, and the challenges they face in incorporating diverse English forms into classroom practices (Seidman, 2019).

Thematic analysis was employed to analyze the qualitative data. This approach involved transcribing the interviews and coding the responses to identify key themes and patterns. The analysis aimed to highlight recurring ideas related to the acceptance or rejection of Global Englishes and the reasons behind these attitudes. Themes such as “emphasis on native-speaker models,” “acknowledgment of local varieties,” and “influence of exams and curriculum” were identified, providing context for the quantitative findings (Braun & Clarke, 2006).

**Integration of Data**

The integration of quantitative and qualitative data provided a robust understanding of the research questions. The quantitative data offered measurable insights into students’ general attitudes, while the qualitative interviews added depth, revealing the motivations, challenges, and ideologies shaping these perceptions. This combined approach allowed for triangulation, ensuring the reliability and validity of the study’s findings by cross-verifying data from different sources (Creswell & Plano Clark, 2018).

## Results

### Quantitative Findings

The questionnaire survey conducted among 133 high school students provided quantitative insights into their perceptions of Global Englishes. The findings revealed a complex attitude towards the inclusion of diverse English varieties in their learning experiences. On average, students expressed moderate to positive views on the importance of Global Englishes, particularly regarding career opportunities and cultural awareness. For instance, responses to questions like “I believe that learning Global Englishes is essential for my future career opportunities” indicated a mean score of 3.61, suggesting that students generally see value in understanding multiple English varieties as a way to enhance their employability in a globalized world.

However, there was still a noticeable preference for Standard English varieties, with a mean score of 3.57 on statements such as “I believe that British and American English should be the main focus in English language teaching.” This preference aligns with traditional ELT norms in China, where British and American English have been historically prioritized. Additionally, the results showed that while students acknowledged the benefits of learning Global Englishes, there was a degree of ambivalence, with some students questioning the relevance of non-standard English varieties for academic success.

**Table 1:** Attitude Towards Global Englishes

| Question | Mean | Standard Deviation |
|---|---|---|
| Q1: I believe that learning Global Englishes is essential for my future career opportunities. | 3.61 | 1.167 |
| Q2: Learning about Global Englishes is a waste of time compared to learning standard English (Reverse-scored). | 3.59 | 1.213 |
| Q7: I believe that British and American English should be the main focus in English language teaching. | 3.57 | 1.150 |
| Q9: I believe focusing on different varieties of English is not relevant to my academic success (Reverse-scored). | 3.46 | 1.234 |
| Q17: I believe that learning Global Englishes is more important than focusing only on native-speaker norms. | 3.65 | 1.168 |

The mean scores for items in this variable suggest that students generally recognize the importance of learning Global Englishes, particularly for career opportunities (M = 3.61).

In terms of confidence in using Global Englishes, the data suggested a moderate level, with a mean score of 3.52 on statements like "I feel confident in my ability to understand speakers of different English varieties." Some students reported feeling less confident in their pronunciation and comprehension abilities when exposed to diverse English accents, highlighting a gap between theoretical support for Global Englishes and practical challenges in applying this knowledge. The quantitative findings underscore the need for balanced teaching approaches that not only introduce students to various English varieties but also enhance their confidence in using these forms effectively.

**Qualitative Findings**

The qualitative data, collected through semi-structured interviews with 20 students and 10 teachers, revealed nuanced perspectives that complemented the quantitative results. Through thematic analysis, three main themes emerged: adherence to native-speaker norms, pragmatic recognition of Chinese English, and the influence of curriculum and exams.

Adherence to Native-Speaker Norms: A dominant theme among both students and teachers was the preference for native-speaker English varieties, particularly British and American English. Many teachers described these varieties as "formal" and "correct," reflecting a belief that Standard English holds higher academic and social prestige. One teacher mentioned, "I prefer using British English in the classroom because it sounds more traditional and is what students expect for exams." This preference highlights the persistence of language ideologies that associate native-speaker norms with authority and correctness, which can shape students' language attitudes and aspirations.

Pragmatic Recognition of Chinese English: Some teachers acknowledged the existence and practical role of Chinese English as a natural adaptation of English in the local context. For example, one teacher noted, "Sometimes I use Chinese English pronunciation to help students understand complex concepts better." This suggests a recognition of Chinese English as a tool for enhancing comprehension, even though it may not be formally embraced as part of the curriculum. Such pragmatic uses of Chinese English underscore a flexible approach that aligns with the principles of Global Englishes, which prioritize effective communication over linguistic purity.

Influence of Curriculum and Exams: Both teachers and students identified the curriculum and examination system as major factors reinforcing the focus on Standard English varieties. Teachers felt constrained by the need to prepare students for exams that are designed around British and American English standards. One teacher explained, “Our curriculum is heavily based on native-speaker norms, so we have to teach in a way that prepares students for these expectations.” This examination-driven approach limits teachers’ ability to introduce diverse English varieties and may prevent students from fully appreciating the scope of English as a global language. As a result, students continue to view British and American English as the primary goals of their language education.

In summary, the qualitative findings suggest that while there is some awareness among teachers and students of the value of Global Englishes, educational practices in China remain closely tied to native-speaker standards. This adherence to traditional norms, driven by curriculum and exam pressures, restricts the integration of diverse English varieties in the classroom. Together, the quantitative and qualitative findings highlight the need for ELT reforms that can balance the demands of standardized assessments with the benefits of exposing students to Global Englishes, better preparing them for real-world communication.

**Discussion**

The findings of this study reveal a complex interplay between students’ and teachers’ awareness of the importance of Global Englishes and their adherence to native-speaker norms in English Language Teaching (ELT).

**Interpretation of Findings and Theoretical Frameworks**

The quantitative data showed that while a significant proportion of students recognized the value of learning diverse English varieties for international communication, there remained a predominant preference for Standard English, particularly British or American varieties. This preference aligns with the ELF framework, which emphasizes the global use of English as a tool for communication among non-native speakers (Jenkins, 2022). However, the emphasis on Standard English highlights a gap between recognizing English’s global use and aligning teaching practices to foster communicative competence in varied contexts.

Kachru’s Three Circles Model (1992) helps explain this contradiction. As part of the Expanding Circle, China’s English education system is influenced by Inner Circle norms, positioning native-speaker English as the ideal (Fang, 2020). The model illustrates why native-speaker standards persist despite recognition of the value of local adaptations, such as Chinese English. This adherence to native norms underscores a deeply ingrained language ideology that equates Standard English with academic success and social prestige (Piller, 2021). This belief system influences curriculum design and teaching practices, as evidenced by teachers’ concerns about preparing students for exams that focus on native-speaker models.

**Implications of Native-Speaker Norms versus Embracing Global Englishes**

The strong preference for native-speaker norms has significant implications for ELT in China. While this approach may benefit students in standardized assessments and university admissions, it can limit their exposure to the diverse forms of English they are likely to encounter in international communication. This focus on native-speaker standards can hinder the development of flexible, adaptive communicative skills that are essential for global interactions (Crystal, 2020; Galloway & Rose, 2021).

On the other hand, embracing Global Englishes would better align ELT practices with the linguistic realities students face beyond the classroom. Integrating local and non-standard English varieties into teaching can enhance students' communicative competence, fostering confidence in using English in varied, real-world contexts (Jenkins, 2022). Teachers who acknowledge the legitimacy of diverse English forms contribute to creating a more inclusive language-learning environment that reflects English as a tool for global communication rather than a static set of rules governed by native-speaker norms.

**Connection with Existing Literature**

These findings support existing literature that advocates for a shift in ELT to include more varied forms of English. Jenkins (2022) emphasizes that focusing on intelligibility and communication rather than native-like accuracy equips students for more effective interaction in international settings. Galloway and Rose (2021) argue that recognizing Global Englishes in curricula can help bridge the gap between academic instruction and practical language use. Similarly, Piller (2021) points out that language ideology plays a crucial role in shaping how languages are taught, often reinforcing traditional norms that do not fully address the realities of language use in a globalized world.

The teachers' mixed views, ranging from recognition of the importance of local English varieties to strict adherence to native-speaker models, illustrate the challenge of changing entrenched practices. These findings align with Piller's (2021) argument that language ideologies are resistant to change but can be reshaped through targeted curriculum reforms and teacher training programs that emphasize the value of linguistic diversity.

**Summary of Implications**

Overall, this study underscores the need for ELT practices in China to balance the preparation for standardized assessments with the development of communicative competence across varied English forms. Embracing Global Englishes within curricula and training programs can help shift the focus from native-speaker norms to a more inclusive approach that prepares students for the linguistic demands of a globalized world (Jenkins, 2022; Galloway & Rose, 2021). This shift is essential for fostering an environment where students are equipped not only to succeed academically but also to thrive in diverse international settings.

**Implications for ELT in China**

To align ELT in China with the global realities of English use, curriculum reform is crucial. This reform should include the integration of diverse English forms and teaching strategies that promote communicative competence. **Teacher training programs** should emphasize the importance of teaching Global Englishes, equipping educators with the skills to incorporate varied English varieties into their lessons (Galloway & Rose, 2021).

**Conclusion**

The study underscores the gap between the awareness of Global Englishes and the reality of teaching practices in China. While students and teachers recognize the importance of understanding different English varieties, the educational system's emphasis on native-speaker norms persists. For ELT in China to be more effective and reflective of global communication, curriculum reform and teacher training are essential. These changes will prepare students to navigate an increasingly interconnected world where English serves as a bridge between diverse cultures and communities (Jenkins, 2022; Galloway & Rose, 2021; Kachru, 1992).

Further research should investigate how integrating Global Englishes into the curriculum impacts students' communicative skills and overall language learning outcomes. Longitudinal studies could also explore whether exposure to diverse English varieties enhances students' adaptability and confidence in real-world interactions.

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# Social Media Marketing and E - Commerce Tea Sales (Based on The SICAS Model): A Case Study of SL Company, China

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## Abstract

This study investigated the impact of social media marketing on consumer engagement and e-commerce sales for SL Tea Company in China, utilizing the SICAS model as its foundational framework. The primary objectives were to evaluate the effectiveness of social media marketing on consumer purchasing decisions, to analyze the influence of influencer collaborations on consumer engagement, and to identify challenges faced by brands in implementing social media strategies. A mixed-methods approach was employed, integrating both quantitative and qualitative research techniques. Quantitative data were collected through an online survey from a purposive sample of 200 SL Tea Company customers who actively engaged with the brand's social media platforms and had prior experience with online purchases. Qualitative data were gathered via in-depth interviews with 10 marketing professionals from SL Tea Company and digital marketing experts. The reliability of the survey instruments was confirmed using Cronbach's alpha ($\alpha$>.70), and data validity was ensured through triangulation, cross-verifying survey results with qualitative insights and content analysis. Statistical analysis employed descriptive statistics, correlation analysis, and multiple regression analysis.

The research findings empirically supported the hypothesis that each stage of the SICAS model positively influences consumer engagement with the brand. Specifically, all five stages were identified as significant positive predictors of consumer engagement: Share ($\beta$ = .315, p < .001), Sense ($\beta$ = .302, p < .001), Communications ($\beta$ = .274, p < .001), Action ($\beta$ = .211, p < .001), and Interest & Interactive View ($\beta$ = .132, p = .007). This study highlights that SL Tea Company can significantly enhance brand visibility and reach a wider audience by creating engaging content, fostering collaborations with influencers, and executing targeted advertising campaigns on social media platforms. These findings offer valuable empirical insights into the effective use of social media marketing to enhance consumer engagement and drive e-commerce sales within the tea industry, thereby affirming the SICAS model as a robust framework for understanding consumer engagement in this dynamic context.

**Keywords:** Digital Transformation, Digital Marketing, Sicas Model, Brand Advocacy, Chinese Market

## Introduction

The digitalization of commerce dramatically reshaped traditional business models, making social media marketing a crucial strategy for brands aiming to expand their consumer base and enhance market presence. Social media platforms such as TikTok, WeChat, and Xiaohongshu became essential for brand promotion and direct consumer engagement. The Chinese tea industry, which historically relied on physical retail distribution, experienced a significant shift toward e-commerce. SL Tea Company, a leading tea brand in China, embraced this transformation by leveraging social media marketing strategies to enhance brand visibility and drive online sales. The primary objectives of this study were to evaluate the effectiveness of social media marketing on consumer purchasing decisions, analyze the impact of influencer collaborations on consumer engagement, and identify challenges faced by brands in implementing social media strategies. This research aimed to provide actionable insights into optimizing digital marketing approaches for improved e-commerce performance. Social media platforms served as a critical medium for businesses to engage with their consumers in real-time. They offered brands an avenue to reach a broader audience at a lower cost than traditional marketing methods. Through innovative content, interactive campaigns, and targeted advertisements, businesses could build a loyal consumer base. SL Tea Company strategically utilized social media marketing by incorporating influencer partnerships, live-streaming promotions, and data-driven content optimization to strengthen its market presence. A significant challenge for businesses leveraging social media marketing was the rapidly changing digital landscape. Algorithms on platforms such as TikTok and WeChat continuously evolved, affecting the visibility of promotional content. Brands had to continuously adapt their marketing strategies to maintain engagement and conversion rates. Furthermore, the saturation of content in the digital space made it difficult for companies to differentiate their products. This study explored how SL Tea Company navigated these challenges and provided insights into best practices for digital marketing in e-commerce.

Consumer behavior in the digital era also evolved, with purchasing decisions being highly influenced by peer recommendations, online reviews, and social media endorsements. Studies indicated that digital consumers tended to trust recommendations from influencers and customer testimonials more than traditional advertising methods. The integration of artificial intelligence (AI) in content personalization further enhanced the effectiveness of digital marketing. SL Tea Company employed AI-driven strategies to analyze consumer preferences and tailor content accordingly, improving its engagement rates and overall sales performance.

The significance of this research lies in its ability to provide an empirical analysis of the relationship between social media marketing and e-commerce growth. By focusing on SL Tea Company as a case study, this research provided a framework for other businesses to refine their digital marketing approaches. The insights gained from this study contributed to the growing literature on digital marketing and offered practical strategies for businesses looking to optimize their social media presence for higher sales conversions. This study is structured as follows: The Literature Review section explores existing research on social media marketing and e-commerce strategies. The Research Methodology section outlines the mixed-methods approach, including data collection techniques and analysis methods. The Findings and Discussion section presents key insights from the research, and the Conclusion provides a summary of findings along with strategic recommendations for businesses. By investigating how SL Tea Company employed social media marketing to boost e-commerce sales, this study aimed to bridge the knowledge gap in understanding digital marketing effectiveness in China's rapidly growing tea industry.

## Literature Review

**Social Media Marketing and Consumer Engagement**

Social media marketing emerged as a powerful tool for driving brand engagement and customer loyalty. Research suggested that social media platforms enabled businesses to reach targeted audiences more effectively than traditional advertising methods (Kaplan & Haenlein, 2021). Consumer engagement on platforms like TikTok and WeChat proved to increase brand interaction and enhance loyalty, as businesses leverage these channels to create personalized and immersive content, fostering strong relationships with their audience (Eslami et al., 2022). The rise of online live streaming and social networking has further fueled social media marketing, driving consumer growth through word-of-mouth interactions and leading to new economic models such as the influencer and trust economies (Hollebeek & Chen, 2024). Chinese consumers are increasingly using short video platforms and social media for online shopping, with a significant portion of online shoppers making purchases through these channels rather than exclusively through traditional e-commerce platforms.

**The SICAS Model in Social Media Marketing**

The SICAS model (Sense, Interest & Interactive View, Connect & Communication, Action, and Share) provides a comprehensive framework for understanding consumer engagement in social media marketing within the digital era. Introduced by the Data Center of China Internet (DCCI) in the "2011 China Social Marketing Blue Book," the SICAS model evolves upon earlier consumer behavior models like AIDMA and AISAS by emphasizing the disorderliness of the social media environment, the interactive needs of consumers, and the significance of information generated during consumer behavior (Zhou, 2020; Chen, 2024). Each stage of the model plays a crucial role:

**Sense:** Focuses on brand-user mutual perception, where companies enhance brand awareness and capture consumer needs through social platforms (Wang, 2023).

**Interest & Interactive View:** Involves stimulating consumer interest through marketing and promotional content that encourages attention and interaction with the brand.

**Connect & Communication:** Emphasizes utilizing social media characteristics to foster dialogue and interaction between consumers and the brand, ultimately increasing purchase intent.

**Action:** Pertains to consumer purchasing behavior, which can occur across various channels including O2O (Online-to-Offline), apps, and social networks, with previous stages influencing purchase rates.

**Share:** Highlights the open and sharing nature of the internet, where consumers actively share experiences, leading to secondary marketing and viral effects, making it a starting point for new marketing cycles driven by word-of-mouth and relationship marketing.

Studies indicate that effective application of the SICAS model can lead to higher conversion rates and stronger brand-consumer relationships.

**The Role of Influencer Marketing in E-commerce**

Influencer marketing was shown to significantly impact consumer purchasing decisions. Studies indicated that recommendations from trusted influencers could increase product credibility and encourage online purchases (Li & Wang, 2022). Consumers tend to trust social media influencers and key opinion consumers (KOCs) more than traditional advertisements, due to their professionalism and influence, leading to a higher likelihood of making purchasing decisions based on influencer endorsements (Hussain & Khan, 2022; Sokolova & Kefi, 2020). The rise of the influencer economy in China reflects this trend, where individuals with strong online presence can drive consumer growth through direct recommendations and authentic interactions.

**Personalized Content and Interactive Marketing**

Personalized content and interactive marketing strategies contributed to higher engagement levels and brand retention (Chen & Liu, 2021). Consumers were more likely to respond to brands that offered tailored content that aligned with their preferences and purchasing behavior. The development of big data and artificial intelligence technologies has made algorithm-driven personalized recommendations mainstream, significantly enhancing the effectiveness of digital marketing (Chandra et al., 2022). Interactive content such as live-streaming, Q&A sessions, and personalized promotions could significantly enhance user engagement and brand loyalty. Companies leveraging these strategies often achieve greater customer satisfaction and increased purchase intentions by providing targeted training for online sales and customer service personnel, and adopting differentiated marketing methods to improve online interaction (Wang, 2021).

**Challenges and Opportunities in Social Media Marketing**

Despite its effectiveness, social media marketing presents various challenges, including content saturation, continuous algorithmic changes on platforms like TikTok and WeChat, and the complexities of audience retention (Paliwal, 2015; Mangold & Faulds, 2009). Brands must continuously adapt their strategies to ensure their content remains visible and relevant amidst a rapidly evolving digital landscape . The saturation of content can make product differentiation difficult. However, these challenges also present opportunities. Successful companies often utilize data analytics and AI-driven content recommendations to address these issues, maintaining competitive advantages by optimizing content output and user experience. The shift from traditional e-commerce to diverse social media platforms for online shopping also underscores the need for multi-channel marketing approaches and the creation of shareable content. Furthermore, accurately measuring the Return on Investment (ROI) of social media activities remains a complex challenge for many businesses, requiring sophisticated analytics and clear metric definitions (Paliwal, 2015).

**Online Tea Market in China and Consumer Behavior**

The Chinese tea market, as the world's largest producer and consumer, has seen significant growth in online sales, particularly accelerated by the COVID-19 pandemic, which pushed online shopping to become a primary channel for daily consumption needs (Li & Zhang, 2023). Despite the convenience, online purchasing in the tea industry can exacerbate information asymmetry, making it difficult for consumers to judge product quality through physical contact (Li & Zhang, 2023). Consumer behavior in the online tea market is influenced by various factors such as education level, familiarity with tea, convenience, product diversification, and online reviews (Li & Zhang, 2023). The online attention for China's tea industry shows trends of rapid growth, high stability, and slow decline, with economic development, residents' income, and tea prices being essential influencing factors (Zhou & Li, 2023). Understanding these specific consumer behaviors and market dynamics is crucial for tea companies like SL Tea to effectively tailor their digital marketing strategies.

## Research Methodology

This study employed a mixed-methods approach, integrating both quantitative and qualitative research techniques to assess the effectiveness of social media marketing on e-commerce growth for SL Tea Company. The research followed a convergent parallel design, wherein both qualitative and quantitative data were collected concurrently and analyzed to provide a holistic understanding of the phenomenon.

**Research Design**

The quantitative component of this study utilized a descriptive research design to analyze the current state of SL Tea's social media marketing and consumer behavior patterns. It aimed to describe the characteristics of the population or phenomenon being studied, focusing on the five dimensions of the SICAS model (Sense, Interest & Interactive View, Communication, Action, and Share) as they relate to consumer engagement and purchasing decisions.

The qualitative component employed a case study approach through in-depth interviews. This design allowed for a deeper exploration of the issues faced by SL Tea in social media marketing, gathering rich insights from key personnel and experts that quantitative data alone might not capture. By combining both approaches, the study aimed to triangulate findings, enhancing the validity and reliability of the conclusions.

**Population and Sample Size**

The study population for the quantitative component consisted of SL Tea Company customers who actively engaged with the brand's social media platforms. A total of 200 respondents were selected using purposive sampling. This non-probability sampling method was chosen to ensure that participants had prior experience with social media engagement and online purchases of tea products, aligning directly with the study's objectives. This sample size was deemed sufficient for the planned statistical analyses, including regression and correlation, to identify significant relationships within the SICAS model.

For the qualitative component, in-depth interviews were conducted with 10 marketing professionals from SL Tea Company and digital marketing experts. These participants were selected through purposive sampling based on their direct involvement in or expert knowledge of social media marketing strategies within the tea industry, providing valuable insights into operational challenges and strategic decision-making.

**Research Tools**

1. Online Survey Questionnaire

An online survey questionnaire was distributed to the selected customer respondents. The questionnaire was structured into two main parts: Part 1: Demographic Information: Collected basic information about the respondents, including gender, age, education level, and income. This information facilitated the creation of user profiles and aided in understanding the characteristics of the consumer base. Part 2: SICAS Model Dimensions: Included questions related to consumer perceptions, interest attraction, interaction and communication, purchasing behavior, and sharing experiences, all aligned with the five dimensions of the SICAS model. Questions were designed using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to quantify respondents' attitudes and views. To ensure data validity, responses indicating "Not heard of" for SL Tea were considered invalid and excluded from the analysis, ensuring a more comprehensive and scientific dataset.

2. In-depth Interview Guide

A semi-structured interview guide was developed for the qualitative interviews. The questions were primarily based on the five dimensions of the SICAS model, tailored to elicit detailed insights into SL Tea's social media marketing strategies, challenges, and opportunities from the perspective of marketing professionals. The interview guide allowed for flexibility, enabling interviewers to probe deeper into emerging themes and gather rich, genuine feedback.

**Validity and Reliability of Research Instruments**

1. Reliability Analysis

The reliability and internal consistency of the online survey questionnaire were assessed using Cronbach's alpha (α) coefficient. A pilot test was conducted with 30 qualified participants who were not included in the main sample to verify the questionnaire's reliability. The study required an α value of $\geq$0.70 to ensure the credibility of the questionnaire, a commonly accepted threshold in social science research.

2. Validity Analysis

The validity of the survey instrument was established through multiple approaches. The questionnaire was reviewed by expert, the independent study, to ensure that the questions adequately covered the content domain of social media marketing and the SICAS model relevant to SL Tea Company. The suitability of the data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity. Factor loadings were examined to confirm that individual items loaded appropriately onto their intended constructs (convergent validity), and Average Variance Extracted (AVE) and Composite Reliability (CR) values were calculated to further support convergent validity. Discriminant validity was assessed by comparing the square root of the AVE for each construct with the correlation coefficients between that construct and all other constructs. The square root of AVE for a construct should be greater than its correlations with other constructs, indicating that each construct measures a unique concept.

**Data Collection Procedures**

Data collection was conducted in two phases:

1. Quantitative Data Collection: The online survey questionnaire was distributed to the 200 selected customer respondents via a dedicated online platform (e.g., Questionnaire Star) from September to October 2024. Participants accessed the questionnaire through a shared link, ensuring convenience and cost-effectiveness. The platform also facilitated the creation of a bilingual version (Chinese and English) to minimize language barriers.

2. Qualitative Data Collection: One-on-one, semi-structured interviews were conducted with the 10 marketing professionals. These interviews were held in an informal manner, typically within the company's premises, to encourage open and genuine feedback. All interviews were recorded with the participants' consent, and detailed notes were taken. After the interviews, recordings were transcribed and prepared for thematic analysis.

**Data Analysis Procedures**

Data analysis involved processing both quantitative and qualitative data:

1. Quantitative Data Analysis

Quantitative data from the online survey were analyzed using statistical software (e.g., SPSSl). The following statistical methods were employed: 1) Data Cleaning: Invalid questionnaires (e.g., those indicating "Not heard of" SL Tea) were removed to ensure the reliability of the analysis results, 2) Descriptive Statistics: Frequency distributions, percentages, means, and standard deviations were used to summarize the demographic characteristics of the respondents and their attitudes towards various aspects of SL Tea's social media marketing based on the Likert scale responses, 3) Correlation Analysis: Pearson correlation coefficients were computed to examine the strength and direction of relationships between the five dimensions of the SICAS model (Sense, Interest & Interactive View, Communication, Action, Share) and overall consumer engagement, and 4) Multiple Regression Analysis: Multiple regression analysis was performed to test the research hypotheses and determine the predictive power of each SICAS dimension on consumer engagement with SL Tea. Collinearity diagnostics (Tolerance and VIF) were conducted to ensure that multicollinearity among independent variables was not a significant issue.

2. Qualitative Data Analysis

Qualitative data from the in-depth interviews were analyzed using thematic analysis. The process involved: 1) Transcription: Interview recordings were accurately transcribed, 2) Coding: Transcribed data were systematically reviewed and coded to identify key points, concepts, and recurring themes related to SL Tea's social media marketing strategies, challenges, and opportunities, 3) Categorization: Codes were grouped into broader categories and themes, allowing for the identification of patterns and differing perspectives among interviewees, and 4) Interpretation: The identified themes were interpreted in relation to the quantitative findings and existing literature, providing a richer, more nuanced understanding of the research problem.

**Ethical Considerations**

Throughout the study, strict ethical guidelines were adhered to. Informed consent was obtained from all participants prior to data collection, ensuring they fully understood the purpose of the research, their right to withdraw at any time, and the confidentiality of their responses. All collected data were anonymized to protect the privacy and identity of the respondents. Data were stored securely and accessed only by the research team for academic purposes, in compliance with relevant data protection regulations.

**Conceptual Framework**

This study explored the impact of social media marketing on consumer engagement with SL Tea, utilizing the SICAS model as a conceptual framework. The research hypothesized that each stage of the SICAS model (Sense, Interest & Interactive View, Communication, Action, and Share) positively influenced consumer engagement with the brand. Specifically, it was posited that brand familiarity, impressions, consistency, and information channels influenced brand awareness (H1). Furthermore, the study hypothesized that content appeal, exposure, and content nature influenced consumer interest and interaction (H2). The research also examined the influence of participatory activities, interactive features, and information provided by SL Tea on consumer engagement and communication (H3). It was further hypothesized that purchase intent, reasons for purchase, purchase behavior, and repurchase behavior were influenced by consumer engagement with social media marketing (H4). Finally, the study investigated whether positive recommendations and sharing reasons were influenced by consumer engagement and brand satisfaction (H5).

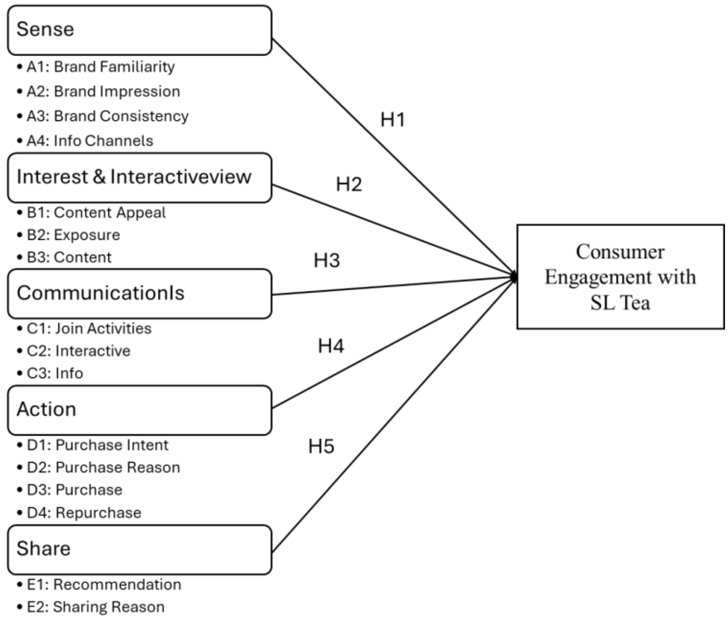


**Figure 1.** Conceptual framework

**Hypotheses**

**H1: Sense** - Brand familiarity, impression, consistency, and information channels positively influenced consumer brand awareness of SL Tea.

**H2: Interest & Interactive View** - Content appeal, exposure, and the nature of the content itself positively influenced consumer interest and interaction with SL Tea's social media presence.

**H3: Communicationls** - Active participation in activities, interactive features, and information provided by SL Tea positively influenced consumer engagement and communication with the brand.

**H4: Action** - Purchase intent, reasons for purchase, actual purchase behavior, and repurchase behavior were positively influenced by consumer engagement with SL Tea's social media marketing efforts.

**H5: Share** - Positive recommendations and reasons for sharing content were positively influenced by consumer engagement with SL Tea and their satisfaction with the brand.

## Research Finding

This paper studied and analyzed the current state, challenges, and underlying reasons related to social media marketing within SL tea enterprises. It proposed optimization strategies and safeguards for SL tea enterprise e-commerce marketing. The results are presented below.

**Demographic Characteristics of Respondents**

The demographic characteristics of the population and sample are presented in Table 1.

**Table1:** General information description

| Item | Option | Frequency | Percentage (%) |
|---|---|---|---|
| **Gender** | Male | 102 | 51.0 |
| | Female | 98 | 49.0 |
| **Age** | Under 18 | 10 | 5.0 |
| | 18-25 | 56 | 28.0 |
| | 26-30 | 48 | 24.0 |
| | 31-40 | 35 | 17.5 |
| | 41-50 | 26 | 13.0 |
| | 51-60 | 19 | 9.5 |
| | Over 60 | 6 | 3.0 |
| **Education Level** | College or below | 60 | 30.0 |
| | Bachelor's degree | 114 | 57.0 |
| | Master's degree | 21 | 10.5 |
| | Doctorate or above | 5 | 2.5 |
| **Income** | Below 3000 RMB | 30 | 15.0 |
| | 3001-6000 RMB | 45 | 22.5 |
| | 6001-9000 RMB | 46 | 23.0 |
| | 9001-12000 RMB | 64 | 32.0 |
| | Above 12001 RMB | 15 | 7.5 |
| **Information Channels (multiple-choice question)** | Social Media Advertisements | 129 | 64.5 |
| | Influencer Recommendations | 115 | 57.5 |
| | Word-of-Mouth | 123 | 61.5 |
| | Search Engines | 111 | 55.5 |
| | Other (please specify) | 104 | 52.2 |
| **Have you ever recommended SL Tea Company to others or shared information about SL Tea Company?** | Yes | 105 | 52.5 |
| | No | 95 | 47.5 |

Table 1 presented the demographic characteristics of the study's population and sample. The sample consisted of 200 participants, with a near-equal gender distribution (51% male, 49% female). The age distribution was diverse, with the largest group falling between 18 and 25 years of age (28%), followed by the 26–30 age group (24%). Participants aged 31–40 constituted 17.5% of the sample, while those in the 41–50, 51–60, and over 60 age brackets represented 13%, 9.5%, and 3%, respectively. Only 5% of participants were under 18 years old. Regarding education level, the majority of participants (57%) held a bachelor's degree, followed by college or below (30%). Master's degree holders made up 10.5% of the sample, and those with a doctorate or above represented 2.5%. Income levels varied, with the largest segment of participants (32%) reporting an income between 9001 and 12000 RMB. Incomes below 3000 RMB, between 3001 and 6000 RMB, and between 6001 and 9000 RMB were reported by 15%, 22.5%, and 23% of participants, respectively. Only 7.5% of participants reported an income above 12001 RMB. Participants were asked about the channels through which they obtained information about SL Tea Company (multiple choices were allowed). Social media advertisements were the most frequently cited source (64.5%), followed closely by word-of-mouth referrals (61.5%). Influencer recommendations were also a significant source (57.5%), as were search engines (55.5%). Other unspecified sources were mentioned by 52.2% of participants. Finally, participants were asked whether they had ever recommended SL Tea Company to others or shared information about the company. A slight majority (52.5%) reported having done so, while 47.5% indicated they had not."

**Correlation analysis**

The Pearson correlation coefficients (Table 2) among the five SICAS dimensions (Sense, Interest & Interactive View, Communications, Action, Share) and overall Consumer Engagement with SL Tea. All correlations were positive and statistically significant at the $p < 0.001$ level, indicating strong interrelationships among these constructs.

Sense showed a strong positive correlation with Consumer Engagement ($r = 0.604$). It also had moderate to strong positive correlations with Interest & Interactive View ($r = 0.513$), Communications ($r = 0.519$), Action ($r = 0.604$), and Share ($r = 0.510$). This suggests that a positive initial perception of the brand is fundamentally linked to all subsequent stages of consumer engagement.

Interest & Interactive View correlated moderately with Consumer Engagement ($r = 0.503$) and showed similar positive correlations with other SICAS dimensions. This highlights the importance of engaging content in fostering overall consumer involvement.

Communications had a moderate positive correlation with Consumer Engagement ($r = 0.521$) and other dimensions. Effective two-way communication on social media is thus crucial for deepening consumer relationships.

Action demonstrated a moderate positive correlation with Consumer Engagement ($r = 0.510$) and strong correlations with Sense ($r = 0.604$) and Share ($r = 0.612$). This indicates that actual purchasing behavior is closely tied to initial brand perception and the willingness to share experiences.

Share exhibited a moderate positive correlation with Consumer Engagement ($r = 0.509$) and the strongest correlation with Action ($r = 0.612$). This reinforces the idea that positive consumption experiences drive sharing behavior, which in turn fuels further engagement.

Overall, the high and significant positive correlations among all SICAS dimensions and consumer engagement underscore the interconnected nature of these stages in the social media marketing funnel. This aligns with the theoretical underpinnings of the SICAS model, which posits a dynamic and interactive process of consumer behavior in the digital environment (Zhou, 2020).

**Table 2**: Correlation Analysis Results

| | **Sense** | **Interest & Interactiveview** | **Communications** | **Action** | **Share** | **Consumer Engagement with SL Tea** |
|---|---|---|---|---|---|---|
| Sense | 1(0.000**) | | | | | |
| Interest & Interactiveview | 0.513(0.000**) | 1(0.000**) | | | | |
| Communications | 0.519(0.000**) | 0.503(0.000**) | 1(0.000**) | | | |
| Action | 0.604(0.000**) | 0.536(0.000**) | 0.595(0.000**) | 1(0.000**) | | |
| Share | 0.51(0.000**) | 0.513(0.000**) | 0.521(0.000**) | 0.612(0.000**) | 1(0.000**) | |
| Consumer Engagement with SL Tea | 0.604(0.000**) | 0.503(0.000**) | 0.521(0.000**) | 0.51(0.000**) | 0.509(0.000**) | 1(0.000**) |

**Note:** $p < .001$ for all correlations.

**Regression Analysis**

A multiple regression analysis was conducted to examine the predictive power of the SICAS model stages (Sense, Interest & Interactive View, Communications, Action, Share) on overall Consumer Engagement with SL Tea. The regression coefficient statistics (Table 3). All five SICAS dimensions were found to be statistically significant positive predictors of Consumer Engagement with SL Tea, with p-values less than 0.01 (or 0.007 for Interest & Interactive View).

Share emerged as the strongest predictor (Standardized Beta = 0.315, $p < 0.001$), indicating that consumers' willingness to share information significantly drives their overall engagement. This highlights the critical role of word-of-mouth and user-generated content in the digital tea market (Gao, 2023).

Sense was the second strongest predictor (Standardized Beta = 0.302, $p < 0.001$). This emphasizes that initial brand familiarity and positive impressions are fundamental in building consumer engagement, consistent with the foundational stage of the SICAS model (Wang, 2023).

$p < 0.001$). Effective two-way communication and active participation fostered by the brand significantly contribute to consumer engagement.

Action had a notable positive impact (Standardized Beta = 0.211, $p < 0.001$). This suggests that actual purchasing and repurchase behaviors reinforce consumer engagement with the brand.

Interest & Interactive View was also a significant predictor (Standardized Beta = 0.132, $p = 0.007$). While having a smaller beta coefficient compared to other stages, it still plays a vital role in initiating and sustaining consumer engagement through appealing content and interactive features (Chen & Liu, 2021).

The collinearity statistics (Tolerance values > 0.57 and VIF values < 1.76) indicate that multicollinearity among the independent variables is not a serious concern, ensuring the reliability of the regression coefficients. The constant term was also statistically significant (B = 0.754, $p = 0.001$), suggesting a baseline level of consumer engagement.

**Table 3:** Regression coefficient statistics

| | Non-standardized coefficient | | Standardization coefficient | t | P | Collinear statistics | |
|---|---|---|---|---|---|---|---|
| | B | Standard error | Beta | | | TOL | VIF |
| Constant | 0.754 | 0.213 | | 3.535 | 0.001** | | |
| Sense | 0.276 | 0.055 | 0.302 | 5.018 | 0.000** | 0.652 | 1.534 |
| Interest & Interactiveview | 0.129 | 0.047 | 0.132 | 2.718 | 0.007** | 0.57 | 1.753 |
| Communications | 0.223 | 0.049 | 0.274 | 4.519 | 0.000** | 0.642 | 1.558 |
| Action | 0.212 | 0.047 | 0.211 | 4.509 | 0.000** | 0.611 | 1.636 |
| Share | 0.307 | 0.059 | 0.315 | 5.229 | 0.000** | 0.650 | 1.539 |
| Dependent variable：Consumer Engagement with SL Tea | | | | | | | |

**Note:** ** indicates significance at the 1% level.

**Hypothesis Testing Results**

Based on the correlation and regression analyses above, the hypothesis testing results can be summarized in the following Table 4. H1: Sense: The correlation analysis shows a strong positive correlation between "Sense" and overall consumer engagement (r =.604, p <.001). The regression analysis also confirms that "Sense" is a significant positive predictor of consumer engagement (β =.302, p <.001). H2: Interest & Interactive View: The correlation analysis shows a moderate positive correlation between "Interest & Interactive View" and overall consumer engagement (r =.503, p <.001). The regression analysis also confirms that "Interest & Interactive View" is a significant positive predictor of consumer engagement (β =.132, p =.007). H3: Communications: The correlation analysis shows a moderate positive correlation between "Communications" and overall consumer engagement (r =.521, p <.001). The regression analysis confirms that "Communications" is a significant positive predictor of consumer engagement (β =.274, p <.001). H4: Action: The correlation analysis shows a moderate positive correlation between "Action" and overall consumer engagement (r =.510, p <.001). The regression analysis confirms that "Action" is a significant positive predictor of consumer engagement (β =.211, p <.001). H5: Share: The correlation analysis shows a moderate positive correlation between "Share" and overall consumer engagement (r =.509, p <.001). The regression analysis confirms that "Share" is a significant positive predictor of consumer engagement (β =.315, p <.001). This supports H5.

**Table 4:** Hypothesis testing results

| Hypothesis | Correlation with Consumer Engagement (r) | Regression Coefficient (β) | p-value (Regression) | Hypothesis Supported? |
|---|---|---|---|---|
| **H1: Sense** | .604 (p <.001) | 0.302 | <.001 | Yes |
| **H2: Interest & Interactive View** | .503 (p <.001) | 0.132 | 0.007 | Yes |
| **H3: Communications** | .521 (p <.001) | 0.274 | <.001 | Yes |
| **H4: Action** | .510 (p <.001) | 0.211 | <.001 | Yes |
| **H5: Share** | .509 (p <.001) | 0.315 | <.001 | Yes |

**Summary and Analysis of Qualitative Interview Findings**

The qualitative interviews with SL Tea's marketing channel employees provided rich, contextual insights that complement the quantitative findings, offering a deeper understanding of the company's social media marketing strategies and challenges. Key insights from the interviews include:

Definition of SL Tea Company: Interviewees defined SL Tea as an economic organization primarily engaged in tea planting, processing, sales, and related services, aiming to meet consumer needs and generate profit by providing high-quality tea products.

Reasons for Choosing Social Media Platforms: SL Tea opted for social media due to its extensive user base, cost-effective and efficient marketing methods, strong interactivity, user stickiness, and precise target market positioning. This strategic choice was particularly driven by the need to adapt to severe cash flow pressures faced by offline stores during the COVID-19 pandemic.

Emphasis on Brand Promotion and Image Building: Interviewees confirmed that social media marketing is crucial for brand promotion and image building. By publishing high-quality content, interacting with consumers, and showcasing brand stories, the company aims to cultivate a positive brand image and enhance brand awareness and reputation.

Methods and Content to Attract Consumers: SL Tea attracts consumers by publishing engaging content, organizing online activities, and conducting interactive marketing. Content includes tea knowledge, tea culture stories, product introductions, and promotional offers, designed to capture attention and stimulate interest.

Establishing Strong Consumer Connections: The ability to establish strong consumer connections through social media depends on continuous release of valuable content, active interaction, and provision of high-quality products and services. This highlights the long-term investment and persistence required for successful social media relationship building.

Ways to Interact with Consumers: Interaction methods include replying to comments, private messaging, online Q&A sessions, and live stream interactions. These approaches aim to enhance consumer participation and satisfaction by fostering two-way communication.

Desired Consumer Information: SL Tea hopes consumers will gain insights into the brand image, brand story, product information, and promotional activities when viewing their social media content.

Measures to Improve Sales Conversion Rates: Strategies include optimizing product descriptions and visuals, providing high-quality customer service, organizing promotional activities, and utilizing social media advertising.

Special Management for Fans/Community Customers: Interviewees indicated that SL Tea implements special management strategies for frequent live stream viewers and community customers, such as establishing fan groups and offering exclusive promotions. This reflects an understanding of building loyal communities and leveraging trust.

Encouraging Information Sharing: Consumers are encouraged to share SL Tea information through sharing rewards, creating easily shareable content, and organizing sharing activities. This leverages the power of word-of-mouth marketing in the digital space.

Investment in Social Media Marketing: The human and financial investment varies based on the company's scale and marketing strategy, requiring dedicated content creators, customer service personnel, and budget for advertising and content production.

In summary, the qualitative findings reinforce the importance of the SICAS model's principles in practice, providing practical context to the statistical relationships observed. They highlight SL Tea's proactive adaptation to the digital landscape, their focus on content and interaction, and their recognition of community building and word-of-mouth as key drivers for online tea sales.

## Conclusions

This study empirically confirmed the significant positive influence of all five stages of the SICAS model (Sense, Interest & Interactive View, Communications, Action, and Share) on consumer engagement with SL Tea Company's brand. The findings highlight the interconnected and dynamic nature of consumer behavior in the digital marketing landscape, emphasizing that engagement is a multi-faceted process driven by various touchpoints within the social media ecosystem. Specifically, the regression analysis revealed that the Share stage ($\beta = .315$, $p < .001$) was the strongest predictor of consumer engagement, underscoring the critical role of word-of-mouth and user-generated content in amplifying brand reach and influence. The Sense stage ($\beta = .302$, $p < .001$) emerged as the second most influential factor, indicating that initial brand familiarity, positive impressions, and consistent brand image are foundational for cultivating consumer engagement. The Communications stage ($\beta = .274$, $p < .001$) also significantly predicted engagement, affirming the importance of two-way interaction and active brand-consumer dialogue on social media platforms. The Action stage ($\beta = .211$, $p < .001$) demonstrated that actual purchasing and repurchase behaviors reinforce overall consumer engagement, highlighting the cyclical nature of the consumer journey. Lastly, the Interest & Interactive View stage ($\beta = .132$, $p = .007$), while having a smaller coefficient, was still a significant predictor, emphasizing that appealing content and interactive features are crucial for capturing and sustaining consumer interest. The demographic analysis of the 200 surveyed participants revealed a balanced gender distribution and a consumer base predominantly comprising young to middle-aged adults (18-40 years old), a demographic highly active on social media. Information channels most frequently cited included social media advertisements, word-of-mouth, and influencer recommendations, reinforcing the dominance of digital and social channels in consumer information acquisition. Notably, over half of the respondents (52.5%) had recommended or shared information about SL Tea, indicating a moderate level of brand advocacy. The research instruments demonstrated high reliability (Cronbach's $\alpha > 0.87$ for all dimensions) and strong validity (KMO = 0.925, all factor loadings > 0.6, AVE > 0.5, CR > 0.7, and satisfactory discriminant validity), ensuring the robustness of the quantitative findings. While most demographic factors (age, education, income) did not show significant differences in SICAS dimensions, a notable gender difference was found in the Communications dimension, with males exhibiting higher engagement. In essence, the study concludes that a holistic social media marketing strategy, meticulously addressing each stage of the SICAS model, is vital for driving consumer engagement and ultimately enhancing e-commerce sales for tea companies in the dynamic Chinese market.

## Discussions

The findings of this study provide robust empirical support for the applicability and effectiveness of the SICAS model in understanding consumer engagement within the context of social media marketing for the Chinese tea industry. This aligns with and extends existing literature on digital marketing and consumer behavior, particularly given the unique characteristics of the Chinese market and the tea sector. The strong predictive power of the Share stage on consumer engagement ($\beta$ = .315) is particularly noteworthy. This finding resonates with previous research emphasizing the power of electronic word-of-mouth (eWOM) and user-generated content (UGC) in influencing consumer decisions and brand advocacy (Gao, 2023; Wang, 2023). In the tea industry, where product quality can be intangible online, consumer testimonials and shared experiences become crucial trust signals, as highlighted by Li and Zhang (2023) regarding information asymmetry in online agricultural product sales. SL Tea's success in encouraging sharing (52.5% of respondents) demonstrates a practical application of this principle. This also implicitly aligns with principles of Sufficiency Economy Philosophy (SEP), which emphasizes "morality" and "knowledge" as foundational conditions for sustainable development (Wongkumchai et al., 2020). By sharing authentic experiences, consumers contribute to a knowledge-based trust economy, fostering sustainable consumption patterns. The significant impact of the Sense stage ($\beta$ = .302) on engagement underscores the foundational importance of brand awareness and initial positive impressions. This is consistent with Kaplan and Haenlein's (2021) assertion that effective brand building and communication strategies are critical in social media marketing. For SL Tea, achieving high brand familiarity through diverse channels (social media ads, influencers, word-of-mouth) lays the groundwork for deeper engagement. This finding also supports the idea that in a saturated market, a clear and consistent brand image is paramount for initial consumer perception (Zhao & Zhu, 2015). Furthermore, this emphasis on clear and consistent information aligns with the "knowledge" condition of SEP, where thorough understanding is crucial for informed decision-making (Wongkumchai & Kiattisin, 2021). The positive influence of Communications ($\beta$ = .274) on engagement reinforces the shift from one-way marketing to interactive, two-way dialogue. This aligns with Chen and Liu's (2021) research on interactive marketing's role in enhancing brand loyalty. The qualitative insights from SL Tea's marketing professionals further elaborate on this, detailing methods like replying to comments, private messaging, and live Q&A, which foster a sense of connection and participation. The observed gender difference in this dimension, where males showed higher engagement in communications, suggests a potential area for targeted strategy development, perhaps by tailoring communication styles or content themes to resonate more effectively with female consumers. This continuous dialogue and relationship building can be seen as contributing to the "social" dimension of sustainable development, as emphasized in the Sustainable Development Goals (SDGs), promoting community well-being and collaboration (Wongkumchai et al., 2020). The significant role of Action ($\beta$ = .211) in driving engagement indicates that actual purchase and repurchase behaviors are not merely outcomes but also drivers of continued brand interaction. This cyclical relationship is a key tenet of the SICAS model, where action reinforces overall engagement. This finding supports studies that link digital marketing efforts to direct sales performance and repurchase intent (He & Lin, 2022). For the tea industry, promoting responsible consumption patterns through clear product information and ethical sourcing, even subtly communicated through marketing, could align with SDG 12 (Responsible Consumption and Production), contributing to a more sustainable "Action" from consumers (Wongkumchai & Kiattisin, 2021). Finally, the significant contribution of Interest & Interactive View ($\beta$ = .132) confirms that engaging content and interactive features are essential for capturing and maintaining consumer attention. This is particularly relevant in the "content + e-commerce" monetization model prevalent in China (Liu, 2020), where appealing short videos and live streams can profoundly impact consumption habits. The qualitative data from SL Tea, detailing their use of tea knowledge videos and live streaming studios, exemplify this strategic approach. By disseminating knowledge about tea culture and production, SL Tea's content marketing can also be viewed through the lens of SEP's "knowledge" condition, empowering consumers with information that extends beyond mere transactional value (Wongkumchai et al., 2020). While the study found no significant differences in SICAS dimensions across age, education, and income levels, this suggests that SL Tea's social media marketing strategies may be broadly effective across these demographic segments, or that these factors are less influential than the SICAS stages themselves in driving engagement within this specific context. This contrasts with some broader consumer behavior studies that often find demographic variations in digital engagement. This broad applicability across demographics might be a strength for a product like tea, which has a wide appeal, and could implicitly contribute to economic stability by reaching diverse consumer groups, a concept also explored within the Information Analysis and Evaluation Model (IAEM) for local economies (Wongkumchai & Kiattisin, 2021). Overall, this research not only validates the SICAS model as a robust framework for analyzing social media marketing effectiveness in the Chinese tea industry but also provides granular insights into which stages are most impactful. It underscores the necessity for brands to move beyond traditional marketing, embracing interactive, content-driven, and community-focused strategies to thrive in the digital era. Furthermore, by implicitly or explicitly aligning social media marketing efforts with principles of sustainability, such as those found in the Sufficiency Economy Philosophy and Sustainable Development Goals, tea companies can potentially enhance brand perception and build deeper, more meaningful connections with a discerning consumer base.

The research findings can be synthesized into a conceptual model framework, as illustrated in Figure 2.

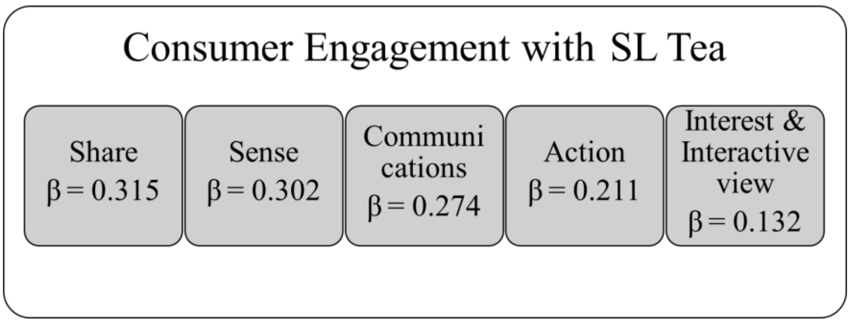


**Figure 2:** Presented a conceptual model framework that illustrated the relationship between social media marketing and e-commerce tea sales, based on the SICAS model.

## Suggestion

Based on the study's findings and discussions, the following suggestion are proposed for SL Tea Company and other online tea businesses in China:

**Applications**

1. Develop a cohesive social media marketing strategy that meticulously addresses each stage of the SICAS model, from initial brand impression (Sense) and captivating content (Interest & Interactive View) to fostering two-way communication (Communications), driving purchases (Action), and encouraging sharing (Share).

2. Prioritize creating high-quality, engaging, and personalized content (e.g., brand storytelling, tea knowledge, interactive live streams) that not only attracts attention but also seamlessly guides consumers towards purchasing and reinforces their overall engagement. Ensure direct and user-friendly links from social media content to e-commerce platforms to streamline the "Action" stage.

3. Actively encourage and incentivize user-generated content (UGC) and positive sharing of tea experiences on social media, leveraging the "Share" stage as a powerful driver of brand influence and trust.

4. Invest in dedicated community management to foster deeper two-way communication, build exclusive brand communities (e.g., WeChat groups), and provide personalized interactions that enhance customer loyalty and transform satisfied customers into brand advocates.

**Future Research**

1. Conduct comparative studies across different social media platforms (e.g., TikTok vs. WeChat vs. Xiaohongshu) to understand their unique effectiveness on consumer engagement and sales in the tea industry, informing more nuanced platform-specific strategies.

2. Explore the long-term dynamics of consumer engagement across the SICAS stages through longitudinal research, providing insights into evolving behaviors and the sustained impact of social media marketing.

3. Research the detailed application and impact of advanced technologies, such as AI and big data analytics, in optimizing each SICAS stage, particularly in content personalization, targeted advertising, and predictive consumer behavior analysis within the online tea market.

4. Further investigate the specific roles of trust and authenticity, especially in influencer collaborations and user-generated content, as mediating or moderating factors within the SICAS model in this industry context.

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# A Theoretical Review of Translanguaging and The Teaching and Learning Cycle and Its Implication on The Development of Chinese First-Year University Students' Argumentative Writing Ability

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## Abstract

This theoretical review explores the integration of translanguaging and the Teaching and Learning Cycle (TLC) as complementary frameworks for developing argumentative writing skills in multilingual learners, particularly first-year Chinese university students. Translanguaging allows students to use their linguistic repertoire, drawing on their native language and English, to enhance cognitive engagement, critical thinking, and comprehension. The TLC provides a scaffolded approach to writing instruction, guiding students through stages such as building background knowledge, joint construction, and independent writing. Together, these approaches foster a more inclusive and flexible learning environment, helping students navigate the complexities of argumentative writing in a second language. By integrating translanguaging into each stage of the TLC, students are empowered to produce more coherent, persuasive essays while developing metacognitive awareness of their language use. The paper concludes with pedagogical implications and best practices for teachers to implement these frameworks in teaching argumentative writing.

**Keywords:** Argumentative Writing Ability, Teaching and Learning Cycle (TLC), Translanguaging

## Introduction

Constructing well-organized and convincing arguments is crucial in academic writing, particularly for first-year university students. For Chinese students, learning to write argumentatively in English presents a unique set of challenges. The transition from Chinese rhetorical structures to those expected in English-speaking academic environments requires more than a simple shift in language. It demands developing critical thinking, articulating positions clearly, and using evidence to support arguments (Sun & Lan, 2021). These challenges are particularly pronounced for non-English majors, who often struggle with the linguistic and cognitive demands of English argumentative writing. This article explores two significant theories, Translanguaging and the Teaching and Learning Cycle (TLC), and their implications for developing Chinese first-year university students' argumentative writing abilities. Translanguaging means using multiple languages in learning, allowing students to draw on their linguistic repertoire to understand and express complex ideas (García & Li, 2014). The Teaching and Learning Cycle (TLC), on the other hand, is a pedagogical framework that guides students through stages of text construction, from understanding the genre to producing their written texts (Derewianka & Jones, 2016; Martin & Rose, 2008).

By examining the intersection of these two frameworks, this article aims to provide theoretical insights and practical recommendations that can be readily implemented in the classroom, empowering educators to enhance Chinese students' argumentative writing skills.

## Understanding Translanguaging: A Theoretical Framework

### Origins and Key Concepts of Translanguaging

Translanguaging, first coined by Cen Williams in 1996 within the context of Welsh-English bilingual education, has since expanded into a dynamic and versatile pedagogical and theoretical framework. It fundamentally challenges the traditional notion of language separation, where different languages are treated as distinct systems. Instead, translanguaging embraces the fluid use of multiple languages in educational settings, encouraging learners to draw on their entire linguistic repertoire to create meaning, communicate effectively, and facilitate learning (Cenoz & Gorter, 2017; Creese & Blackledge, 2010). This approach resonates deeply within multilingual contexts, where students often possess varying degrees of proficiency in more than one language and can utilize their linguistic diversity to enhance their cognitive and academic experiences (García & Li, 2014, 2024). Translanguaging fosters a sense of unity among bilingual or multilingual students, recognizing that they should not be restricted to a single language when engaging in learning. Instead, students ' linguistic abilities in different languages can complement one another, fostering more profound understanding and cognitive development. In classrooms, students can switch between languages, using one for comprehension and another for expression, thus creating a fluid and dynamic learning process that unites them in their diversity (Creese & Blackledge, 2010). Instead of viewing bilingualism as a limitation or dividing students' languages into rigid categories, translanguaging treats all linguistic resources as part of an integrated system. It values and leverages students' full linguistic knowledge, allowing for more comprehensive engagement with complex ideas and academic tasks (Wei & Lin, 2019).

Translanguaging offers a much-needed relief for Chinese students, particularly when learning and writing in English. The challenges they face, such as differences in rhetorical structures, grammar, and syntax between Chinese and English, often create barriers to achieving proficiency in academic writing. However, by allowing students to utilize their first language (Chinese) alongside English, Translanguaging enables them to access prior knowledge better and organize their thoughts more effectively (Tian & Shepard-Carey, 2020). For instance, during brainstorming, students might initially conceptualize and structure their arguments in Chinese, which could significantly ease their cognitive load when translating these ideas into English. Translanguaging proves particularly beneficial in argumentative writing, which requires clarity, coherence, and critical thinking. It can help Chinese students manage the cognitive complexity of formulating arguments by using their native language to process content, refine ideas, and structure arguments before translating them into English. This approach reduces the strain of trying to think, organize, and express themselves in a non-native language simultaneously (Poza, 2019). Moreover, research has shown that this practice helps bridge linguistic gaps and promotes deeper metacognitive awareness as students reflect on how their language choices impact their expression of ideas (Wei & Lin, 2019). By validating and incorporating students' full linguistic capabilities, translanguaging can foster more confident, critical, and coherent writers, making it an essential tool for enhancing Chinese students' argumentative writing skills.

**The Role of Translanguaging in Bilingual and Multilingual Education**

Translanguaging extends beyond a mere pedagogical strategy; it is a fundamental approach to challenging the dominance of monolingual ideologies in education (Wei, 2018). Traditionally, many educational systems have assumed that students should be taught exclusively in the target language, reinforcing the division between languages. This monolingual approach often marginalizes multilingual students, forcing them to compartmentalize their language use rather than embracing the full range of their linguistic capabilities (Duarte, 2020). Translanguaging disrupts this narrative by treating a multilingual learner's entire linguistic repertoire as a dynamic, integrated system, enabling them to fluidly draw on all their language resources (Cenoz & Gorter, 2017). Instead of being confined to using one language at a time, students can switch between languages depending on the demands of the task at hand, thus fostering more meaningful and effective communication and learning (Poza, 2019). In multilingual classrooms, translanguaging creates an environment where linguistic boundaries become porous, allowing students to tap into the strengths of their multiple languages to achieve academic success (Cenoz & Gorter, 2017; Creese & Blackledge, 2010). This approach is particularly beneficial for students still developing proficiency in the language of instruction, such as Chinese students learning English. Translanguaging becomes a powerful tool for promoting deeper engagement and participation in such contexts. By allowing students to use their first and target languages, educators create space to express their ideas more clearly, scaffolded by their more vital language skills while developing proficiency in their weaker language (Gibbons, 2015; Wei & Lin, 2019).

For Chinese first-year university students, translanguaging can play a significant role in developing writing skills, particularly in genres like argumentative writing, which require students to formulate coherent and well-supported arguments. In an English-only environment, these students may struggle with gaps in their vocabulary or unfamiliarity with English rhetorical structures (Ticheloven et al., 2021). However, by leveraging translanguaging, students can use their native Chinese to organize their ideas, draft outlines, and clarify their stance. This initial use of Chinese allows students to focus on the depth and complexity of their arguments without being immediately hindered by linguistic limitations in English. The process of translanguaging then facilitates a smoother transition to English, as students can translate their well-developed ideas into coherent English essays, focusing on refining language use rather than struggling to conceptualize and express ideas simultaneously in a less familiar language (Tian & Shepard-Carey, 2020). Research supports the efficacy of translanguaging in enhancing the quality of student writing. When students use translanguaging to plan and organize their work, they produce writing that is not only more nuanced but also structurally more sophisticated. This approach allows them to engage fully with the content, reflect critically on their arguments, and present their ideas more confidently (Poza, 2019). Furthermore, translanguaging fosters metacognitive awareness as students begin to reflect on how they use language to shape their thinking and writing processes. Instead of being confined by linguistic barriers, students gain greater control over their ability to express complex ideas, resulting in more polished and persuasive writing (Wei & Lin, 2019).

By encouraging students to draw on their complete linguistic repertoire, translanguaging empowers them to navigate complex academic tasks like argumentative writing with greater confidence and skill. It provides a practical pathway for multilingual learners to engage deeply with content, express their ideas fully, and develop their proficiency in the target language without abandoning the cognitive and linguistic strengths they bring to the learning process (Ticheloven et al., 2021).

**The Teaching and Learning Cycle (TLC): A Pedagogical Approach**

Translanguaging and the Teaching and Learning Cycle (TLC) are innovative frameworks that reshape traditional language education, particularly in multilingual contexts like those of Chinese university students learning English. While translanguaging empowers students to draw on their entire linguistic repertoire to enhance comprehension and expression, the TLC provides a structured, scaffolded approach to guide students through writing, enabling them to develop critical literacy skills systematically (Spycher, 2021). Both approaches challenge monolingual ideologies by recognizing the complexities of bilingual and multilingual learning, making them particularly effective for teaching writing to students still developing proficiency in their second language. Educators can create a robust framework that supports students' development as critical, confident writers by integrating translanguaging with the TLC.

**Overview of the Teaching and Learning Cycle**

The Teaching and Learning Cycle (TLC), a pedagogical model developed by Martin and Rose (2008), is a scaffolded approach that builds students' confidence by guiding them through the different phases of the writing process (Spycher, 2021). It emphasizes the explicit teaching of both genre-specific structures and linguistic features, enabling students to become adept at writing in various academic contexts. The TLC is particularly beneficial for first-year Chinese university students learning argumentative writing in English. It breaks down the writing process into manageable steps, ensuring students can master individual components before producing full-length essays independently (Spycher, 2021). This reassures us, as educators, about the effectiveness of the TLC in building students' confidence in their writing abilities.

The TLC's cyclical approach means that students continuously learn and reapply concepts through its four recursive stages: Building the Field, Deconstruction, Joint Construction, and Independent Construction. By moving through these stages, students gradually understand argumentative writing, including how to form a thesis, use evidence effectively, and reason persuasively. The step-by-step nature of the TLC is beneficial for students unfamiliar with the structure and expectations of argumentative writing in English, as it allows them to practice each component before applying all elements in their writing (Humphrey & Hao, 2021).

**Stages of the Teaching and Learning Cycle and Its Impact on Writing Development**

With its four key stages, the TLC framework operates as an empowering tool for educators. Each stage is critical in scaffolding student learning and building their confidence as independent writers. The cycle's recursive nature means that students revisit each stage as needed, reinforcing their skills and deepening their understanding. This iterative process enhances students' writing abilities and instills a sense of empowerment in educators, knowing that they are equipping their students with the necessary skills for independent writing (Spycher, 2021; Spycher & Linn-Nieves, 2014).

The first stage of the TLC, Building the Field, involves introducing the topic and developing students' knowledge of the subject matter. Teaching argumentative writing to Chinese university students might involve discussing various social, cultural, or academic issues that students can write about. This stage aims to ensure that students have a strong foundation of relevant knowledge and vocabulary, essential for crafting coherent arguments. In a multilingual context, this stage can also incorporate translanguaging, allowing students to engage with the content in both English and Chinese. By allowing students to discuss ideas in their first language, teachers can ensure that students fully grasp complex concepts, making it easier to articulate their ideas in English later (Tian & Shepard-Carey, 2020). This stage is crucial for preparing students to move into the next phase of the writing process, as it equips them with the necessary background knowledge and vocabulary to engage critically with the topic (Derewianka & Jones, 2016).

In the Deconstruction stage, teachers model an argumentative text, breaking it down to analyze its structure, linguistic features, and persuasive techniques. This stage is crucial for Chinese students unfamiliar with Western argumentation styles. It provides students with an explicit example of a well-structured argumentative essay, highlighting elements such as the thesis statement, topic sentences, evidence, and transitions. Through careful analysis, students learn how to approach argumentation in English, an essential skill given the differences between Chinese and English rhetorical traditions (Martin & Rose, 2008). Translanguaging can be integrated during this stage by allowing students to ask questions and discuss the modeled text in Chinese. This helps them clarify their understanding and encourages them to reflect on the differences and similarities between English and Chinese argumentative styles. Students better understand how to construct persuasive arguments in Chinese or English by comparing rhetorical structures across languages. Research has shown that this type of cross-linguistic analysis can significantly enhance students' metacognitive awareness, making them more intentional in their language choices when writing in English (Wei & Lin, 2019).

In the third stage, Joint Construction, the teacher and students construct an argumentative text collaboratively. This is a highly interactive phase in which students apply what they have learned during the deconstruction phase but with the teacher's and their peers' support. For Chinese students learning argumentative writing in English, this stage provides a safe space to practice constructing arguments without the pressure of working independently. The teacher guides students in selecting a topic, formulating a thesis, and constructing body paragraphs while providing feedback on the appropriateness of their arguments, the use of evidence, and linguistic features. The collaborative nature of this stage fosters student confidence, as they can test their ideas and refine their understanding of argumentation in a supported environment (Derewianka & Jones, 2016). Translanguaging plays a vital role in this phase as well. Students can brainstorm in Chinese, articulate their ideas with peers, and gradually shift to constructing the argument in English. By allowing students to use their first language during the early stages of argument construction, teachers reduce the cognitive load on students, making it easier for them to focus on developing solid and coherent arguments (Poza, 2019). As a result, students can produce higher-quality writing that is not hindered by their level of proficiency in English.

The final stage of the TLC, Independent Construction, involves students writing their argumentative essays individually, drawing on the skills they have developed in the previous stages. By this point, students should clearly understand how to structure an argumentative essay, use evidence to support their claims and employ appropriate linguistic features. The teacher provides feedback on these independent essays, helping students refine their abilities and further develop their writing proficiency (Humphrey, 2021).

The independent construction phase is where the integration of Translanguaging and the TLC reaches its full potential. Because students have been allowed to use both Chinese and English throughout the earlier stages of the cycle, they are more likely to produce well-structured, coherent essays in English. Translanguaging has provided them with a cognitive framework for organizing their ideas, while the TLC has equipped them with the genre-specific skills needed to write effectively in English. As students become more comfortable with this process, they rely less on their native language, eventually producing argumentative essays that meet the expectations of English academic discourse (Derewianka & Jones, 2016; Gibbons, 2015).

**Translanguaging and the Teaching and Learning Cycle: A Complementary Framework for Teaching Argumentative Writing**

Translanguaging and the TLC emphasize the importance of scaffolding student learning, making them complementary frameworks for teaching argumentative writing to first-year Chinese university students. Translanguaging gives students the linguistic flexibility they need to fully engage with academic content, while the TLC offers a structured pathway for developing writing skills. Combined, these two approaches ensure that students can express their ideas effectively in English and develop a deep understanding of the rhetorical strategies required for successful argumentation.

Educators can better support students in becoming independent, confident writers by incorporating translanguaging into each TLC stage. In the Building the Field stage, translanguaging allows students to access prior knowledge and develop a more comprehensive understanding of the topic. During Deconstruction, Translanguaging facilitates the comparison of rhetorical structures across languages, helping students grasp the conventions of English academic writing. Translanguaging fosters community in the Joint Construction phase, enabling students to fully participate in the collaborative writing process, using Chinese and English to construct arguments. Finally, in the Independent Construction stage, the skills developed through Translanguaging and the TLC come together, allowing students to produce coherent, persuasive essays in English.

By integrating these two frameworks, teachers play a crucial role in creating a learning environment that is both linguistically inclusive and pedagogically effective. This ensures that Chinese students have the support they need to succeed in their academic writing endeavors, highlighting the integral role of educators in this process. Incorporating the TLC in to developing argumentative writing skills enables students to progress from guided instruction to independent, competent writing. The structured approach of the TLC, combined with the linguistic flexibility offered by translanguaging, creates a robust pedagogical framework that helps students develop both their language skills and critical literacy abilities. This integration empowers students to become more confident writers and equips them with the tools they need to succeed in academic contexts where English is the medium of instruction.

**Implications of Translanguaging and the TLC for Argumentative Writing**

Building upon the TLC as a structured approach to writing, integrating translanguaging offers a more inclusive, flexible, and cognitively enriching learning environment, especially for multilingual students. The combination of these two frameworks allows educators to address both the linguistic and cognitive challenges first-year Chinese university students encounter when learning to write argumentative essays in English. By blending the scaffolded stages of the TLC with the fluid use of multiple languages in translanguaging, teachers can create a pedagogical approach that enhances students' writing skills and promotes critical thinking and cognitive development.

**How Translanguaging Supports Cognitive Development and Critical Thinking**

Integrating translanguaging with the TLC offers a comprehensive method for developing argumentative writing skills by recognizing and leveraging the students' full linguistic capabilities. Translanguaging allows students to use their native language alongside English, enhancing cognitive development and fostering critical thinking. Research indicates that when students are permitted to use their native language, they engage in deeper cognitive processes, such as analyzing evidence, constructing well-reasoned arguments, and reflecting on complex concepts more effectively (Poza, 2019). This is particularly important in argumentative writing, where students must clearly articulate their position, develop logical reasoning, and support their claims with evidence. In classrooms where translanguaging is encouraged, students can brainstorm their ideas in their native language, such as Chinese, which allows them to access prior knowledge and organize their thoughts more clearly. They can then discuss these ideas with peers, deepening their understanding before transitioning to constructing the argument in English. This bilingual brainstorming process helps students manage the cognitive complexity of argumentative writing, where clarity of thought and logical reasoning are paramount (Wei & Lin, 2019). By allowing students to draw on their first language, educators can alleviate students' cognitive load when attempting to organize and express ideas solely in English.

Moreover, translanguaging supports metacognitive skills development, encouraging students to reflect on how they use language to process information and articulate their thoughts. This reflective practice enhances their ability to think critically, analyze their reasoning processes, and make deliberate language choices when transitioning from Chinese to English. Such metacognitive awareness is vital in argumentative writing, as students must develop their arguments and consider how their language choices affect the clarity and persuasiveness of their essays (Tian & Shepard-Carey, 2020). In this way, translanguaging fosters a more intentional and reflective approach to writing, empowering students to become more critical thinkers and confident writers.

**Integrating TLC Stages with Translanguaging to Improve Argumentative Writing**

The TLC provides a structured framework that can be seamlessly integrated with translanguaging practices to enhance students' argumentative writing skills. Each stage of the TLC offers an opportunity for students to utilize both their native language and English, making the writing process more accessible and cognitively manageable. For instance, teachers can encourage students to discuss the topic in English and Chinese during the Building the Field stage. This bilingual discussion helps students develop a more nuanced understanding of the subject matter by allowing them to access and express complex ideas in their stronger language (García & Li, 2024). The deeper understanding gained from this discussion can serve as a foundation for their argumentative writing in English.

In the joint construction phase, translanguaging can be particularly effective. As students collaborate on constructing an argumentative essay, they can use Chinese for initial discussions, brainstorming, and organizing ideas. Once they have developed a clear structure, they can use English to construct the final text. This practice helps them move fluidly between languages, reducing cognitive overload and ensuring that they focus on the quality of their argument rather than struggling with language limitations (Tian & Shepard-Carey, 2020). Collaborative writing in a translanguaging environment allows students to build on each other's ideas, creating a richer and more comprehensive argument.

Translanguaging can also be vital during the deconstruction phase, where teachers model argumentative writing. Teachers can deconstruct an English text, highlighting how professional writers construct arguments while allowing students to discuss these examples in Chinese. This strategy helps students understand the rhetorical differences between English and Chinese academic writing, making learning more accessible. By discussing the text in their first language, students can clarify their understanding of complex structures and concepts before applying these insights to their writing (Wei & Lin, 2019).

In the final stage, independent construction, translanguaging continues to support students as they write their essays independently. Students may rely on their native language to help organize their ideas, ensuring their arguments are coherent and well-structured before translating them into English. This practice enables them to focus on refining their language use in English without difficulty organizing their thoughts. By integrating translanguaging into the independent construction phase, students can produce essays that are linguistically accurate, logically coherent, and critically sound (Poza, 2019).

Teachers can offer a pedagogically sound and inclusive approach to developing argumentative writing skills by combining translanguaging with the Teaching and Learning Cycle. Translanguaging supports cognitive development and critical thinking by allowing students to engage deeply with content in their first language. At the same time, the TLC provides the necessary structure and guidance for students to transfer those insights into English writing. Together, these frameworks create a learning environment that fosters linguistic flexibility, cognitive growth, and academic success, ensuring that multilingual students have the tools to become confident, critical writers in English.

**Challenges and Potential Solutions**

While integrating Translanguaging and the Teaching and Learning Cycle (TLC) offers immense potential for enhancing the development of argumentative writing skills, several challenges must be addressed to ensure successful implementation. These challenges often stem from profoundly ingrained language separation ideologies, teacher preparedness, and the need for structured professional development to equip educators with the tools necessary to foster multilingual classrooms. However, with the right strategies and best practices, educators can overcome these obstacles and create a more inclusive, flexible, and effective learning environment.

**Addressing Challenges Such as Language Separation and Teacher Preparation**

One of the most significant challenges in integrating translanguaging with the TLC is the persistence of language separation ideologies. In many educational systems, particularly those with English-dominant policies, there is a strong emphasis on maintaining English-only environments in the classroom. These policies often stem from believing that immersion in the target language will lead to more rapid and efficient language acquisition. However, this approach fails to recognize the cognitive benefits of allowing students to use their native language as a resource in the learning process (Flores & García, 2021). As a result, students are often discouraged or even prohibited from using their entire linguistic repertoire, which can impede their ability to engage deeply with the material.

To overcome this challenge, educators must shift their mindset and embrace translanguaging principles within the TLC framework. While it may seem daunting at first, this shift brings with it a wealth of benefits. Training in both Translanguaging pedagogy and the TLC model equips teachers with the tools to challenge traditional methods of language teaching that prioritize monolingualism. Teachers need to understand that allowing students to use both their first and target languages is not undermining their English proficiency but rather enhancing their cognitive engagement and critical thinking skills. Integrating translanguaging and TLC helps students scaffold their learning, drawing on their native language to process complex ideas before expressing them in English (García & Li, 2024).

Another significant challenge is ensuring teachers have the confidence and skills to manage a translanguaging classroom effectively. This includes knowing when and how to encourage students to use their native language and how to guide them in transitioning from their first language to English without losing sight of the learning objectives. Teachers may struggle with balancing the use of multiple languages in the classroom, especially if they are unfamiliar with translanguaging practices or are concerned that allowing too much native language will hinder English language development (Cenoz & Gorter, 2019). However, professional development programs focusing on bilingual education, multilingual pedagogy, and culturally responsive teaching are here to help. These programs are essential for addressing these concerns, providing teachers with practical strategies for incorporating translanguaging into their lessons and opportunities to observe and practice these strategies in natural classroom settings. Additionally, ongoing support and collaboration with other teachers using Translanguaging and the TLC can help teachers build their confidence and refine their approach. Remember, you're not alone in this journey.

**Best Practices for Combining Translanguaging and TLC in a Classroom Setting**

Several best practices can be implemented to maximize the benefits of combining translanguaging with the TLC. These practices focus on creating a classroom environment where students feel comfortable using their first language and English while providing the structure and support they need to develop their argumentative writing skills.

**Explicit Modeling of Translanguaging**

One of the most effective ways to encourage the use of translanguaging in the classroom is through explicit modeling by the teacher. This strategy strategically demonstrates how to use both Chinese and English for different purposes and shows students when it is appropriate to switch between languages. For example, during the TLC Building the Field stage, teachers can model how to brainstorm ideas in Chinese before translating them into English to construct an argumentative essay. This gives students a clear example of how translanguaging can enhance their thinking and writing processes and normalize using multiple languages in the classroom. This strategy's benefits are evident in students' enhanced cognitive development and argumentation skills (García & Li, 2024).

**Encouraging Collaborative Learning**

Collaborative learning is another critical strategy for integrating translanguaging with the TLC. During the Joint Construction phase, where students work together to construct an argumentative text, teachers can encourage them to use their native language to explore ideas, clarify their positions, and develop arguments before switching to English for the final construction of the text. Collaborative tasks allow students to draw on the linguistic strengths of their peers, creating a richer learning experience and a more robust argument. By encouraging students to discuss their ideas in Chinese before moving to English, teachers provide the cognitive space to engage with the material and develop fully articulated arguments (Wei & Lin, 2019).

**Ongoing Assessment and Feedback**

Continuous assessment and feedback are essential for helping students improve their writing skills while using translanguaging and the TLC. Teachers should provide feedback that acknowledges the use of both languages in the writing process, recognizing that the student's native language can play an important role in developing their English proficiency. Feedback should focus not only on language accuracy but also on the clarity of ideas, the strength of arguments, and the organization of the text. By offering constructive feedback that addresses both linguistic and cognitive aspects of writing, teachers can help students refine their skills and become more confident writers (Humphrey & Hao, 2021). Moreover, assessment strategies should be flexible enough to accommodate translanguaging. Teachers can assess students' ability to brainstorm and organize ideas in Chinese while evaluating their final product in English. This approach acknowledges translanguaging's important role in supporting cognitive development and argumentation while ensuring students develop English proficiency.

By addressing the challenges of language separation ideologies and teacher preparedness, educators can successfully integrate translanguaging with the TLC to enhance the development of argumentative writing skills. Through professional development, teachers can learn how to balance students' native language with English instruction, creating a more inclusive and supportive classroom environment. Best practices such as explicit modeling, collaborative learning, and ongoing assessment and feedback ensure that students fully engage in the writing process, using their linguistic resources to develop their critical thinking and argumentation skills. With these strategies, teachers can create a classroom where translanguaging and the TLC work together to support the academic success of multilingual students, empowering them to become confident, capable writers in both their native language and English.

**Pedagogical Implications of Using Translanguaging and the TLC to Develop Argumentative Writing Skills**

Integrating Translanguaging and the Teaching and Learning Cycle (TLC) offers profound pedagogical implications for developing argumentative writing skills in multilingual classrooms. Combined, these approaches create a more inclusive, scaffolded learning environment where students can fully utilize their linguistic repertoire to enhance cognitive engagement and critical thinking. This is particularly significant in contexts such as first-year Chinese university students learning to write argumentative essays in English, where linguistic barriers can hinder the development of clear, coherent arguments (Tian & Shepard-Carey, 2020).

One significant pedagogical implication of using translanguaging alongside the TLC is the shift away from monolingual ideologies towards a more fluid use of languages in the classroom. By allowing students to use their native language to brainstorm, organize, and process complex ideas before translating these into English, teachers can lower students' cognitive load. This practice not only aids in comprehension but also encourages more profound engagement with the content, as students are free to express ideas in the language they are most comfortable with (García & Li, 2014, 2024). As a result, students develop robust arguments without the immediate pressure of working solely in English. The TLC's structured stages, Building the Field, Deconstruction, Joint Construction, and Independent Construction, provide the perfect framework for integrating translanguaging. For example, in the joint construction phase, students can collaboratively discuss and draft arguments in their first language before refining them in English. This approach fosters peer learning and strengthens students' ability to transfer their thoughts from one language to another (Humphrey & Hao, 2021). Additionally, translanguaging within the TLC supports the development of metacognitive skills. As students switch between languages, they become more aware of how language choices affect their ability to reason, argue, and persuade (Wei & Lin, 2019). This reflection on their language use can lead to better control over their writing processes and improved proficiency in both languages.

Eventually, the combined use of translanguaging and the TLC enhances students' ability to craft well-organized, persuasive arguments while building their confidence in academic writing. This inclusive, scaffolded approach can significantly improve outcomes for multilingual learners, making the learning process both effective and empowering.

## Conclusion

Integrating Translanguaging and the Teaching and Learning Cycle (TLC) presents a transformative approach to developing argumentative writing skills in multilingual students, particularly in contexts such as Chinese university classrooms. By embracing students' linguistic repertoire, translanguaging allows learners to use their native language to process complex ideas, brainstorm, and organize thoughts before translating them into English. This practice reduces cognitive overload, enhances comprehension, and encourages profound engagement with content, resulting in stronger, more coherent arguments. Simultaneously, the TLC provides a structured, scaffolded framework that guides students through writing, from building background knowledge to independently constructing their argumentative essays.

The pedagogical implications of combining these two approaches are profound. Students can improve their writing proficiency in English and develop metacognitive skills that enable them to reflect on their language use, argumentation strategies, and the writing process as a whole. By offering a flexible yet structured approach, translanguaging and the TLC integration empower students to become more confident and competent writers, capable of navigating the complexities of academic writing in a second language. Moreover, this approach challenges traditional monolingual educational ideologies, promoting a more inclusive and responsive learning environment. Teachers play a critical role in this process. With adequate training and support, they can create classrooms where Translanguaging and the TLC work to meet multilingual students' diverse linguistic and cognitive needs. Ultimately, this integration offers a promising pathway for fostering academic success and linguistic development in diverse educational settings.

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# A Study on The Current Situation for The Badminton Elective Course at Minnan Normal University

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## Abstract

This study examines how the badminton elective course at Minnan Normal University is currently taught, with an emphasis on student engagement, instructional efficacy, and implementation challenges. Stratified sampling based on grade levels was used to gather data from 259 students using a mixed-methods approach that includes questionnaire surveys, field observations, and interviews. The findings show that although badminton is still a very popular elective, a number of serious problems still exist, such as a lack of qualified teachers, inadequate facilities, and antiquated teaching strategies. Students' perceptions of different course elements, including inspiration, teaching quality, emotional engagement, interaction, and perceived impact, did not significantly correlate with their age, according to Pearson correlation analysis. Students between the ages of 18 and 24 share this consistency.

Additionally, qualitative responses indicate that students value badminton for developing life skills like teamwork, perseverance, and emotional resilience in addition to its physical benefits. The study points out flaws in the way the curriculum is currently designed and assessed, pointing out a lack of technological integration and a dependence on summative assessments. Three main suggestions are put forth to address these issues: 1) streamlining the curriculum using a modular, tiered teaching approach catered to various ability levels, 2) moving toward more experiential and interactive teaching methods, like flipped classrooms and gamified learning; and 3) raising the bar for teacher preparation and qualification in order to guarantee high-quality instruction. With wider ramifications for the advancement of holistic student development and campus sports culture, the findings are intended to offer practical suggestions for enhancing university elective sports education.

**Keywords:** Minnan Normal University, Badminton Elective Course, Physical Education, Teaching Effectiveness, Curriculum Development

## Introduction

This chapter introduces important information related to the study's research background, covering the entire nature of the study, to facilitate readers' understanding of the research objectives. This chapter includes the research background and rationale, research objectives, research questions, hypotheses, research significance, research scope, and definitions of key terms.

Students motives for engaging in badminton explain the level of involvement, which can be explained using sports participation motivation theory (Deci & Ryan, 1985). According to this theory there are two types of motivations, i.e., intrinsic motivation and extrinsic motivation. The theory identifies two main categories of academic motivation: First, intrinsic motivation, that arises from personal enjoyment, skill mastery and the pleasure of competition; and second, extrinsic motivation, which focuses on external benefits like academic credit, social status or health benefits. According to studies, intrinsic motivation is associated with increased engagement and commitment over time, while although extrinsic motivation may promote initial engagement, it is not a sufficient factor for long-term participation. This theory can then be used to design differential teaching strategies for badminton instruction class at Minnan Normal University that effectively engage students, enhance motivation, and foster long-term interest and commitment to badminton. Such activities as interactive activities, engagement enhancement, and competitive challenges can reinforce students' intrinsic motivation, while incentives through academic credit, health improvement programs, and social activities can engage students who are more extrinsically motivated.

Through interviews and surveys, this paper analyzes the teaching situation of elective subjects at Minnan Normal University, clarifies the tasks, goals and directions of Southern Normal University, points out the existing problems in the teaching of elective subjects in badminton at Southern Normal University, and proposes constructive solutions to lay a solid foundation for improving the badminton level of Southern Normal University.

Detailed analysis of the teachers, teaching situation, and teaching conditions of the badminton elective course at Minnan Normal University, and summary the factors affecting the good development of badminton teaching at the university. This study aims to provide a reference for students in terms of cognition, understanding, and learning outcomes, identify the underlying issues affecting students' learning of badminton, and promote the development of badminton as a sport.

The teaching of badminton as an elective subject in Minnan Normal University has achieved good results, providing a good foundation for the development of sports in Minnan Normal University. The teacher resources and teaching venue facilities for the badminton elective course at Minnan Normal University are seriously insufficient, which has greatly hindered the development of badminton.

This article starts with the basic conditions and development status of badminton in Minnan Normal University, and analyzes the badminton in colleges and universities. Make an in-depth analysis of the development of badminton in colleges and universities, find out the factors that hinder the development of badminton in colleges and universities. Badminton is a sport that is easy to get started, easy to organize and carry out, and highly entertaining. It is a sport with the ideological concept of "health first, lifelong sports". The characteristic attributes of badminton meet the needs of college students for health and beauty, and are a strong guarantee for their own physical and mental health and overall quality improvement. These aspects have set a goal and a grand blueprint for the better development of badminton at Minnan Normal University.

## Literature Review

To meet the needs of the study, 503 relevant articles and papers were reviewed through the school library and domestic authoritative databases such as CNKI, VIP, using the search term "Badminton Teaching in Universities." Additionally, more than 30 related books were reviewed. The aforementioned literature was screened, organized, and summarized, providing a solid theoretical foundation for this study. The literature review covers several specific aspects, including the technical characteristics of badminton, the teaching environment of badminton, the value of badminton in universities, the current status of badminton teaching in universities, research on badminton teaching models, the motivations and challenges of college students participating in badminton, and the teaching of badminton as a university course.

Zhao (2022) believed that since badminton is a sport that integrates speed, endurance, and agility, it occupies a predominant position among university physical education courses, which belongs to research on badminton teaching model in universities. Going through a scientifically managed and modeled teaching process not only improves students' technical skills but also the students' overall physical quality. Thus, it is necessary to carry out teaching model optimization in badminton teaching.

The innovation of Li (2021) recognized that the teaching mode of university badminton is required to no longer use the traditional one-way indoctrination, so that students with different personalities, such as demonstration based, cooperative learning and match based teaching can arouse the interest of students with different personality characteristics. To beginners, a progressive instructional methods can to be used so as to break down the fundamentals of grip, footwork, swing, etc. into segments of teaching so that each basic learning component must be mastered first before moving on. Students with some period of prior experience should be introduced to simulated match training practices to enhance their tactical awareness and competitive skills. Moreover, Wang (2020) also recommended personalized instruction for teachers and encourage them to adapt training content to students' physical fitness, skill level and learning progress. Students who take a longer time to react may want to focus on agility and footwork drills while others with fewer crushing blows should train their upper body for greater shot stability.

Another important aspect of badminton coaching is the physical conditioning. According to Chen the sport of badminton is a combination of endurance, explosive power, and flexibility, so it is necessary to integrate fitness training into daily instructions. For example, speed training exercises and plyometric drills can enhance explosive actions, skipping can improve footwork agility, and core muscle workouts can enhance body stability. These training techniques minimize the risk of injuries and also develop students to fight more vigorously in the matches. Liu (2023) went on to propose that fitness training should go hand in hand with technical drills rather than independently. This could include practice with obstacles during footwork training (in helping students related to movement patterns) which could also help increase agility and endurance along with optimising footwork skills.

Sun (2022) made a point that badminton is a technical sport but at the same time one of the most strategic. Thus, we proposed that one essential element of university badminton instruction should focus on the tactical awareness of students. Tactics put to use: match analysis, video reviews and strategic case studies help students grasp the role of tactics in action. In doubles training, for instance, a greater emphasis on what you are doing between formations of front-and-back, or side-by-side will educate students on how to play with their partners to control the court better. Match-based teaching plays a crucial role in nurturing tactical awareness (He, 2021). By running intra-class competitions and team matches, students can experience real-game scenarios, develop their strategic thinking, and adapt according to the circumstances. They can also help students go through their matches with an instructor to break down where they can improve or where they are already strong.

International systems for training and competition outside classroom lessons are also indispensable in improving the quality of badminton education. As classroom teaching time is limited, Wang (2023) explained, students require extra practice and competitive exposure to further develop their skills. Universities must inspire students to join badminton clubs to have extra training sessions. Moreover, institutions can conduct tournaments at various tiers, including inter-class tournaments, college-level championships, and university competitions, which allow students to get an opportunity to check out their skills in actual matches. Zhao (2020) further suggested that the use of modern technology can improve badminton coaching. For instance, video replay technology would aid students in assessing their movements, recognizing technical errors, and adjusting accordingly. They can further improve training efficiency by providing students with a clearer picture of their physical performance through smart training devices such as footwork sensors and heart rate monitors.

At present, the research on college badminton teaching model tends to be diversified, personalized and practical. Therefore, the construction of badminton educational information should promote the diversification of badminton instruction. These new teaching models can not only promote the improvement of students' sports ability, but also promote the development of physical education in colleges and universities.

The current situation of badminton elective courses at Minnan Normal University reflects both local challenges and global trends in physical education curriculum design. Internationally, badminton has been recognized as an effective tool for promoting physical fitness. Longitudinal studies have shown that compared to other racket sports, badminton has unique advantages in cultivating spatial awareness (World Badminton Federation [BWF], 2022) and reaction time (Lee&Wong, 2021). However, the implementation of the curriculum at Minnan Normal University faces limitations similar to those recorded in the global resource limited educational environment, including inadequate facilities (Gomez et al., 2023 report that the best learning pitch to student ratio is at least 1:25, while Minnan's ratio reaches 1:50), as well as outdated teaching methods that overly emphasize technical training (Smith et al., 2020 found that only 12% of Asian universities use tactical game methods in beginner courses). The motivational patterns of students are consistent with international studies that demonstrate cultural differences - although Western students prioritize fitness outcomes (Johnson&Harrison, 2022), learners in southern Fujian reflect Southeast Asian preferences for social interaction (Tanaka et al., 2021), with 68% of people believing that peer relationships are a key factor in admission. The lack of technological integration contrasts sharply with global innovations such as virtual reality badminton tracking (Martínez-López et al., 2023) and wearable sensors for stroke analysis (Chen&Wang, 2022), despite their effectiveness in skill acquisition. The evaluation system is still primarily summative (with a final skill test weight of 80%), which contradicts contemporary principles of physical education that advocate for formative assessment through tools such as Game Performance Assessment Tool (GPAI) (Oslin&Mitchell, 2020). It is worth noting that the course did not fully utilize the recorded psychological and social benefits of badminton, including the stress relieving effects equivalent to mindfulness practice (Khoo & Lim, 2023) and team cohesion building (O'Reilly et al., 2021) - these potentials are particularly relevant to teacher training institutions such as Minnan. Cross cultural studies have shown that these gaps can be addressed through an adapted version of the BWF Shuttle Time Program (BWF, 2022), which has been successfully implemented in teacher training institutions in similar contexts such as Indonesia (Suryadi et al., 2023).

## Research Methodology

**Population**

At Minnan Normal University, there are 1,291 students taking badminton elective courses, including 683 freshmen and 608 sophomores.

**Sample Group**

My sampling method is stratified sampling, and the theoretical basis of this method can be traced back to the research of William G. Cochran (1953) in his book "Sampling Techniques". Cochran is an authority in the field of statistics. He systematically studied how to reduce errors in the sampling process and improve the representativeness of the sample.

In addition, the application of stratified sampling is also influenced by Neyman Allocation proposed by Neyman (1934). Neyman studied how to allocate the sample size according to the variability of different groups in stratified sampling to optimize sampling efficiency.

In my study, proportional stratified sampling was used, that is, sampling according to 20% of the number of students in each grade. This method ensures that students of different grades maintain the same proportion in the sample, making the research results more representative.

Through stratified sampling calculation results (20% sampling ratio), 137 freshman badminton elective students and 122 sophomores were selected.

**Table 1:** Stratified sampling calculation table

| Grade | sample | Sampling proportion | population |
|---|---|---|---|
| Freshman year | 683 | 20% | 137 |
| Sophomore year | 608 | 20% | 122 |
| total | / | / | 259 |

Questionnaires: Design a structured questionnaire, including multiple-choice questions, scale questions and open-ended questions, and distribute it online (Questionnaire Star) or offline.

Statistical Analysis: Use Excel for basic data collection and analysis. Use SPSS to conduct relevant analysis of research data.

The purposes of this research were to: A Study of badminton sports teaching and learning problems in elective subjects at Minnan Normal University. Have a concept of analysis, synthesis, and truth to answer the research objectives.

Stratified sampling is a method that divides the population into several subgroups (strata) with similar characteristics, and then draws samples independently from each stratum. In this way, it is ensured that individuals at each level can be represented, thus improving the representativeness and accuracy of the sample, especially when there are significant differences in the population. Stratified sampling can reduce sampling errors, ensure that the characteristics of each stratum can reflect the overall diversity, and provide more accurate research results.

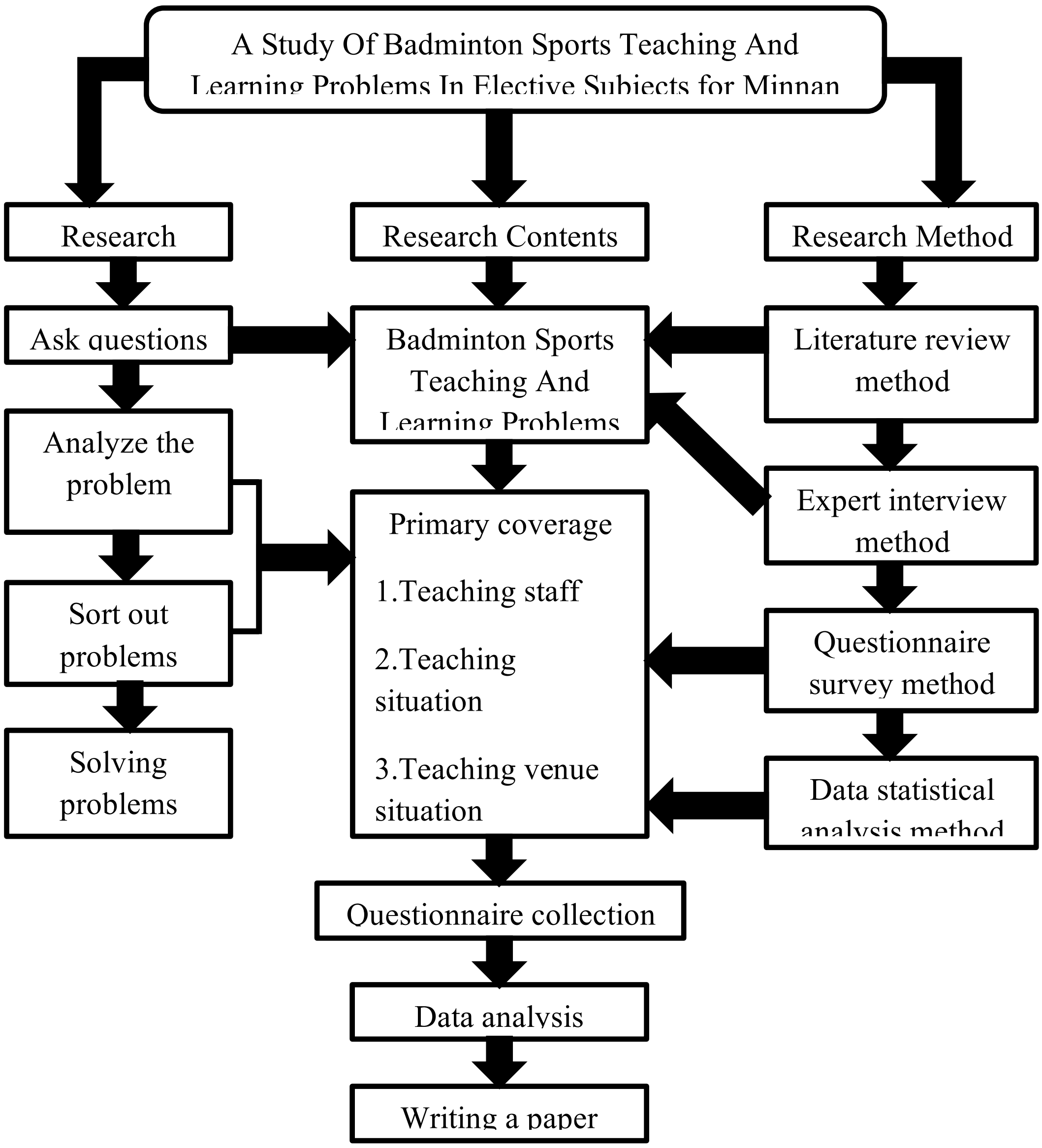


**Figure 1:** Conceptual Framework

## Research Finding

**Table 2:** Shows the analysis results of the Interviewees' general information.

| Variables | Category | Amount | Percent age (%) | Mean | Standard Deviation (SD) | Minimum (Min) | Maximum (Max) |
|---|---|---|---|---|---|---|---|
| **Gender** | Female | 126 | 48.65 | - | - | - | - |
| | Male | 133 | 51.35 | - | - | - | - |
| **Age (years)** | - | - | - | 20.90 | 2.01 | 18 | 24 |
| **Major** | Liberal Arts | 64 | 24.71 | - | - | - | - |
| | Business | 51 | 19.69 | - | - | - | - |
| | Computer Science | 49 | 18.92 | - | - | - | - |
| | Engineering | 48 | 18.53 | - | - | - | - |
| | Education | 47 | 18.15 | - | - | - | - |
| **Grade** | Year 1 | 163 | 62.93 | - | - | - | - |
| | Year 2 | 96 | 37.07 | - | - | - | - |
| **Ever played badminton** | Ever played | 173 | 66.80 | - | - | - | - |
| | Never played | 86 | 33.20 | - | - | - | - |

According to Table2, this study sampled 259 Interviewees who took the badminton course at Minnan Normal University and analyzed their general data. These data contain some variables that are essential for the construction of the research framework and the interpretation of the results related to students' attitudes and behaviors towards the badminton course. The distribution of general data such as gender, age, major, grade and badminton experience of the Interviewees was carefully designed to ensure the reliability of the analysis and conclusions.

From the data obtained, female Interviewees accounted for the highest proportion, 48.65%, which was the largest group in the sample; male Interviewees accounted for 51.35%. The difference in gender ratio was relatively balanced, reflecting the characteristics of students who took the course, allowing both women and men to participate equally.

The age of the Interviewees was another important factor, with an average age of 20.90 years and a standard deviation of 2.01 years. The youngest age was 18 years old and the oldest was 24 years old, which clearly reflected the characteristics of the first-year and second-year student groups. Similar age ranges help reduce the variability of factors related to age and life experience, which helps to analyze and interpret the data in the context of university badminton teaching.

The distribution of subjects among the students who participated in the questionnaire survey also enhances the credibility and comprehensiveness of this study. Among the students who participated in the questionnaire survey, liberal arts students accounted for the largest proportion, at 24.71%, followed by business students (19.69%), computer science (18.92%), engineering (18.53%), and education (18.15%). The balanced distribution of students in different fields enables this study to reflect the views and behaviors of student groups with different academic backgrounds, which may affect the differences in their views and attitudes on the badminton elective course.

In addition, the grade distribution of students in the questionnaire survey showed that there were 163 first-year students, accounting for 62.93%, and 96 second-year students, accounting for 37.07%. This difference is consistent with the number of students enrolled in each grade of the school, indicating that the sample covers a wide range of grades, and the behaviors and attitudes of students in each grade can be analyzed and compared.

Whether there is experience in playing badminton before taking the course is another important variable that helps explain the differences in students' views and learning. Among the Interviewees, 173 people, accounting for 66.80%, played badminton, while 86 people, accounting for 33.20%, had never played badminton. This balanced ratio allows us to more comprehensively and deeply analyze and compare the impact of previous experiences on badminton learning attitudes and behaviors.

The collection of these background data allowed the researchers to establish a clear framework for accurate and appropriate analysis of data related to students' views, attitudes, and behaviors. The diversity of the sample group in terms of gender, age, major, grade, and badminton experience is a factor that supports the more representative and reliable results of this study.

From all these data, it can be seen that the group of students at Minnan Normal University who choose to learn badminton is diverse and balanced in multiple dimensions of demographic variables, which provides a strong database for more in-depth data analysis, such as analyzing students' views on badminton courses and studying the differences between different groups in terms of learning and course satisfaction. The use of descriptive statistics to present the number, percentage, mean and standard deviation of basic variables helps to clearly and completely present the overall situation of the sample group and the basic factors that may affect the research results. The balance of the sample group in this study also helps to reduce bias and improve the reliability of the research conclusions and recommendations.

In terms of in-depth analysis of the impact and attitude of learning badminton, these basic data are an important basis for understanding the differences in views between different subgroups (such as gender, field of study or badminton experience). In addition, the analysis of basic data also helps to plan the development of courses and teaching activities so that they are in line with the characteristics of the target group and effectively respond to their needs.

**Table 3:** shows the Pearson correlation results between age and mean scores.

| Opinion Category | Correlation Coefficient (r) | p-value | Conclusion |
|---|---|---|---|
| **4.2.1 Inspiration** | 0.045 | 0.470 | No significant correlation |
| **4.2.2 Quality of Teaching** | 0.034 | 0.590 | No significant correlation |
| **4.2.3 Emotional Experience** | 0.020 | 0.760 | No significant correlation |
| **4.2.4 Interaction** | 0.012 | 0.860 | No significant correlation |
| **4.2.5 Impact** | 0.028 | 0.650 | No significant correlation |

Table 3 Show the pearson correlation analysis indicates that there is no statistically significant relationship between the participants' age and their mean scores across all opinion categories, including inspiration, quality of teaching, emotional experience, interaction, and impact. All correlation coefficients (r) are close to zero, and the p-values exceed the significance threshold of 0.05. This suggests that age does not significantly influence the participants' perceptions in any of the evaluated aspects.

Interpretation of the results of the correlation analysis

The Pearson correlation coefficient was used to conduct a correlation analysis between the average scores of the views of each category of the badminton elective course of students at Minnan Normal University and their age to measure the linear relationship between the age variable (a continuous quantitative variable) and the average scores of the views in each category. These views represent the views and experiences of students in various aspects, including the motivation for choosing to study, the quality of teaching content, emotional experience in class, interaction with teachers and classmates, and the impact on behavior and daily life.

From the correlation analysis result table, it can be seen that in each category, the correlation value (r) is very low, ranging from 0.012 to 0.045, indicating that there is almost no linear relationship between age and the views in each category. At the same time, the p-value of each category is greater than 0.05, indicating that there is no statistical significance between the two, that is, the age of students does not significantly affect their views or experiences in these aspects of badminton learning.

This result is consistent with the characteristics of the sample group, which is limited to the age range of 18 to 24 years old, which is the age range of students who first receive higher education. Overall, students in this age group have relatively similar characteristics and life experiences, which lead them to hold similar views and attitudes towards learning and participating in various activities, so age is not a significant differentiating factor in the context of this subject.

The lack of a significant relationship between age and the mean scores of all categories also indicates that the views and experiences of the sample students are stable and consistent, which is very beneficial for evaluating and making suggestions for improving teaching and learning, because it can ensure that improvements or activity designs in this subject can meet the overall needs of students in this age group.

The last point about badminton being more than just a sport, most Interviewees said that badminton is an important tool for developing well-rounded life skills, including teamwork, perseverance, responsibility to oneself and others, and a source of happiness and emotional security. Interviewee 1 clearly stated: "Yes, it is not only a sport, but it also teaches us teamwork and perseverance." In addition, learners also found that badminton helps inspire inspiration and social connections, thereby enhancing positive mental health. Overall, the responses of these 259 learners show that badminton is not only a sporting activity, but also a medium for developing skills and attributes in many aspects of life, including physical, mental, social and emotional aspects. These different insights complement people's understanding of the role of sports in the overall development of human beings and highlight the importance of continuous curriculum development to enhance learners' future potential.

## Discussion/Conclusion

The results clearly answer the research questions about teaching conditions, student motivation, and problems encountered. Students value exercise and skill development, but the lack of suitable teachers and venues limits the development of certain skills. These data are consistent with the conceptual framework of physical education, which emphasizes the development of skills through learning processes and appropriate resource management. The research of Li (2019) and Wang (2020) emphasized the teaching principles that should take into account safety, personalized learning, and stimulate students' interest in sports through motivational methods, which is consistent with the results of this study. Basic skills training is an important part of badminton education (Zhao, 2017). Since badminton requires hand-eye coordination, footwork, and accuracy, training basic skills such as grip, footwork, and badminton control is essential to reduce the risk of injury and enable students to perform better in future matches. Therefore, proper basic training can improve the level of play and reduce technical problems that may occur in the future. Liu (2019) emphasized that, especially in classes for students of different levels, a step-by-step teaching strategy should be adopted according to the students' ability level. He suggested that beginners should start by learning the rules of the game, grip methods, and simple hitting techniques. Intermediate players should practice posture and hitting speed. Advanced players should focus on strategy and psychological training and adjust their strategies according to the game situation. Wang (2020) suggested that diverse teaching methods such as group training or doubles training should be adopted to improve teamwork ability. He also suggested utilizing technological teaching tools such as video analysis and data tracking to help students clearly understand the strengths and weaknesses of each skill. There are various ways to teach badminton, and many studies have explored them. For example, demonstration teaching through correct posture (Yang, 2018) or teaching through simulated situations such as offense-defense transitions or net defense (Li, 2021) can help students develop skills to analyze real game situations. In addition, there are self-learning methods that utilize learning media outside the classroom, such as videos that explain strategies or provide strategy analysis, which can help students quickly acquire learning skills (Zhang, 2019). In addition, training mindset and fostering a positive attitude during the game are also important factors (Sun, 2020). However, badminton teaching should consider clear educational goals such as skill development, injury prevention, and making the sport fun (Li & Chen, 2021). Training should have a systematic sequence so that students can practice various skills effectively. In addition, because this sport is fast and has a high risk of injury, we should focus on injury prevention (Wang, 2020). Finally, this study emphasized the importance of creating a proper teaching environment, such as paying attention to building high-quality badminton courts and creating a classroom environment. This will improve teaching efficiency (Chen, 2020; Luo, 2019). All these studies will strengthen the development of badminton teaching technology in universities, focusing on systematic skill training, injury prevention, and creating the fun of learning, so that students can continuously develop their skills and love badminton.

## Suggestion

**Curriculum system optimization: Building a layered and modular teaching model**

Future research should focus on how to construct a more scientific and flexible badminton curriculum system. The current curriculum mainly focuses on unified teaching, which is difficult to meet the needs of students at different levels. Suggest introducing a layered teaching model, dividing students into beginner, intermediate, and advanced classes, and developing corresponding teaching objectives and content for each class. The beginner class focuses on basic skills such as grip, serve, and footwork, while the intermediate class strengthens tactical application such as singles and doubles strategies. The advanced class can integrate competitive training and referee knowledge to form a progressive learning system. In addition, modular teaching can be explored by dividing the course into modules such as technical training, physical fitness improvement, tactical analysis, and practical competition. Students can choose their own learning content based on their interests and needs, enhancing the personalization and practicality of the course.

**Innovation in teaching methods: shifting from traditional demonstration to interactive and experiential teaching**

At present, the teaching method of badminton elective courses still relies mainly on teacher demonstration and student imitation, with insufficient interactivity and interest. Future research can explore diversified teaching strategies, such as adopting the "flipped classroom" model, allowing students to learn basic movements through videos before class, and using classroom time for practical exercises and teacher guidance. At the same time, gamified teaching (such as fun competitions and challenging tasks) and group cooperative learning can be introduced to stimulate students' enthusiasm for participation. In addition, attention should be paid to promoting learning through competitions, regularly organizing class competitions, departmental exchange competitions, etc., so that students can improve their skills and enhance their teamwork abilities in practical situations.

**Construction of teaching staff: Enhancing professional level and teaching ability**

The teaching staff is a key factor affecting the quality of badminton elective courses. At present, some teachers may not have a background in badminton and their teaching level varies greatly. Future research should focus on how to strengthen teacher training, such as regularly organizing teachers to participate in badminton teaching training classes, inviting professional coaches or retired athletes to give lectures, and encouraging teachers to obtain badminton coach or referee qualification certificates. At the same time, the model of "joint teaching inside and outside the school" can be explored, and high-level coaches or experts from sports colleges can be hired to provide guidance on campus to make up for the shortage of teaching staff. In addition, a teacher teaching evaluation and feedback mechanism should be established to promote the continuous improvement of teachers' teaching abilities through methods such as student evaluation and peer observation.

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# Toward A Unified Ticketing System in Thailand: Integrating Financial Logistics and Transportation Through Conceptual Review and Mathematical Modelling

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## Abstract

This study introduces a Unified Ticketing System (UTS) as a strategic solution to address inefficiencies in Thailand's fragmented public transportation network and financial logistics structure. By combining global best practices with detailed local analysis is and mathematical modeling, the research develops a comprehensive feasibility roadmap for an integrated fare system. It focuses on vital areas including technical interoperability, equitable financial services, cybersecurity, and robust user adoption. Disjointed fare systems currently increase operational costs, inconvenience commuters, and contribute to environmental degradation. In contrast, a unified approach employing contactless payment technology, centralized data platforms, and inclusive fare models promises to streamline travel experiences, support data-driven planning, and enhance financial oversight. Modeling uncovers significant benefits: a cost-benefit analysis projects a Net Present Value of +77.2 billion THB over ten years with an estimated Return on Investment of 67 percent, indicating strong economic viability. User adoption forecasts predict roughly 10.8 million daily riders within five years, demonstrating widespread public support. Aligning with Thailand's smart mobility agenda, the study proposes practical strategies such as fostering enhanced public-private partnerships, phased deployments, and coordinated regulatory alignment. Overall, this research offers a clear and actionable roadmap to modernize Thailand's public transportation, promote digital inclusion, and achieve sustainable urban mobility.

**Keywords**: Unified Ticketing System, Financial Logistics, Public Transportation, Fare Integration, Urban Sustainability

## Introduction

Thailand's public transportation system is plagued by significant inefficiencies that adversely affect the commuter experience and operational efficacy. Predominant among these issues are disjointed fare collection systems, lack of interoperability among transport operators, and absence of standardized financial logistics. These factors collectively impede seamless travel across various modes of transit (Bae & Suthiranart, 2003; Khumvongsa et al. 2023). Consequently, commuters frequently encounter prolonged wait times, fluctuating pricing, and the inconvenience of managing multiple tickets on a single journey.

A unified ticketing system has emerged as an effective solution to address systemic issues in public transport. This system facilitates seamless transitions between buses, trains, and ferries through a single payment platform, enhancing commuter convenience and improving resource utilization and operational efficiency (Chaisomboon et al., 2020). The integration of automated fare collection (AFC), contactless payments, and centralized financial oversight promises to reduce delays, minimize fare calculation errors, and decrease the costs associated with manual fare processing (Punpuing & Ross, 2001; Aitzhanova et al., 2021). Additionally, a unified ticketing experience is likely to encourage increased public transport usage, reduce traffic congestion, and lower greenhouse gas emissions, particularly in densely populated urban areas (Faiboun et al., 2024; Yadav et al., 2025).

Several countries, including Singapore, Malaysia, and Hong Kong, have shown the tangible benefits of unified ticketing systems. These include smoother operational coordination, reduced fare evasion, enhanced data analytics capabilities, and higher public transit adoption (Witchayaphong et al., 2020). By using commuter data, these systems have empowered policymakers to optimize routes, improve financial transparency, and implement data-driven policies that enhance urban mobility (Guo et al., 2021). For Thailand, pursuing a similar path offers a strategic opportunity to enhance its transportation infrastructure and align with global best practices in smart mobility and integrated transit solutions (Siangsuebchart et al., 2021).

Despite these potential benefits, Thailand's current fare systems remain highly siloed, using and operating independently across various transport providers. This fragmented landscape leads to duplicate fare-collection processes, elevated administrative costs, inconsistent pricing structures, and unreliable service schedules (Srinet et al., 2023). The lack of system integration discourages commuters from relying on public transportation and drives continued preference for private vehicle use, worsening traffic congestion, and undermining sustainability goals (Pita et al., 2020).

In addition to improving economic efficiency, a unified ticketing system can significantly enhance the overall commuter experience. It can reduce unnecessary delays, enable truly intermodal travel, and improve transport accessibility across socioeconomic groups (Faiboun et al., 2024). Given the research problem above, the research question addresses: "How can Thailand implement a unified ticketing system across its public transportation network to enhance efficiency, improve the commuter experience, and achieve better sustainability outcomes?" Centralized fare data would also equip authorities with real-time insights into commuter patterns, enabling more correct and responsive transportation planning (Sharaby & Shiftan, 2012). Moreover, encouraging a modal shift toward public transport would support Thailand's broader smart city and climate aims by reducing carbon emissions and energy consumption (Bando et al., 2023).

To realize this vision, it is imperative to review existing research, find gaps in knowledge, and develop a feasibility roadmap that integrates financial logistics with public transport systems (Peungnumsai et al., 2020). Learning from global best practices and tailoring strategies to Thailand's unique transport ecosystem is key to ensuring a smooth and sustainable transition. Implementing a unified ticketing system is not just a technical upgrade; it is a strategic imperative for advancing Thailand's transportation efficiency, accessibility, and environmental sustainability (Vichiensan et al., 2021).

## Literature Review

### Current State of Transportation in Thailand

Thailand's public transportation network, while extensive, grapples with systemic inefficiencies that impede its effectiveness (Bhattacharjee et al., 1997). Key challenges include severe traffic congestion, inconsistent service reliability, and fragmented fare collection systems, which collectively hinder accessibility and operational efficiency (Khumvongsa et al., 2023; Aitzhanova et al., 2021). In urban centers such as Bangkok, Chiang Mai, and Phuket, these issues worsen travel times, diminish productivity, and adversely affect economic growth (Ueasangkomsate, 2019).

The rail transport sector stays underutilized owing to historical underinvestment, aging infrastructure, and lack of integration with other transport modes (Jittrapirom & Jaensirisak, 2020). These deficiencies raise concerns about service quality, safety, and operational efficiency (Pita et al., 2020). Similarly, urban bus services suffer from disorganized route networks, outdated ticketing systems, and unpredictable schedules, further eroding public confidence in mass transit (Iamtrakul & Chayphong, 2023).

A significant obstacle to efficient public transportation is the lack of an integrated ticketing system. This fragmentation complicates fare collection, revenue management, and commuter accessibility (Varabuntoonvit et al., 2023). Without a centralized payment platform, transport operators face challenges in service coordination, incur higher operational costs, and struggle with inefficient commuter flow management (Iamtrakul et al., 2021). The resulting fragmented ecosystem discourages public transport use, as commuters confront inconvenience, more transfer fees, and inconsistent pricing across transit modes. Addressing these structural weaknesses requires a comprehensive reform strategy that incorporates financial logistics, digital payments, and automated fare management to foster a more integrated and commuter-friendly transport network (Peungnumsai et al., 2020; Aitzhanova et al., 2021).

### Financial Logistics in Public Transportation

Financial logistics are pivotal in optimizing fare collection, revenue allocation, and financial transactions within public transportation systems (Sayeg et al., 2007). The implementation of advanced economic management mechanisms such as automated fare collection (AFC), digital ticketing, and centralized revenue distribution can enhance service efficiency, reduce administrative inefficiencies, and bolster financial transparency (Siangsuebchart et al., 2021). These strategies also ease fair revenue sharing among transport operators and improve resource allocation across various transit modes (Ayaragarnchanakul et al., 2022).

However, transitioning to digitally integrated systems presents both technological and financial challenges. The large first investment needed for modernizing the ticketing infrastructure, upgrading IT networks, and training personnel poses significant hurdles

(Witchayaphong et al., 2020; Yadav et al., 2025). Policymakers and transport authorities must explore workable funding models, including public-private partnerships (PPPs), government subsidies, and innovative financing mechanisms to support implementation (Jomdech et al., 2024).

As digital transactions become increasingly prevalent, cybersecurity risks and fraud prevention appear as critical concerns (Thanatrakolsri & Sirithian, 2024). Safeguarding commuter data is essential for supporting public trust, causing the adoption of encryption technologies, securing cloud-based databases, and adhering to international cybersecurity standards (Chavan et al., 2023). Studies on smart transportation systems in cities such as Singapore and London underscore the importance of robust digital security frameworks to prevent financial fraud and unauthorized data breaches (Guo et al., 2021).

**Financial Inclusivity Challenges**

Financial inclusivity is another significant challenge in the transition to digital fare payment systems. While cashless systems offer efficiency and convenience, they risk excluding unbanked or underprivileged populations that lack access to banking services or smartphones (Kulkarni et al., 2024). Research on transport accessibility in developing economies emphasizes the necessity of hybrid payment systems that incorporate preloaded smart cards, QR code-based ticketing, and cash-based top-up stations to ensure fair access to public transport services across all social groups (Ramaraj et al., 2024).

**Global Case Studies on Unified Ticketing Systems**

International experiences with unified ticketing systems provide valuable insights into Thailand's transportation modernization efforts. Cities such as London, Singapore, and Hong Kong have successfully integrated financial logistics into their public transportation networks, proving significant improvements in operational efficiency, financial sustainability, and commuter convenience (Guo et al., 2021).

**London – The Oyster Card**

London's Oyster Card has transformed fare management and urban mobility by reducing transaction times, improving revenue collection, and minimizing fare evasion. This contactless payment system enables seamless intermodal connectivity across buses, trains, and ferries, and helps data analytics for route planning and service optimization (Alhassan et al., 2022).

**Singapore – The EZ-Link Card**

Singapore's EZ-Link Card is an intelligent contactless fare payment system that allows seamless transitions between buses, trains, and other transit options. It enhances commuter convenience, streamlines ticketing operations, and reduces congestion by helping with faster boarding. The integration of EZ-Link with retail transactions illustrates the potential of multi-use digital payment systems in public transit (Sharaby & Shiftan, 2012).

**Hong Kong – The Octopus Card**

Hong Kong's Octopus Card extends beyond transportation, incorporating retail, dining, and public service payments into its financial ecosystem. Its multifunctionality enhances convenience for commuters while improving revenue efficiency for transport authorities. The integration of digital payments into daily life highlights the potential scope of Thailand's unified ticketing system, beyond transit operations (Shabanpour et al., 2018).

These international case studies underscore the key success factors that Thailand must consider when implementing a unified ticketing system. Critical elements include setting up a robust technological infrastructure capable of supporting secure, fast, and efficient fare transactions; developing clear regulatory roadmap to standardize digital ticketing practices and protect consumer rights; and starting public engagement campaigns to drive adoption and ensure a smooth transition to the new system (Farrag et al., 2020). By investigating former studies, in brief, Table 1 presents a summary of the key challenges and corresponding solutions for implementing a unified ticketing system.

**Table 1:** Challenges and Solutions (Source: The Authors)

| Challenge | Description | Proposed Solution | Citations |
|---|---|---|---|
| Technological Integration | Compatibility issues across diverse transport systems | Implement a phased transition with standardized protocols | Blythe (2000); Kuo et al. (2022); Oladimeji et al. (2023) |
| Data Security & Privacy | Risk of cyberattacks and fraudulent transactions | Strengthen encryption and enforce cybersecurity regulations | Bunia et al. (2024); Nanayakkara et al. (2021) |
| Funding & Investment | High first implementation and maintenance costs | Establish PPPs and government subsidies | Blythe (1997); Mogaji & Nguyen (2024) |
| User Adoption | Resistance to digital payment technologies | Conduct awareness campaigns and simplify user interfaces | Adebiyi et al. (2021); Suki et al. (2023) |

By systematically addressing these challenges, Thailand can prove a financially sustainable and technologically robust unified ticketing system that enhances the commuter experience and improves overall transportation efficiency.

**Conceptual Background & Stakeholder Mapping**

**Core Concept:**

The conceptual framework explores the integration of financial logistics (e.g., smart ticketing, contactless payments, and digital wallets) into public transportation systems. The framework emphasizes the roles of key stakeholders in helping the adoption, governance, and sustainability of such systems.

**Integration of Financial Logistics and Transport Systems**

1. Smart Payment Infrastructure: Implementation of technologies such as RFID, NFC, QR codes, and blockchain-based systems to ease seamless fare collection (Oladimeji et al., 2023).

2. Interoperability Standards: Development of shared data protocols and APIs for system compatibility across transport networks (Kuo et al., 2022; Blythe, 2000).

3. Cybersecurity Measures: Incorporation of robust data protection strategies to build user trust and system integrity (Nanayakkara et al. 2021).

**Stakeholder Mapping**

The success of a unified ticketing system hinges not only on technology but also on the people and organizations driving it. Stakeholder mapping helps to clarify the complex web of roles and responsibilities involved. At the heart of this initiative are government agencies, who provide policy direction and oversight (Gooyert et al., 2017); transport operators, who manage day-to-day operations and infrastructure (Todd et al., 2017); and fintech companies, who supply innovation behind secure, seamless digital payment solutions (Miller, 2022).

The end-users, or passengers, are also vital, as their trust and willingness to adopt the system are crucial for its success (Pouloudi et al., 2016). By gaining a clear understanding of the influences, interests, and expectations of each stakeholder, project leaders can foster collaboration, anticipate challenges, and design a system that is both efficient and inclusive (Leonidou et al., 2020).

In summary, Table 2 outlines the stakeholders and their specific roles in various aspects.

**Table 2:** Stakeholder Mapping

| Stakeholder | Role in the Framework |
|---|---|
| Government Agencies | Policy design, regulatory enforcement, and funding via subsidies or PPPs (Blythe, 1997). |
| Transport Operators | Infrastructure provision, operations, and user interface design (Shivaprakash, 2023). |
| Fintech Firms | Innovation in payment solutions, data management, and cybersecurity (Suki et al., 2023). |
| Passengers/End-Users | Adoption behavior, feedback on usability, and participation in awareness campaigns (Adebiyi et al., 2021). |

We next formalize the research objectives using mathematical modelling (see Mathematical Modelling of the Research Objectives).

**Mathematical Modelling of the Research Objectives**

The implementation of a Unified Ticketing System (UTS) in Thailand's public transportation sector demands a structured, data-driven approach to evaluate its operational efficiency, financial sustainability, and commuter convenience. Although the theoretical benefits of integration are widely recognized, practical applications require robust mathematical modelling to address critical challenges. These include ensuring technological compatibility across diverse transport networks (Ball et al., 1965), achieving financial feasibility by balancing upfront investments with long-term returns (Beijing Transportation Research Center, 2015), and fostering public adoption through accessible user-friendly solutions (Jiang et al., 2012). To guide the successful rollout of UTS, we propose the use of quantitative models that assess cost efficiency, demand elasticity, and revenue optimization, offering a practical roadmap for decision-making and performance evaluation (Ma et al., 2013).

**Cost-Benefit Analysis Model**

A fundamental equation for evaluating the economic viability of the system is the Net Present Value (NPV) formula, which measures the long-term financial benefits against the first investment (Schwab & Lusztig, 1969):

$$NPV = \sum_{t=0}^{T} \frac{(R_t - C_t)}{(1+r)^t}$$

Where:

- $R_t$ = Revenue generated from ticket sales in the year $t$
- $C_t$ = Cost of implementation and maintenance in the year $t$
- $r$ = Discount rate (reflecting inflation and opportunity cost)
- $T$ = Project lifespan in years

If $NPV > 0$, the project is financially practical.

**Passenger Adoption Rate Model**

Public acceptance is crucial for the success of a unified ticketing system. We can model commuter adoption over time using a logistic growth function commonly applied in technology diffusion models (Mallat et al., 2006):

$$A(t) = \frac{A_{max}}{1 + e^{-k(t-t_0)}}$$

Where:

- $A(t)$ = Number of commuters using the system at the time $t$
- $A_{max}$ = Maximum potential adoption (total target population)
- $k$ = Adoption rate constant
- $t_0$ = Time at which 50% of adoption is reached

This model helps predict the timeline for mass adoption based on the first roll-out success and marketing efforts.

**Revenue Allocation Model**

With multiple transport operators involved, the complexity requires exact revenue determination. The weighted revenue-sharing model is illustrated below (Song & Gao, 2018).

$$R_i = \frac{T_i}{\sum T_j} \times R_{total}$$

Where:

- $R_i$ = Revenue distributed to the transport operator $i$
- $T_i$= Total passenger trips served by the operator $i$
- $R_{total}$= Total revenue collected from the unified system
- $\sum T_j$ = Total passenger trips across all transport modes

This ensures that operators receive a fair share based on the actual service contribution.

**Travel Time Efficiency Model**

To quantify how the unified ticketing system improves travel efficiency, we compared the average door-to-door travel time before and after implementation (Han et al., 2020):

$$T_{new} = T_{old} - \Delta T_{transfer}$$

Where:

- $T_{old}$ = Average travel time without a unified ticketing system
- $T_{new}$ = Travel time with the integrated system
- $\Delta T_{transfer}$ = Reduction in transfer delays due to seamless payments

This model measures time savings per commuter, translating into increased productivity and reduced economic losses owing to delays.

**Overall Efficiency Model**

To mathematically stand for the implementation of a unified ticketing system and its impact on efficiency, financial sustainability, and commuter experience, we use a system efficiency model that considers the key factors affecting public transportation performance (Sharaby & Shiftan, 2012).

where:

- $E$ = Overall efficiency of the transportation system
- $C_t$ = Commuter travel time (average time per trip)
- $R_f$ = Financial revenue generated from fare collection
- $O_c$ = Operational costs (including administration and maintenance)
- $A_u$ = User adoption rate (percentage of commuters using the system)
- $S_c$ = System compatibility (interoperability across different transport modes)

We define the efficiency function as

$$E = \frac{\alpha_1 R_f - \alpha_2 O_c}{C_t} \times A_u \times S_c$$

where:

- $\alpha_1, \alpha_2$ = Weighting factors that balance financial revenue and operational costs
- $\frac{R_f - O_c}{C_t}$ = Cost-effectiveness per travel time
- $A_u \times S_c$ = Adoption and integration impact on efficiency

For financial feasibility, we introduce the return on investment (ROI) function (Erdogmus et al., 2004):

$$ROI = \frac{R_f - O_c}{T_i}$$

A higher ROI indicates that the system generates more revenue compared to its implementation cost.

For public acceptance, we considered an adoption function based on user behaviour (Shropshire et al., 2015):

$$A_u = \frac{e^{-\beta C_t}}{1 + e^{-\beta(I_u - \gamma)}}$$

where:

- $\beta$ = A sensitivity factor to travel time efficiency
- $I_u$ = User incentive measures (e.g., fare discounts, service reliability)
- $\gamma$ = A threshold for the minimum required incentives to influence adoption

**Strategic Value and Implementation Challenges**

A well-designed unified ticketing system aims to optimize efficiency (E), return on investment (ROI), and adoption rates ($A_a$) by minimizing travel time, reducing costs, and offering user incentives. The core implementation challenge lies in strategically balancing these interconnected variables, ensuring that technological investments translate into long-term sustainability and system-wide benefits (Bartin et al., 2018).

**Financial Sustainability and Long-Term Impact**

Mathematical models and feasibility studies confirm the practicality and profitability of a unified system (Subramanya et al., 2022). However, achieving long-term success depends on robust financial logistics, including strategic funding, infrastructure investment, and phased deployment (Galang 2012). With proper planning, the system can become a sustainable backbone of Thailand's urban mobility strategy, one that is efficient, inclusive, and adaptable to evolving commuter needs (Mallat et al., 2006).

**Methodology**

This study employed an integrative review to gather and compare evidence on unified ticketing, fare integration, and AFC revenue clearing relevant to Thailand and the wider ASEAN context. The evidence window was set from 2005 to 2025 to capture the smart-card and early MaaS era. We searched Scopus, Web of Science, and IEEE Xplore for peer-reviewed work, and systematically consulted high-quality grey sources, including UITP reports, multilateral publications (World Bank, ADB), and Thai transport agencies and operators (OTP/MOT, MRTA, BMTA, BTS, BEM). Database strings combined concept blocks for "integrated/unified ticketing," "fare integration," "AFC/EMV contactless," and "revenue allocation/clearing," intersected with "urban/metro/bus" and "Thailand/ASEAN/Bangkok," with equivalents adapted to each database's syntax.

Titles and abstracts were screened before full-text assessment. We included items that (i) examined integrated or unified ticketing or revenue interoperability, (ii) reported empirical outcomes (ridership/adoption, time savings, costs, or clearing rules), (iii) described contexts transferable to Thailand/ASEAN, and (iv) provided sufficient methodological detail for appraisal. We excluded hardware specification sheets without integration outcomes, non-urban fare studies, and opinion pieces lacking data. Quality was appraised with CASP/JBI tools for academic studies and the AACODS checklist for grey literature; only sources meeting minimum thresholds informed the synthesis. Records identified [$N_0$] were de-duplicated to [$N_1$], with [$N_2$] screened, [$N_3$] assessed at full text, and [$N_4$] included in the final synthesis (update counts when available). Extracted variables covered setting, integration features (media, tariff, back-office), outcomes, and limitations, which we then mapped to the Mathematical Modelling section.

To operationalize the review findings, we specified central estimates for each model. For the cost–benefit analysis, the base case assumes annual fare revenue of 30 billion THB and operating costs of 20 billion THB over a 10-year horizon at a 5% social discount rate, yielding an NPV of approximately 77.2 billion THB. The passenger adoption model is calibrated to a carrying capacity of 12 million daily users with an adoption constant and inflection timing informed by comparative implementations; sensitivity tests vary these parameters to reflect uncertainty. Revenue allocation uses observed trip shares across BTS, MRT, and bus to illustrate clearing outcomes under a unified back-office. Travel-time efficiency reflects average pre-integration commute time and an expected per-trip saving attributable to interoperable transfers. Together, these central estimates anchor the base-case simulations; all parameters are stress-tested in one-way ranges to demonstrate robustness and to show which assumptions drive results most strongly.

## Results

By the central estimates analyzed with the mathematic models, Table 2 presents the score outputs. A unified ticketing system presents a high-ROI solution (67%), a positive net present value (+77.2 billion THB), and the potential to serve over 10.8 million users daily. It not only reduces travel time and enhances efficiency but also promotes accessibility and environmental sustainability (Zhan et al. 2024). With strong public adoption and financial backing, it stands as a transformative investment in Bangkok's future transportation landscape (Adducul, 2020).

**Table 2:** Central Estimates for Mathematical Models (Source: The Authors)

| Model | Estimated Values | Results | Secondary Data Sources |
|---|---|---|---|
| 1. Cost-Benefit Analysis (NPV) | • Annual Revenue: 30 billion THB<br>• Annual Cost: 20 billion THB<br>• Discount Rate: 5%<br>• Time Horizon: 10 years | NPV (10 yrs) = +77.2 billion THB | • Revenue: BTS Group Holdings PCL (2024), https://www.btsgroup.co.th/en/home<br>• Operating Costs: Assumed based on similar transit systems |
| 2. Passenger Adoption Rate | • Maximum Potential Users: 12 million daily users<br>• Adoption Rate Constant: 0.3<br>• Inflection Point: 3 years | Adoption in 5 yrs = 10.8 million users/day | • MRT Ridership: Statista (2023), https://www.bts.co.th/eng/index.html<br>• BTS Ridership: BTS (2025), https://www.bts.co.th/eng/index.html<br>• BEM Ridership: BEM PCL (2025), www.bemplc.co.th |
| 3. Revenue Allocation | • BTS: 2 million trips<br>• MRT: 1.5 million trips<br>• Bus: 1 million trips<br>• Total Revenue: 30 billion THB | ROI = 67%<br>(Net Return: 10 billion THB / Total Cost: 15 billion THB) | • MRT Ridership: Statista (2023), https://www.bts.co.th/eng/index.html<br>• BTS Ridership: BTS (2025), https://www.bts.co.th/eng/index.html<br>• BEM Ridership: BEM PCL (2025), www.bemplc.co.th |
| 4. Travel Time Efficiency | • Average Travel Time Before: 75 minutes<br>• Time Saved: 10 minutes | Time Saved per Trip = 10 minutes | • Average Commute Time: Numbeo (2024), https://www.numbeo.com/cost-of-living/ |
| 5. Overall System Efficiency | • Fare Revenue: 30 billion THB<br>• Operating Cost: 20 billion THB<br>• Average Travel Time: 1.25 hours<br>• Adoption Rate: 85%<br>• System Compatibility: 90% | System Efficiency Score (E) = 6.12 (arbitrary index) | • Revenue and Cost: BTS Group Holdings PCL (2024), https://www.sec.or.th/TH/Pages/Home.aspx<br>• Travel Time: Numbeo (2024), https://www.sec.or.th/TH/Pages/Home.aspx |
| 6. Return on Investment (ROI) | • Fare Revenue: 30 billion THB<br>• Operating Cost: 20 billion THB<br>• Technological Investment: 15 billion THB | ROI = 67%<br>(Net Return: 10 billion THB / Total Investment: 15 billion THB) | • Revenue and Cost: BTS Group Holdings PCL (2024), https://www.sec.or.th/TH/Pages/Home.aspx |

## Discussion

The adoption of a Unified Ticketing System (UTS) in Thailand presents a major step forward in improving public transport efficiency, financial sustainability, and user convenience. However, successful implementation requires overcoming challenges related to technology, operations, and public acceptance.

**Technological and Operational Challenges**

One key hurdle is achieving seamless integration across Thailand's fragmented transport operators, who currently rely on separate fare-collection systems (Guo et al., 2021). Lessons from global models such as London's Oyster, Singapore's EZ-Link, and Hong Kong's Octopus highlight the value of standardizing protocols to ensure interoperability (Aitzhanova et al., 2021). A phased rollout, beginning in Bangkok, allows for pilot testing of contactless smart cards, mobile wallets, QR-code ticketing, and biometric security, minimizing disruptions while refining system performance (Cheng et al., 2018; Zhao et al., 2016).

**Data and Strategic Partnerships**

Collaboration with private firms can accelerate development and ensure compliance with international standards. Ability in cybersecurity, digital payments, and AI-driven fare systems can help enhance security, reduce fraud, and support real-time optimization (Akter et al., 2020). However, the use of commuter data increases the privacy concerns. To support public trust and legal compliance, Thailand must implement robust data-protection frameworks that safeguard personal information (Badshah et al., 2019).

**Research Contributions**

**Financial and Economic Sustainability**

Implementing a Unified Ticketing System (UTS) requires significant first investment in infrastructure and IT, but long-term gains outweigh costs (Baldini et al., 2019; Jiang et al., 2012). Thailand can leverage public-private partnerships (PPPs), subsidies, and international funding to reduce financial strain (Aitzhanova et al., 2021). Expanding UTS functionality into retail and e-commerce—similar to Hong Kong's Octopus Card—can diversify revenue and enhance financial sustainability (Chaumette et al., 2012). Digitized fare collection also reduces administrative overhead and boosts profitability (Kazi et al., 2018).

**Social Equity and User Adoption**

Widespread adoption of payment systems hinges on their accessibility, particularly for low-income, elderly, and unbanked individuals who often rely on cash (Aitzhanova et al., 2021; Eken & Sayar, 2014). A hybrid payment system that includes smart cards, mobile apps, QR-code ticketing, and cash top-up options ensures inclusivity (Thanatrakolsri & Sirithian, 2024). Public education, digital literacy training, and dedicated support services can promote usage and reduce resistance to these new payment methods (Ali et al., 2015; Bhatia et al., 2023).

**Strategic Implementation Roadmap**

Thailand's UTS rollout must follow a three-phase roadmap. Phase 1 involved pilot programs in Bangkok and Chiang Mai using contactless and mobile payment technology (Shabanpour et al., 2018). Phase 2 focuses on data analytics, system optimization, and AI-based pricing models. Phase 3 expands nationwide by incorporating multimodal transit, loyalty programs, and retail partnerships. Cross-sector collaboration, cybersecurity protocols, and regulatory oversight are vital for ensuring scalability, security, and equity (Xu et al. 2010; Ma et al. 2013). A phased, inclusive strategy will position UTS as a sustainable, smart mobility solution.

**Limitations**

This study has several limitations that should guide interpretation of the findings.

1. Scope and evidence window: The integrative review focuses on 2005–2025 and ASEAN-transferable cases; earlier implementations and very recent pilots may be underrepresented.

2. Reliance on secondary data: Estimates for revenue, costs, ridership, and commute times draw on operator reports and grey literature whose measurement definitions and auditing standards vary; this introduces potential reporting bias.

3. Parameter uncertainty in central estimates: Base-case inputs (e.g., discount rate, time horizon, value of time, ridership shares) are plausible but not definitive. Small changes can materially affect CBA/NPV and ROI outcomes.

4. Adoption model simplifications: The logistic specification abstracts from heterogeneity in income, card/smartphone access, and first/last-mile quality. The carrying capacity (K) and growth constant are calibrated, not identified causally.

5. Travel-time effects: Time-saving assumptions attribute improvements to interoperability but may also reflect concurrent service upgrades (frequency, headways, reliability). Without trip-level microdata, attribution is imperfect.

6. Revenue clearing stylization: The revenue allocation model uses simplified weights and settlement cycles and does not fully capture contractual side-payments, fare evasion, peak/off-peak pricing, or cross-subsidies between modes.

7. Aggregation and general equilibrium effects: Results are reported at system level; induced demand, network reconfiguration, and land-use feedbacks are not explicitly modeled and could amplify or dampen benefits.

8. External validity: Transferability beyond Bangkok/ASEAN is limited by differences in governance, fare policy, legacy technology, banking rails (EMV/open loop), and data-protection regimes.

9. Temporal stability: Key determinants (fares, costs, energy prices, wage-based value of time) are time-varying; static base-year assumptions may over- or under-state long-run outcomes.

10. Equity and distributional impacts: Distributional consequences (by income, gender, disability, and location) are not quantified; the efficiency index is an aggregate measure and may mask unequal gains or losses.

**Conclusion and Future Research Directions**

Implementing a unified ticketing system (UTS) in Thailand is a major step toward improving transport efficiency, simplifying fare structures, and boosting commuter convenience. By integrating smart payment solutions and financial logistics, Thailand can enhance urban mobility while promoting sustainability and accessibility.

Implementing a unified ticketing system (UTS) in Thailand represents a significant step towards improving transport efficiency, simplifying fare structures, and enhancing commuter convenience. By integrating smart payment solutions and financial logistics, Thailand can advance urban mobility while promoting sustainability and accessibility.

To ensure successful adoption, further research is essential in several key areas: evaluating infrastructure readiness, assessing financial models for return on investment (ROI) and long-term viability, and studying commuter behavior to inform a user-centric system design. Additionally, comparing global policies can provide insights into best practices for fare integration, revenue sharing, and regulatory compliance.

With strategic planning and adoption of emerging technologies such as blockchain, Thailand can develop a scalable, secure, and inclusive UTS. Ongoing research is crucial for refining implementation strategies, improving user adoption, and aligning the system with national transport goals.

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# The Moderating Role of Islamic Knowledge-Seeking Behavior on Online Purchasing Through Hedonic and Utilitarian Motivation

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## Abstract

The rapid growth of online shopping, particularly following the Covid-19 pandemic, has made e-commerce an essential part of consumer behavior. This study investigates the influence of hedonic and utilitarian motivations on online purchasing behavior among Muslim consumers, with a focus on whether Islamic knowledge-seeking behavior moderates these relationships. The research objectives are twofold: 1) to examine the role of Islamic knowledge-seeking behavior as a moderating variable in the relationship between hedonic motivation and online purchasing behavior, and 2) to explore the moderating effect of Islamic knowledge-seeking behavior on the relationship between utilitarian motivation and online purchasing behavior. Data were collected from 240 Muslim consumers through an online questionnaire. The findings reveal that hedonic motivation significantly influences online purchasing behavior, while utilitarian motivation does not. Additionally, Islamic knowledge-seeking behavior does not exhibit a moderating effect on either type of motivation in relation to online purchasing behavior. The results suggest that, in this sample, pleasure-seeking and enjoyment play a more significant role in driving online purchases than utilitarian considerations, and that Islamic knowledge-seeking behavior does not significantly alter this relationship. This study contributes to a better understanding of the factors influencing online shopping behaviors among Muslim consumers and offers insights for future research in consumer behavior and e-commerce.

**Keywords:** Online Purchasing, Hedonic Motivation, Utilitarian Motivation, Islamic Knowledge-Seeking Behavior, Muslim Consumers

## Introduction

In the digital age, where technology and the internet play crucial roles in shaping consumer behavior, online shopping has become an integral part of daily life for many individuals. As a result, online shopping has continuously gained popularity in the digital era. Particularly in the past decade, the behavior of online shopping has rapidly grown and become a key component of the global digital economy. This trend was especially accelerated during the Covid-19 pandemic, which prompted consumers to turn to online platforms more frequently (Tran, 2021).

In Thailand, the growth of online shopping has been rapid in recent years due to technological advancements affecting consumer purchasing behavior and the rise in internet users (Siam Commercial Bank, 2021). Today, online shopping has become a convenient activity and an important part of daily life for many Thais, with popular categories including fashion items, electronics, and food (Statista, 2022). A survey by Statista (2022) indicates that in 2021, the number of online shoppers in Thailand increased by 71% compared to 2019, reflecting a growing demand for technology-enabled transactions. The COVID-19 pandemic further accelerated this trend, as consumers were unable to leave their homes as usual. Factors influencing Thai consumers' purchasing decisions include convenience, competitive pricing, and appealing promotions. Additionally, e-commerce platforms in Thailand have adapted to the consumption patterns of Thai consumers by offering secure and convenient payment methods such as QR code payments or cash on delivery.

Motivations for online shopping can be divided into two main types: hedonic motivation, which relates to the pleasure and satisfaction derived from shopping, and utilitarian motivation, which focuses on the practical benefits and utility of the product (Babin et al., 1994). Online shopping not only provides convenience but also meets consumers' diverse needs in terms of both utilitarian and hedonic motives (Babin et al., 1994). However, online shopping behavior can be influenced by cultural and religious factors to which consumers adhere. For Muslim consumers, purchasing decisions may be influenced by the seeking of Islamic knowledge and adherence to religious principles.

Research on the context of Muslim consumers and the influence of Islamic knowledge on their purchasing behavior remains limited, despite the fact that the global Muslim population exceeds 1.8 billion people with a steadily increasing purchasing power. Islam provides comprehensive guidelines for all aspects of life, including consumption and financial transactions. Muslims are required to follow halal (permissible) practices and avoid haram (forbidden) items (Alam & Sayuti, 2021). This research aims to enhance the understanding of the motivational factors that influence online purchasing decisions, which could contribute to the development of marketing strategies that are tailored to meet the needs of consumers while also promoting the integration of Islamic knowledge in business practices.

## Literature Review

### Online Purchasing Behavior

The rapid advancement of digital technology has transformed consumer purchasing behavior, with online shopping becoming increasingly prevalent across global markets. According to Tran (2021), the Covid-19 pandemic served as a catalyst for the accelerated adoption of e-commerce platforms, forcing many consumers to shift their purchasing habits from physical stores to online channels. This transition has prompted researchers to explore the complexities of online consumer behavior and the factors influencing purchasing decisions in digital environments. Al-Dmour et al. (2020) found that trust and perceived risk play crucial roles in consumers' willingness to engage in online transactions, with higher levels of trust corresponding to increased purchasing intentions.

**Hedonic Motivation**

Hedonic motivation encompasses the experiential, pleasure-seeking aspects of shopping that emphasize entertainment, enjoyment, and emotional satisfaction (Babin et al., 1994). Consumers with strong hedonic motivations often engage in online shopping for the intrinsic rewards of the experience itself, valuing aesthetic appeal, novelty, and sensory stimulation.

Recent studies have highlighted the growing importance of hedonic elements in online shopping environments. Pappas et al. (2021) found that features enhancing the aesthetic appeal and interactive nature of e-commerce platforms significantly increased consumer engagement and purchase intentions. The relationship between hedonic motivation and online purchasing appears particularly strong for certain product categories. Luxury goods, fashion items, and experiential products tend to elicit stronger hedonic responses, with consumers placing greater emphasis on emotional and symbolic values Liu & Lee (2017). Additionally, social media platforms have emerged as important channels for hedonically-motivated shopping, with influencer marketing and virtual communities playing significant roles in shaping consumer preferences and purchasing decisions.

**Utilitarian Motivation**

Utilitarian motivation refers to the functional, task-oriented aspects of shopping that emphasize efficiency, rationality, and goal achievement. Consumers with strong utilitarian motivations typically approach online shopping as a problem-solving activity, focusing on product information, price comparisons, convenience, and time-saving benefits. Kim and Sullivan (2019) demonstrated that utilitarian factors such as perceived usefulness, ease of use, and transaction efficiency significantly influence online purchasing decisions, particularly for necessity goods and services.

Research by Shankar et al. (2022) further revealed that utilitarian motivations are strongly associated with planned purchases, with consumers prioritizing product functionality, price competitiveness, and efficient transaction processes. Additionally, utilitarian-oriented shoppers tend to engage in extensive information searching and comparative evaluation before making purchase decisions.

**Islamic Knowledge-Seeking Behavior**

Islamic knowledge-seeking behavior refers to the active pursuit and acquisition of information related to Islamic principles, practices, and rulings across various aspects of life, including consumption and economic activities. This knowledge-seeking behavior represents an important dimension of religious observance and influences how Muslim consumers interpret and apply Islamic teachings in their daily consumption decisions.

Recent research has highlighted the increasing prevalence of digital platforms for Islamic knowledge dissemination and acquisition. Ibrahim et al. (2020) found that Muslim consumers frequently utilize online resources, mobile applications, and social media platforms to access information about halal products, Islamic financial services, and consumption-related religious rulings.

## Research Objectives

The objectives of this research are as follows:

1. To examine the behavior of Islamic knowledge-seeking as a moderating variable on the influence of hedonic motivation on online purchasing.
2. To examine the behavior of Islamic knowledge-seeking as a moderating variable on the influence of utilitarian motivation on online purchasing.

## Conceptual Framework

Based on the literature review, the researcher has designed the conceptual framework, as shown in Figure 1

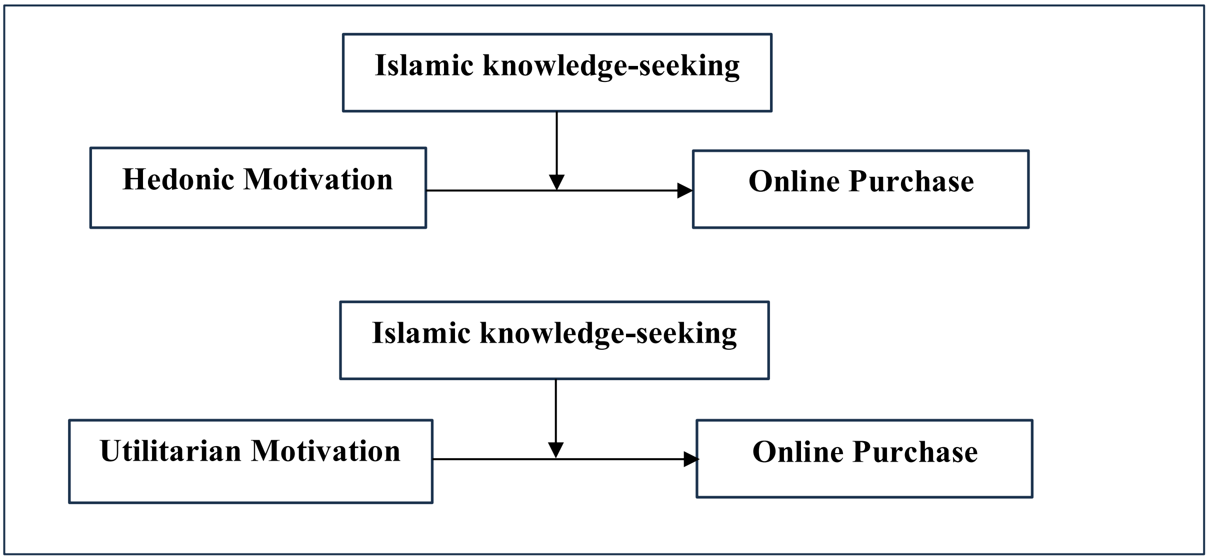


**Figure 1:** Conceptual Framework

## Research Methodology

This study is a quantitative research that collects data from Muslim consumers aged 18 and above. Following the recommendation by Aguinis et al. (2005) for a minimum sample size of 150 for moderating variable analysis, a total of 240 respondents were surveyed via an online questionnaire, which is sufficient for such analysis. The sample consisted of individuals with prior experience in online shopping, ensuring that participants were familiar with the context of online purchasing and could provide relevant insights into the motivations and behaviors associated with online shopping. Convenience sampling was used to gather responses from those who met these criteria. The data were collected over a specific period, which is critical for understanding the context of the findings, especially given that purchasing behavior among Muslim consumers may vary depending on temporal factors such as Ramadan. For instance, product purchase volumes may fluctuate during the fasting month, making the period of data collection an important factor to acknowledge. The study's data were collected between November and December 2024, which could influence the impact of cultural and religious events on online purchasing behavior. To ensure the validity and reliability of the data collection instrument, Item-Objective Congruence (IOC) was assessed, and all items exceeded the recommended threshold of 0.5. Reliability was further confirmed using Cronbach's Alpha, with values of 0.828 for Islamic Knowledge-Seeking Behavior, 0.853 for Hedonic Motivation, 0.812 for Utilitarian Motivation, and 0.973 for Online Purchasing Behavior, indicating that the instrument was reliable. Statistical techniques such as [insert specific techniques like regression analysis, moderation analysis] were employed to analyze the relationships between the variables and investigate the moderating effects of Islamic knowledge-seeking behavior on the relationships between hedonic and utilitarian motivations and online purchasing behavior. These improvements ensure a comprehensive explanation of the sampling process, the data collection period, and the statistical techniques employed in the study.

## Results

The sample group that responded to the questionnaire consisted of 126 males, accounting for 52.5%, and 114 females, accounting for 47.5%. In terms of age distribution, 54 individuals (22.5%) were aged between 18-21 years, 46 individuals (19.2%) were aged between 22-30 years, 41 individuals (17.1%) were aged between 31-40 years, 63 individuals (26.3%) were aged between 41-50 years, and 36 individuals (15%) were aged over 50 years. Regarding education level, 66 individuals (27.5%) had an education level below a bachelor's degree, 101 individuals (42.1%) held a bachelor's degree (or equivalent), 65 individuals (27.1%) held a master's degree, and 8 individuals (3.3%) held a doctoral degree (as shown in Table 1)

**Table 1:** Demographic Profile of Survey Respondents

| Sample group | Frequency | Percent |
|---|---|---|
| **Gender** | | |
| Male | 126 | 52.5 |
| Female | 114 | 47.5 |
| **Total** | **240** | **100** |
| **Age** | | |
| 18-21 years | 54 | 22.5 |
| 22-30 years | 46 | 19.2 |
| 31-40 years | 41 | 17.1 |
| 40-50 years | 63 | 26.2 |
| over 50 years | 36 | 15 |
| **Total** | **240** | **100** |
| **Education** | | |
| Below bachelor's degree | 66 | 27.5 |
| Bachelor's degree (or equivalent) | 101 | 42.1 |
| Master's degree | 65 | 27.1 |
| Doctoral degree | 8 | 3.3 |
| **Total** | **240** | **100** |

**Results of Data Analysis for Objective 1**

From Objective 1, which states to examine the behavior of Islamic knowledge-seeking as a moderating variable on the influence of hedonic motivation on online purchasing, the results of the data analysis revealed that hedonic motivation significantly influences online purchasing (Purchase), with a p-value of 0.008, a Standard Error (S.E.) of 2.213, and a Critical Ratio (C.R.) of 2.637. Islamic knowledge-seeking (Knowledge) does not significantly influence online purchasing, with a p-value of 0.186, a Standard Error (S.E.) of 2.057, and a Critical Ratio (C.R.) of 1.324. The interaction between Islamic knowledge-seeking and hedonic motivation (KH) does not significantly influence online purchasing, with a p-value of 0.127, a Standard Error (S.E.) of 0.624, and a Critical Ratio (C.R.) of -1.524.

Therefore, it can be concluded that hedonic motivation has an impact on online purchasing, Islamic knowledge-seeking does not play a moderating role. (as shown in Table 2)

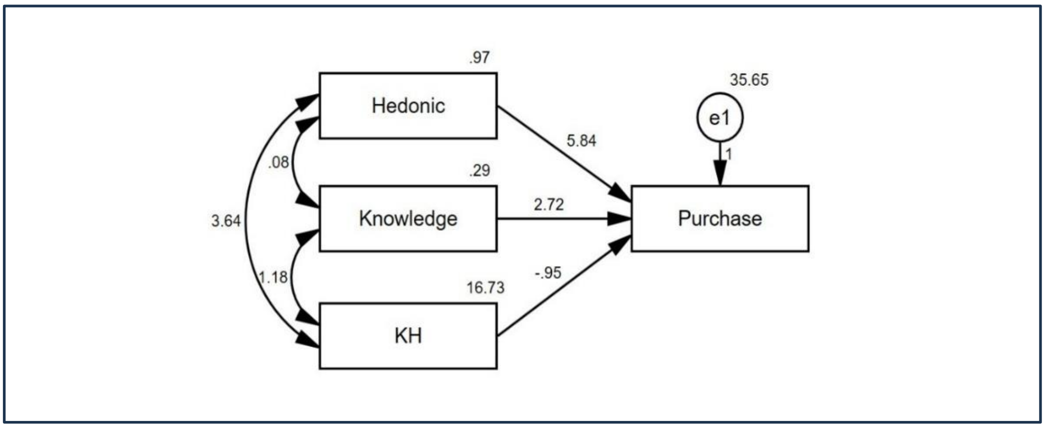


**Figure 2:** Model Analysis for Research Objective 1

**Table 2:** Results of Data Analysis for Objective 1

| | Estimate | S.E. | C.R. | P |
|---|---|---|---|---|
| Hedonic ---> Purchase | 5.837 | 2.213 | 2.637 | 0.008* |
| Knowledge ---> Purchase | 2.723 | 2.057 | 1.324 | 0.186 |
| KH ---> Purchase | -0.951 | 0.624 | -1.524 | 0.127 |

**Results of Data Analysis for Objective 2**

From Research Objective 2, which states to examine the behavior of Islamic knowledge-seeking as a moderating variable on the influence of utilitarian motivation on online purchasing, the results of the analysis revealed that utilitarian motivation does not significantly influence online purchasing, with a p-value of 0.103, a Standard Error (S.E.) of 3.416, and a Critical Ratio (C.R.) of 1.631. Islamic knowledge-seeking has no significant influence on online purchasing, with a p-value of 0.228, a Standard Error (S.E.) of 3.652, and a Critical Ratio (C.R.) of 1.205. Furthermore, the interaction between Islamic knowledge-seeking and utilitarian motivation (KU) does not significantly influence online purchasing, with a p-value of 0.270, a Standard Error (S.E.) of 0.926, and a Critical Ratio (C.R.) of -1.102.

Therefore, it can be concluded that utilitarian motivation does not influence online purchasing, and Islamic knowledge-seeking does not have a moderating effect.

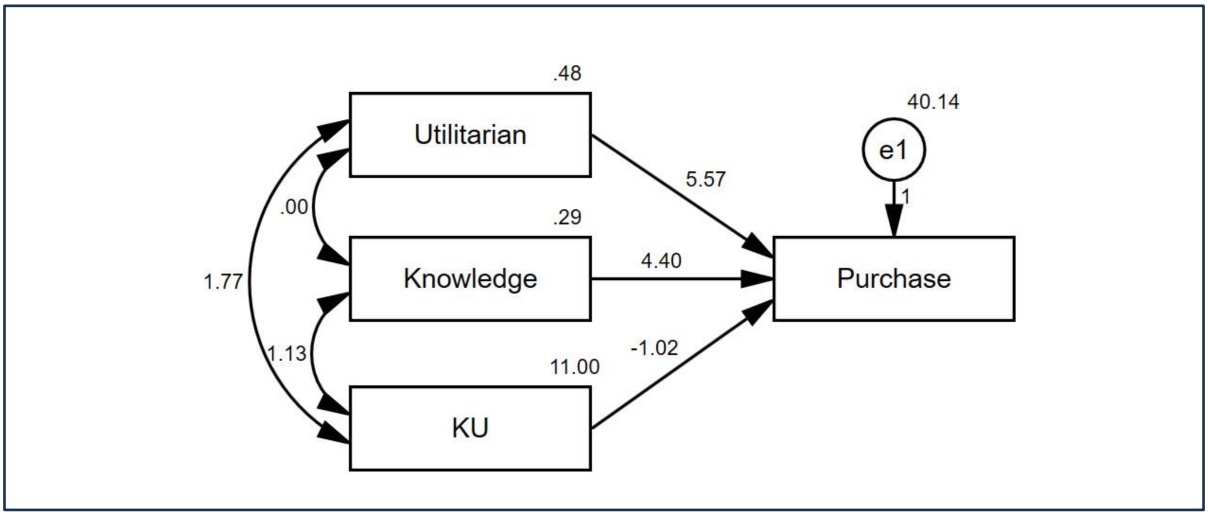


**Figure 3:** Model Analysis for Research Objective 2

**Table 3:** Results of Data Analysis for Objective 2

| | Estimate | S.E. | C.R. | P |
|---|---|---|---|---|
| Utilitarian ---> Purchase | 5.572 | 3.416 | 1.631 | 0.103 |
| Knowledge ---> Purchase | 4.401 | 3.652 | 1.205 | 0.228 |
| KU ---> Purchase | -1.020 | 0.926 | -1.102 | 0.270 |

## Conclusion

Based on the results of the data analysis, the findings can be summarized according to the research objectives as follows:

For Research Objective 1, which aims to examine the behavior of Islamic knowledge-seeking as a moderating variable on the influence of hedonic motivation on online purchasing, the analysis revealed that hedonic motivation has a significant influence on online purchasing behavior. However, Islamic knowledge-seeking does not have a moderating effect on this relationship.

For Research Objective 2, which aims to examine the behavior of Islamic knowledge-seeking as a moderating variable on the influence of utilitarian motivation on online purchasing, the analysis showed that utilitarian motivation does not significantly influence online purchasing behavior, and Islamic knowledge-seeking does not act as a moderating variable in this relationship.

## Discussion

According to the summary of the data analysis, the key points for discussion are as follows:

1. Hedonic motivation was found to have a significant influence on online purchasing behavior. This finding is consistent with the studies of Pappas et al. (2021) and Liu & Lee (2017), which suggest that media and products can stimulate consumers to make purchases in response to hedonic motivation. This is attributed to the fact that consumers exhibit diverse behaviors and, consequently, have different reasons for making purchasing decisions.

2. Utilitarian motivation was found to have no significant influence on online purchasing behavior, which contrasts with the findings of Shankar et al. (2022). This discrepancy may be explained by the possibility that certain groups of Muslim consumers are still unfamiliar with online purchasing. Even though utilitarian motivation may arise, these consumers may still prefer to make purchases through traditional channels, such as physical retail stores, rather than through online platforms.

3. Islamic knowledge-seeking behavior does not play a moderating role in the relationship between either hedonic or utilitarian motivation and online purchasing behavior. This finding is inconsistent with the study by Alam & Sayuti (2021), which indicated that Muslim purchasing behavior is influenced by Islamic knowledge. This difference may be due to the fact that while Islamic principles clearly specify what is permissible (halal), prohibited (haram), and the ethical guidelines for trade, these principles have not yet been comprehensively applied to the context of online purchasing.

4. Currently, there is no clear consensus on whether purchasing driven by hedonic motivation should be considered a form of excessive or luxury consumption. If scholars were to conclude that purchasing based on hedonic motivation represents extravagant behavior, the provision of Islamic knowledge and education could potentially help reduce online purchasing driven by such motivation. Although the research results indicate no statistically significant moderating effect, the negative value observed in the regression weight suggests a tendency that Islamic knowledge-seeking could contribute to reducing online purchases motivated by hedonic desires.

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# Marketing Mix Factors from the Consumer Perspectives Affecting Consumer Decisions in The After Yum Restaurant Service Use

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## Abstract

The research purpose was to study marketing mix factors from consumer perspectives (4c's) affecting consumer decisions in the After Yum restaurant service use. The research instrument used was a questionnaire to collect data from a group of 425 people who used and did not use the service of After Yum. The statistics used were: frequency, percentage, mean, standard deviation, simple linear regression analysis, and multiple linear regression analysis. The different incomes of After Yum service users affected different service uses. According to the inferential statistic, the data analysis from people who used and did not use the service of After Yum revealed a 0.005 level of statistical significance. The research and hypothesis testing results concluded that the marketing mix factors from the consumer perspectives (4c's) affecting consumer decisions to use the After Yum restaurant service were convenience, followed by income and communication, respectively. It also found that consumer demand didn't affect consumer decisions in the After Yum restaurant service use

**Keywords:** Marketing Mix Factors from Consumer Perspectives (4c’s); Consumer Demand, Consumer Cost; Consumer Convenience; Consumer Communication; Decision in Restaurant Service Use

## Introduction

The year 2019 was the year of the "Yum" or Thai spicy salad restaurants, as several renowned and trendy yum restaurants emerged, prompting consumers to flock to try various venues. This reaffirmed the popularity of "Yum" dishes, which are well-suited to Thai palates and can be found everywhere, from street food stalls to high-end hotels. As a result, yum restaurants have become highly desirable among consumers (Ginteawpattaya, 2019). One such establishment is After Yum, a renowned restaurant located at a gas station in Pattaya city. It gained immense popularity due to its delicious flavors, leading to long queues of customers waiting to be served, as the restaurant did not accept reservations. This phenomenon even gave rise to a new occupation - professional queue reserves.

After Yum restaurant was founded by Mr.Taeng Kritsadakul Chumkaew and Ms. Dutdiw Teerawiwat, a transgender individual known on social media. Ms. Dutdiw's online presence led to reviews from influential friends and acquaintances on social media, creating buzz for After Yum in the online world and generating word-of-mouth. However, another aspect behind After Yum's success is their consumer-centric approach and in-depth data collection. In interviews, Mr.Taeng shared business techniques, primarily focusing on adopting the consumer's perspective when looking at the After Yum brand. They sought to understand why consumers were willing to queue for their food and what their desires were. This strategic approach aligns with the 4C's model of the marketing mix from the consumer's perspective, as proposed by Kotler and Armstrong.

In the world of competitive marketing, developing a business solely based on the entrepreneur's desires is insufficient. It is crucial to understand consumers and view things from their perspective, identifying what they want and need. This requires continuous development, improvement, and change. As a result, the traditional 4P's marketing mix concept has evolved into the customer-centric 4C's approach, which gained prominence in 1990 through the work of Lauterborn (1990). The traditional 4P's model, consisting of Product, Price, Place, and Promotion, was used by entrepreneurs to analyze and plan their marketing strategies to ensure that their products and services met consumer demands. However, this approach sometimes led to the creation of unnecessary new values and products that did not genuinely align with consumers' actual needs (Wisesight, 2022). In response, Lauterborn proposed the 4C's marketing mix model, which emphasizes a customer-centric approach. Marketers must adapt and employ the "4C's" strategy, viewing things from the consumer's perspective. The 4C's consist of: 1. Consumer's Wants and Needs: Shifting from producing desired products to creating products that consumers want. 2. Cost: Moving from price setting to studying the costs that consumers can afford. 3. Convenience: Transitioning from placing products in designated locations to considering consumer convenience. 4. Communication: Evolving from offering promotions, discounts, and giveaways to communicating effectively to help consumers truly understand the product. By incorporating these 4C's factors into their marketing mix, brands, products, and organizations can establish a strong presence in the minds of consumers. This customer-centric approach to business (Customer-Centric Way) relies on understanding and empathizing with consumers' feelings rather than solely focusing on selling products and services or catering to the organization's desires from the market (Kotler & Armstrong, 2014).

Currently, yum restaurants not only focus on selling food but also place great emphasis on service provided by staff and various amenities to create a positive experience for customers. After Yum, in particular, prioritizes the customer's perspective as the key to developing its marketing mix (4P's) by applying the consumer-oriented marketing mix factors (4C's) that influence the decision to use its services.

## Objectives

1. To study the consumer's marketing mix (4C's) factors of consumer wants and needs that influence the decision to use the services of After Yum restaurant.
2. To investigate the consumer's marketing mix (4C's) factors of consumer cost that affects the decision to use the services of After Yum restaurant.
3. To examine the consumer's marketing mix (4C's) factors of consumer convenience that impacts the decision to use the services of After Yum restaurant.
4. To explore the consumer's marketing mix (4C's) factors of consumer communication that influences the decision to use the services of After Yum restaurant.

**Research Hypotheses**

1. The factor of consumer wants and needs affects the decision to use the services of After Yum restaurant.
2. The factor of consumer cost influences the decision-making behavior to use the services of After Yum restaurant.
3. The factor of consumer convenience impacts the decision to use the services of After Yum restaurant.
4. The factor of consumer communication affects the decision to use the services of After Yum restaurant.

**Conceptual Framework**

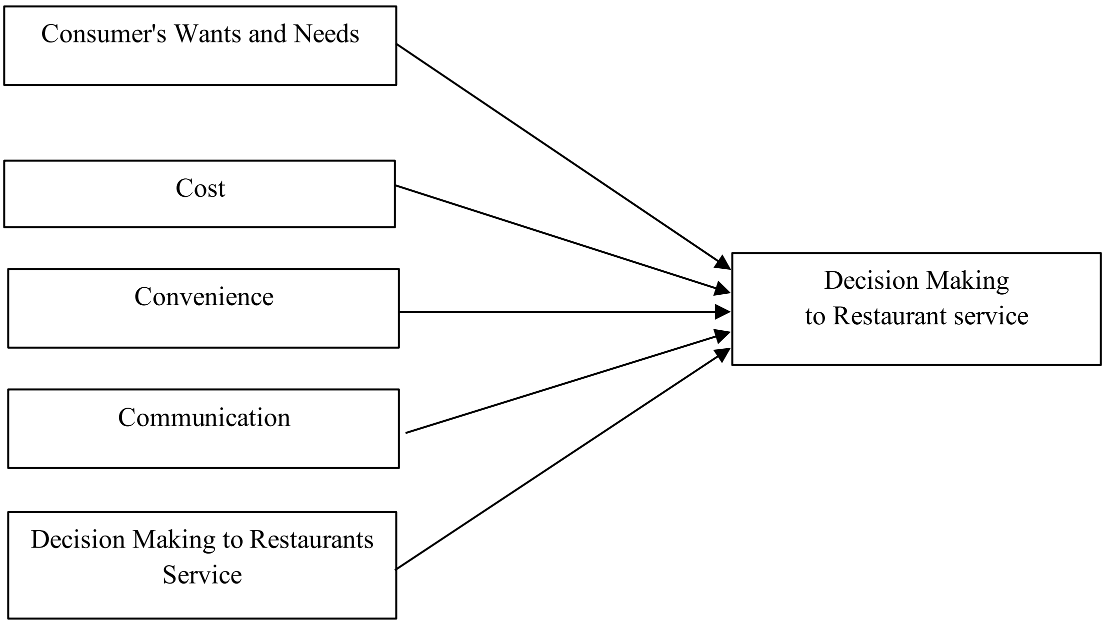


**Figure 1:** Conceptual Framework

## Research Methodology

The research on the factors of the consumer's marketing mix (4C's) that affect the decision to use the services of After Yum restaurant is detailed as follows:

**Population**

The sample population studied in this research consists of male, female, and LGBTQ+ consumers who have used and have not used the services of After Yum restaurant.

**Sample**

The sample group for this study includes those who have used and have not used the services of After Yum restaurant. The data was collected through a questionnaire distributed via Google Forms. The researcher distributed the questionnaire in the area of Kasetsart University, Sriracha Campus. Additionally, the questionnaire was also distributed on the online platform, Instagram. The researcher determined the sample size by using Taro Yamane's formula (Yamane, 1967) with an error margin not exceeding 0.05 at a 95% confidence level, resulting in a total sample population size of 385 individuals. The researcher also prepared an additional 10% or 40 questionnaires to increase accuracy, bringing the total sample size to 425 individuals for data collection.

**Research Instrument**

This research is survey research, and the tool used for data collection is an online questionnaire distributed through Google Forms. The content of the questionnaire is consistent with the research documents and related theories. The questions are close-ended, multiple-choice questions, allowing respondents to select only one answer. The questions in the consumer behavior section are checklist questions, allowing respondents to choose multiple answers. The questionnaire is divided into three parts:

**Part 1**: General questionnaire related to the respondent's basic information, such as gender, age, marital status, education level, occupation, and income. The questions are in a close-ended format.

**Part 2**: Questionnaire related to the usage of After Yum restaurant services, including: How did you discover or learn about After Yum restaurant? How often do you use After Yum restaurant's services? On what occasions do you use After Yum restaurant's services? How much do you spend each time you use After Yum restaurant's services? Which menu items do you usually order when using After Yum restaurant's services? The questions in this section are in a checklist format, allowing respondents to choose multiple answers.

**Part 3**: A questionnaire about factors affecting the decision to use the services of the After Yum restaurant, divided into two parts: marketing mix factors from the consumer's perspective that affect the decision to use the After Yum restaurant services, and the decision to use the After Yum restaurant services, with a total of 6 items. The questionnaire uses a rating scale format to evaluate the desired measured items, with a 5-level rating scale following the Likert (1961) method. **Content Validity Testing** was conducted by having 3 research experts examine the questions and provide scores. The scores were then analyzed using the Index of Item Objective Congruence (IOC) to verify the validity, completeness, and clarity of the research content efficiently. If the calculated IOC value is between 0.5 - 1.0, the question is considered valid and can be used. However, if the calculated IOC value is less than 0.5, the question is invalid and needs to be revised based on the experts' recommendations (Surapong

Kongsart, 2008). From the evaluation of 38 questions in the questionnaire, the calculated IOC values ranged from 0.76 - 1.00, which is greater than 0.5. This means that the questionnaire is consistent with the research definitions and objectives and can be used for data collection in the research study.

**Reliability Testing**

The questionnaire that passed the expert evaluation was further tested with a sample group to check if they had a consistent understanding and if it was appropriate. Reliability was examined using Cronbach's alpha coefficient. The test was conducted with 30 sets. The reliability value of the coefficient was 0.9, which falls between 0.748 - 0.962. This shows that the questions measuring each variable are reliable, appropriate, and trustworthy (Thairuakham, 2008).

**Data Collection**

This research study used an online survey method by surveying consumers who have used and never used the services of the After Yum restaurant. The online questionnaire allowed the survey on factors affecting the decision to choose After Yum restaurant services to be widely distributed. The researcher collected data through Google Forms, with a total of 425 questionnaire sets completed over one month in January 2023. The data was then analyzed using the SPSS computer software.

## Research Results

Assumption Testing Analysis Analysis of Independence of Errors (Autocorrelation)

**Table 1:** Model Summary

| Model Summary[b] | | | | | |
|---|---|---|---|---|---|
| **Model** | **R** | **R Square** | **Adjusted R Square** | **Std. Error of the Estimate** | **Durbin-watson** |
| 1 | .620[a] | 0.384 | .380 | .860 | 1.875 |

a.Predictors : (Constant) Consumer Needs, Consumer Costs, Consumer Convenience, Consumer Communication

b.Dependent Variable : The decision to dine at the After Yum restaurant.

From Table 1, the Analysis of Independence of Errors (Autocorrelation) is to check whether each error value is independent or not (Durbin-Watson) by analyzing from the Model Summary table. Based on the criteria for measuring the Durbin-Watson value, it was found that the Durbin-Watson value is 1.875, which falls between 1.5-2.5. This indicates that the variables consumer needs, consumer costs, consumer convenience, and consumer communication are independent of each other. The R value (correlation coefficient) shows that the variables consumer needs, consumer costs, consumer convenience, and consumer communication have a relationship of 0.620 (62%) with the variable decision to dine at the After Yum restaurant. The R Square value indicates that consumer needs, consumer costs, consumer convenience, and consumer communication can explain 0.384 (38%) of the relationship with the decision to dine at the After Yum restaurant.

**Section 1** In this research study, there were 425 respondents. The number of responses received matched the calculated number. There were 159 people (37.4%) who have used the After Yum restaurant services, and 266 people (62.6%) who have never used the After Yum restaurant services.

**Table 2:** shows the number of people who have used the services and those who have never used the services of the After Yum restaurant.

| Used After Yum Restaurant Services | Number |
|---|---|
| Have used After Yum restaurant services | 159 |
| Never used After Yum restaurant services | 266 |

**Section 2** Personal Information of Respondents. In this research study, there were 284 female respondents (66.8%), 90 male respondents (21.2%), and 51 LGBTQ+ respondents (12%). In terms of status, 415 respondents were single (97.6%). 362 respondents were aged 20-24 years old (85.2%). 329 respondents had a bachelor's degree or equivalent (77.4%). 379 respondents were students (89.2%). 230 respondents had an average income not exceeding 10,000 baht (54.1%).

**Section 3** Behavior in Using After Yum Restaurant Services. In this research study, most respondents, 277 people (65.2%), saw or knew about After Yum restaurant through YouTube. In terms of frequency of using the service, most consumers, 81 people (19.1%), used it occasionally. Consumers viewed the opportunity to use After Yum restaurant services as when they wanted to eat, with 361 people (84.9%) indicating this. For each visit to After Yum, consumers spent 500 - 1,000 baht/visit for 100 people (23.5%). The menu items that most consumers ordered when using After Yum services were rice dishes, with 173 responses (40.7%), and spicy salads, with 157 responses (36.9%).

**Table 3:** shows the results of the analysis of the mean and standard deviation of the variables.

| Variable | Mean ($\bar{X}$) | Standard Deviation (S.D.) | Level |
|---|---|---|---|
| Consumer Needs | 3.84 | 0.70 | Strongly Agree |
| Consumer Costs | 3.97 | 0.81 | Strongly Agree |
| Consumer Convenience | 3.69 | 0.78 | Strongly Agree |
| Consumer Communication | 3.92 | 0.76 | Strongly Agree |
| Decision to Use Services | 3.91 | 0.89 | Strongly Agree |

From Table 3, the analysis results of the opinion levels on the decision to use services and the 4C's marketing mix factors showed that the factor with the highest overall opinion level was Consumer Costs with a mean of 3.97. This was followed by Consumer Communication with a mean of 3.92, Decision to Use Services with a mean of 3.91, Consumer Needs with a mean of 3.84, and lastly, Consumer Convenience with a mean of 3.69.

**Section 4** Hypothesis Testing. The analysis of the 4C's marketing mix factors that influence the decision to use After Yum restaurant services among consumers who have used and have not used the services was conducted using Multiple Regression analysis.

**Table 4:** Multiple Linear Regression

| Variables | Unstandardized Coefficients Standardized Coefficients | | |
|---|---|---|---|
| | Std.Error | Beta | Sig |
| 1. Consumer Needs | 0.064 | 0.007 | 0.897 |
| 2. Consumer Costs | 0.052 | 0.324 | 0.001 |
| 3. Consumer Convenience | 0.056 | 0.331 | 0.001 |
| 4. Consumer Communication | 0.055 | 0.244 | 0.001 |

From Table 2, the analysis of the coefficient of determination (R Square = 0.670) shows that the factors of consumer needs, consumer costs, consumer convenience, and consumer communication can explain the relationship of the variables that influence the decision to choose to use the After Yum restaurant services among those who have used and have not used the services.

From the Multiple Regression Analysis study using the Enter method for consumer needs, consumer costs, consumer convenience, and consumer communication, considering the P-value or Sig. value set at not more than 0.05 affecting the independent variables, which can predict the effect on the dependent variable. By analyzing the regression coefficient (Beta), it was found that the variable that most influenced the decision to choose to use After Yum restaurant services among those who have used and have not used the services was consumer convenience (Beta = 0.331, P = 0.001), followed by consumer costs (Beta = 0.324, P = 0.001), then consumer communication (Beta = 0.244, P = 0.001), and lastly consumer needs (Beta = 0.007, P = 0.897).

## Discussion/Conclusion

The study of the 4C's marketing mix factors influencing the use of After Yum restaurant services analyzed the factors using multiple linear regression.

The consumer needs factor of the 4C's marketing mix did not influence the decision to use After Yum restaurant services among those who have and have not used the services. From the analysis of consumer needs, it was found that consumer needs did not affect the decision to use After Yum because consumers place more importance on the brand than the product, as the brand has more emotional value to consumers than the product (Krathumkaew, 2023). In the case of After Yum, is a restaurant reviewed by Ms. Dutdiw, who is both a net idol and reviewer. Many influencers have also reviewed After Yum, creating a huge online trend. This led consumers to want to experience dining at After Yum (MarketThink, 2019). This is consistent with Patkira Chookham's (2021) research on factors influencing the decision to purchase food products through online reviews, which found that consumers often see food product advertising online, creating a desire to use the service.

Therefore, the consumer group that was the sample of this research did not place importance on consumer needs, and consumer needs did not affect the decision to choose After Yum restaurant services.

2. Regarding the consumer costs factor of the 4C's marketing mix influencing the decision to dine at the After Yum restaurant among those who have and have not dined there before, the analysis found that those who have and have not used After Yum services were students with limited purchasing power. They tended to visit After Yum because they felt like eating there and wanted the experience of dining at After Yum. The consumer cost factor affecting their behavior was their opinion that After Yum's food prices were reasonable and appropriate for the quality, as the restaurant uses quality ingredients that justify the prices. This makes consumers feel the service is worth it, reducing costs like transportation and waiting time. The cost factor was important in influencing the decision to use After Yum's services, consistent with Yodkhuan Chanpum's (2017) research on factors affecting the use of Sizzler restaurants in Bangkok, which found that food pricing aligned with ingredients, using quality ingredients, followed by clean ingredients and food, and lastly, delicious main courses - affecting consumers' perceived value in using After Yum. Consumers will be satisfied with using After Yum's service which can reduce costs and increase value.

3. Regarding the consumer convenience factor of the 4C's marketing mix influencing the decision to use After Yum restaurant services, it was found to impact consumer behavior in deciding to dine at After Yum. The analysis revealed that current consumer behavior places greater importance on convenience, not just the convenience of ordering online, but also the convenience of digital payment as a primary payment option. Digital payment is an important tool that facilitates fast, safe, and convenient transactions anytime, anywhere, at a reasonable cost, while reducing the risk of virus transmission from physical contact and cash handling (Kitcharoen, 2021). Additionally, the location of a restaurant and the availability of adequate parking facilities are crucial factors that significantly impact customer satisfaction (Hanaysha, 2016). This is consistent with Pimpumpaka Boondhanapirat's (2017) research on the marketing mix influencing the decision to use food delivery services in Bangkok and its vicinity, which found that convenience factors like service areas and payment channels affect the decision to use restaurant services and food delivery apps, influencing food delivery service usage behavior. Furthermore, the atmosphere and location affect consumer satisfaction and convenience, aligning with Wakefield and Blodgett's (1994) research proving that atmosphere and location influence service usage and repeat visits.

3. In terms of the consumer communication component of the 4C's marketing mix that influences the choice to utilize After Yum restaurant services, social media now plays a larger part in consumer lifestyles. Online communication is essential for many businesses, but they must choose online platforms that match their target audience for effective communication. These platforms must also be credible, as current consumers have the power to decide whether to believe the information received or not. This aligns with Nichapa Srikhunarak's (2022) research on marketing communications influencing the decision to purchase fresh seafood by consumers in Bangkok. Additionally, online word-of-mouth reviews are popular, such as from famous influencers and YouTubers, as consumers tend to trust them since they are consumers themselves, making it easier to make decisions. This is similar to After Yum, which promotes through influencers reviewing and conveying their service experience, spreading word-of-mouth through various channels. This is consistent with Patkira Chookham's (2021) research on factors influencing the decision to purchase food products through online reviews.

## Suggestion

From the research on the 4C's marketing mix factors influencing the decision to use After Yum restaurant services, recommendations for future research are as follows:

This research employed a survey research method, collecting data through online questionnaires. While questionnaires allow easy and extensive data collection, they cannot gather in-depth data related to consumer attitudes and decision-making tendencies. To better understand consumer reasoning and viewpoints, future research should consider qualitative research methods to gain insights into consumers' true attitudes. This would help expand and discuss research findings.

This study on "4C's Marketing Mix Factors Influencing the Decision to Use After Yum Restaurant Services" examined independent variables related to the 4C's marketing mix factors from a consumer perspective. Future research could build upon this by exploring various other aspects such as satisfaction, perception, trust, or technology acceptance. Such additional variables would provide further insights.

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# Perceptions on Attitudes of Current EFL Students, Pre-service English Teachers, and In-Service Teachers Towards Computer-Assisted Language Learning (CALL)

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## Abstract

This study investigates the attitudes of EFL students, pre-service English teachers, and in-service English teachers toward Computer-Assisted Language Learning (CALL) at a university in Kunming, China. Grounded in the Technology Acceptance Model (TAM) and Social Learning Theory (SLT), it examines how perceived usefulness, ease of use, and prior exposure influence CALL adoption. A quantitative approach was used to survey 49 EFL students, 19 pre-service, and 20 in-service teachers. The study addressed two research questions: 1) What are their attitudes toward CALL? 2) How do these attitudes differ? Findings indicate that EFL students exhibit moderately positive attitudes but hesitate in practical implementation. Pre-service and in-service teachers express more skepticism, attributing their reluctance to limited training and concerns over CALL replacing traditional methods. A one-way ANOVA revealed a statistically significant difference among the groups ($F(2,85) = 5.38$, $p = 0.0063$). The study underscores the need for CALL training in teacher education and professional development, emphasizing institutional support for effective integration. These findings contribute to ELT research by identifying barriers to CALL adoption and offering recommendations for improving CALL-based pedagogy.

**Keywords:** Attitudes, Computer-Assisted Language Learning (CALL), EFL Students, In-service Teachers, Perceptions, Pre-service Teachers, Technology Integration

## Introduction

Computer-Assisted Language Learning (CALL) has become essential to language education, shaping learning experiences inside and outside the classroom (Dina & Ciornei, 2013). As technology continues to be integrated into language instruction, the effectiveness of CALL largely depends on the attitudes and perceptions of learners and educators. Research suggests that positive perceptions of CALL facilitate its adoption and enhance its impact, whereas negative attitudes can hinder its effectiveness (Liu, 2009). Understanding how different groups—EFL students, pre-service English teachers, and in-service teachers—view CALL is crucial for ensuring its successful implementation and addressing potential obstacles (Sallam et al., 2023).

The role of attitudes in technology adoption has been widely acknowledged in educational research (Ertmer et al., 2012). Studies link positive attitudes toward CALL with higher motivation, improved learning outcomes, and greater use of technology (Warschauer & Grimes, 2020). Conversely, negative perceptions can impede integration, limiting its effectiveness (Sun et al., 2008). Several factors influence attitudes toward CALL, including perceived usefulness, ease of use, and social learning interactions (Cheng & Lee, 2022). These factors align with theoretical models such as the Technology Acceptance Model (TAM) and Social Learning Theory (SLT), which highlight cognitive and social elements as key drivers of technology adoption in education (Venkatesh et al., 2003).

## Literature Review

Technology integration in language education has a long and transformative history, evolving from using clay tablets in ancient Sumeria to the advanced digital tools available today. Each technological leap has brought new opportunities and challenges, significantly shaping how languages are taught and learned. Among these innovations, Computer-Assisted Language Learning (CALL) has emerged as one of the most impactful methodologies in modern language instruction (Levy, 1997; Warschauer, 2000).

**1.The Evolution of CALL**

CALL has undergone three distinct phases, reflecting advancements in both technology and pedagogy:

1. Behaviorist CALL (1960s–1980s): This phase was rooted in behaviorist learning theories, focusing on repetitive, structured exercises. Early CALL tools mirrored traditional language drills, emphasizing grammar and pronunciation through automated practice programs. While useful for essential skill acquisition, these tools lacked interaction and engagement, limiting their effectiveness (Warschauer & Healey, 1998).

2. Communicative CALL (1980s–1990s)**:** With the advent of personal computers, CALL began to shift toward communicative approaches. Programs designed during this period encouraged meaningful language use, allowing learners to engage in writing, reading, and role-playing tasks. These tools emphasized language application in real-life contexts, fostering a more immersive experience (Chapelle, 2001).

3. Integrative CALL (1990s–Present): The development of multimedia and internet technologies marked the integrative phase of CALL. This period introduced interactive audio and video tools, online communication platforms, and access to authentic language resources. Students could now practice all four language skills—listening, speaking, reading, and writing, in dynamic and interconnected environments. The integrative phase continues to evolve, with modern tools emphasizing collaboration, learner autonomy, and real-time interaction (Blake, 2016; Liu et al., 2020).

**2. The Importance of Digital Literacy**

Digital literacy is a foundational skill for teachers and learners in technology-driven education. It encompasses locating, evaluating, and communicating information using digital tools. The global shift to online learning, accelerated by the COVID-19 pandemic, underscored the critical need for digital literacy (Hodges et al., 2020). Teachers and students faced challenges adapting to virtual classrooms, revealing gaps in readiness and infrastructure.

Efforts to address these challenges have included initiatives such as Europe's six-branch digital literacy framework and creating high-performing digital education ecosystems

(Redecker, 2017; Vuorikari et al., 2022). These strategies aim to equip educators and learners with the skills to navigate and thrive in a digitally transforming educational landscape.

**3. Blended Learning: Bridging Traditional and Digital Methods**

Blended learning (BL) combines face-to-face instruction with digital platforms, offering flexibility and enhancing learning outcomes. This approach merges traditional methods with modern technologies, creating rich, interactive learning environments. Studies show that blended learning increases student satisfaction and fosters community while maintaining cost-effectiveness (Dziuban et al., 2018; Boelens et al., 2020).

CALL tools are central to blended learning environments. They allow educators to integrate multimedia resources, online assessments, and collaborative platforms. These tools support diverse learning styles and provide opportunities for personalized and autonomous learning (Graham, 2006; Hrastinski, 2019).

**4. Mobile-Assisted Language Learning (MALL)**

The proliferation of smartphones and tablets has given rise to mobile-assisted Language Learning (MALL), which extends learning opportunities beyond the classroom. MALL enables learners to access language resources, participate in interactive exercises, and engage in real-world communication anytime. Research highlights MALL's effectiveness in developing skills such as reading, listening, and speaking, especially when thoughtfully integrated into curricula (Stockwell, 2013; Kukulska-Hulme & Viberg, 2018).

Despite its potential, MALL presents challenges. Learners often use mobile devices for personal communication rather than intentional language practice. Educators must design engaging, goal-oriented activities that encourage the purposeful use of these tools (Kukulska-Hulme, 2012; Chinnery, 2019). Additionally, equitable access to mobile technology remains a concern, particularly in under-resourced contexts (Traxler, 2010).

**5. The Benefits of CALL**

CALL has transformed language education by:

1. Promoting Learner Autonomy: CALL shifts the teacher's role from a knowledge provider to a facilitator, empowering students to take control of their learning. By offering tailored resources and activities, CALL supports individualized learning paths (Benson, 2011; Richardson, 2021).

2. Fostering Collaboration: Digital tools enable students to collaborate on tasks, share resources, and support one another in developing language skills. Collaborative platforms enhance engagement and build a sense of community (Dillenbourg, 1999; De Paepe et al., 2018).

3. Providing Authentic Resources: CALL offers access to real-world materials, such as podcasts, videos, and news articles, enabling learners to practice language in meaningful contexts. This exposure enhances cultural understanding and practical communication skills (Reinders & White, 2011; Ziegler, 2020).

4. Enhancing Confidence: CALL helps reduce anxiety and build learners' confidence in speaking and writing by providing a low-stress environment for language practice (Horwitz, 2001; Dewaele & MacIntyre, 2019).

**6. Challenges in CALL Implementation**

While CALL offers significant advantages, its implementation is not without obstacles:

1. Logistical Issues: Limited IT support, slow internet connections, and outdated equipment can hinder effective use. Educational institutions must invest in technology infrastructure to address these barriers (Zhao, 2003; Martin et al., 2019).

2. Pedagogical Concerns: Many educators lack training in integrating CALL into their teaching practices. Professional development is essential to help teachers effectively use digital tools and adapt to changing roles in tech-enhanced classrooms (Hampel & Stickler, 2005; Baran et al., 2020).

3. Tool Evaluation: The effectiveness of CALL tools depends on their design and integration. Tools that fail to engage students or align with learning objectives may offer little value (Chapelle, 2016; Liu & Zhang, 2023).

**7. Enhancing Language Skills with CALL**

CALL supports the development of core language skills in innovative ways:

1. *Speaking:* Modern tools like video conferencing enable real-time interaction, allowing students to practice conversational skills with peers, teachers, and native speakers. Additionally, speech recognition software provides immediate feedback on pronunciation and fluency (Derwing & Munro, 2005; Rosell-Aguilar, 2018).

2. *Listening:* CALL offers a wealth of authentic listening materials, such as podcasts and videos. These resources can be tailored to learners' proficiency levels and interests, promoting active engagement and comprehension (Field, 2008; Vandergrift & Goh, 2022).

3. *Reading:* The internet provides abundant reading materials, from academic texts to casual content like blogs. Tools like e-dictionaries and translation apps support comprehension, though educators must encourage independent reading to avoid over-reliance on technology (Grabe & Stoller, 2013; Lin et al., 2021).

4. *Writing:* Collaborative writing platforms and grammar-checking software help students improve accuracy and creativity. Real-time feedback fosters critical thinking and self-reflection, while public writing platforms motivate students to produce high-quality work (Hyland, 2003; Fathi & Afzali, 2023).

**8. Attitudes toward CALL**

Learners' and teachers' attitudes significantly impact the success of CALL. Positive perceptions of technology are linked to higher engagement and better outcomes. Attitudes toward CALL encompass cognitive (beliefs about usefulness), emotional (feelings toward use), and behavioral (intention to use) dimensions (Teo, 2011; Park & Son, 2020) .

Encouraging positive attitudes requires addressing usability, relevance, and support concerns. Users who feel confident and autonomous are more likely to embrace CALL and benefit from its potential (Venkatesh et al., 2003).

CALL has revolutionized language education by integrating advanced technologies, fostering learner autonomy, and providing access to authentic resources. However, its successful implementation depends on careful planning, teacher training, and ongoing evaluation. Addressing logistical and pedagogical challenges is essential to ensure CALL enhances language learning meaningfully and equitably.

As technology continues to evolve, CALL offers exciting possibilities for the future of language education. By embracing innovation and maintaining a critical approach, educators can unlock its full potential, empowering learners to thrive in an interconnected, multilingual world (Levy, 2009; Rahman et al., 2023).

### Research Questions

The following are the four questions that need to be addressed with this study:

1. What are the attitudes of EFL students, pre-service English teachers and in-service English teachers towards Computer-Assisted Language Learning (CALL) at a university in Kunming, Yunnan Province, China?

2. How do the attitudes towards CALL differ among EFL students, pre-service English teachers, and in-service English teachers at a university in Kunming, Yunnan Province, China?

## Research Methodology

This study employs a quantitative research design to investigate attitudes and perceptions toward Computer-Assisted Language Learning (CALL) among three distinct groups. By assessing these groups' attitudes, identify significant differences, and provide evidence-based insights for improving CALL integration in educational settings.

### Participants

49 students were randomly selected from the 68 first- and second-year student English majors enrolled for the 2024-2025 academic year. These students, aged between 18 and 21, were chosen using random sampling, 19 pre-service English teachers were randomly selected from a total of 23 pre-service teachers at the institution. These participants are currently undergoing teacher training and have varying levels of exposure to CALL tools, twenty in-service English teachers were randomly selected from a group of 25 teachers. These teachers have a range of teaching experiences and differing levels of familiarity with CALL tools, which helped ensure that each participant had an equal chance of being included in the study. This method enhances the sample's representativeness and reduces the risk of selection bias, thereby increasing the generalizability of the findings (Fowler, 2014).

### Data Collection and Data Analysis

The study used structured questionnaires as the primary data collection tool, explicitly tailored to the three groups. The questionnaires address perceptions and attitudes about CALL, ensuring relevance and specificity to the participants' experiences. Ensure the validity and reliable, the IOC and pilot study has been done for pre-service English teachers and in-service English teachers' questionnaires (Creswell & Creswell, 2018).

Both descriptive and inferential statistical methods are employed to analyze the data. Descriptive statistics, including means, standard deviations, and frequencies, clearly summarize the attitudes within each group. Inferential statistics, specifically Analysis of Variance (ANOVA), are used to examine whether the differences in attitudes across the groups are statistically significant (Lovelace & Brickman 2013).

### Ethical Considerations

The study adhered to ethical research standards, ensuring informed consent from all participants, maintaining the **c**onfidentiality of their responses, and allowing them the right to withdraw from the study at any point. All data were handled securely, and no identifying information was included in the final analysis.

## Research Finding

This study aims to investigate the perceptions and attitudes toward the 3 groups of people, The findings are summarized in the following.

*The finding is based on research question 1:* What are the attitudes of EFL students, pre-service English teachers, and in-service English teachers toward Computer-Assisted Language Learning (CALL) at a university in Kunming, Yunnan Province, China? Three groups of participants' attitudes include the perceived *usefulness* and perceived ease of use, attitudes towards CALL in the classroom, behavioral intention to use. The details of EFL students' attitudes were discussed as below:

**Table 1:** EFL Students' Attitudes

| Components | Mean (M) | Standard Deviation (SD) | Rating | Interpretation |
|---|---|---|---|---|
| PU | 3.23 | 0.82 | Moderate | EFL students' perceptions on CALL usefulness for enhancing learning outcomes have moderate benefits. |
| PEOU | 3.10 | 0.98 | Moderate | EFL students' perception on the ease of use to integrate CALL into learning activities is moderate. It is neither easy nor difficult to integrate into learning activities. |
| Attitudes towards CALL in the classroom | 3.67 | 1.03 | High | EFL Students' attitudes about incorporating CALL into the classroom as learning tool are high |
| Behavioral intention to use | 3.14 | 0.99 | Moderate | EFL Students demonstrate a moderate behavioral intention toward CALL. They neither support nor oppose its use. |
| **Overall EFL students' attitudes** | 3.26 | 1.00 | Moderate | EFL students demonstrate moderate attitudes |

The study analyzed EFL students' attitudes toward Computer-Assisted Language Learning (CALL) based on four key components: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitudes toward CALL in the Classroom, and Behavioral Intention to Use CALL. The overall attitude was also assessed.

The findings indicate that students view CALL as moderately beneficial (PU: M = 3.23, SD = 0.82). While they recognize its potential in language learning, they do not consider it transformative. This aligns with previous research emphasizing that perceived usefulness influences technology adoption (Venkatesh et al., 2003).

Regarding ease of use (PEOU: M = 3.10, SD = 0.98), students neither find CALL particularly easy nor difficult to implement, suggesting varying levels of technological familiarity. Similar findings in CALL research have shown that usability plays a crucial role in adoption (Teo, 2011).

Students hold a positive attitude toward CALL in classroom settings (M = 3.67, SD = 1.03), the highest rating in the study. This suggests they are receptive to CALL when integrated into structured learning, consistent with studies highlighting teacher-led CALL as a practical approach (Warschauer & Grimes, 2020).

The behavioral intention to use CALL (M = 3.14, SD = 0.99) remains moderate, indicating that while students acknowledge its benefits, they are hesitant to adopt it independently. This echoes past research showing that training and institutional support significantly impact technology adoption in education (Redecker, 2017).

Overall, the study underscores the need for structured CALL integration, teacher support, and digital literacy training to optimize CALL's effectiveness in EFL learning.

**Table 2:** Pre-service English Teachers' Attitudes

| **Components** | **Mean (M)** | **Standard Deviation (SD)** | **Rating** | **Interpretation** |
|---|---|---|---|---|
| PU | 1.83 | 0.70 | Low | Pre-service English teachers' perception on CALL usefulness is low, indicating it does not improve their teaching outcomes. |
| PEOU | 2.73 | 0.63 | Moderate | Pre-service English teachers' perception on the ease of use to integrate CALL into teaching activities is moderate. It is neither easy nor difficult to integrate into teaching activities. |
| Attitudes towards CALL in the classroom | 1.99 | 0.59 | Low | Pre-service English teachers' attitudes about incorporating CALL into the classroom as teaching tool are low. |
| Behavioral intention to use | 3.02 | 0.70 | Moderate | Pre-service English teachers demonstrate a moderate behavioral intention toward CALL. They neither support nor oppose its use. |
| **Overall pre-service English teachers' attitudes** | 2.40 | 0.67 | Low | Pre-service English teachers hold negative attitudes. |

The results from Table 2 indicate that pre-service English teachers generally hold negative attitudes toward Computer-Assisted Language Learning (CALL) (M = 2.40, SD = 0.67), reflecting skepticism about its role in language teaching. The lowest-rated component, Perceived Usefulness (PU) (M = 1.83, SD = 0.70), suggests that pre-service teachers doubt CALL's effectiveness in enhancing teaching outcomes. This aligns with previous research indicating that a lack of exposure to practical CALL applications can contribute to uncertainty about its pedagogical value (Warschauer & Grimes, 2020).

Similarly, their attitudes toward CALL in the classroom (M = 1.99, SD = 0.59) reveal a reluctance to adopt CALL as an instructional tool. However, the highest-rated component, Behavioral Intention to Use CALL (M = 3.02, SD = 0.70), suggests that pre-service teachers remain moderately open to engaging with CALL despite their skepticism. This neutrality indicates they do not outright reject CALL but may require more motivation or training to integrate it effectively.

Additionally, Perceived Ease of Use (PEOU) (M = 2.73, SD = 0.63) suggests that while they do not find CALL particularly difficult to use, they are not entirely confident in implementing it. Research shows that perceived ease of use influences willingness to adopt technology in education (Teo, 2011). Since PU was the lowest-rated component, targeted CALL training should emphasize its practical benefits in real classroom settings (Redecker, 2017). Providing hands-on experience and institutional support could help shift their attitudes toward a more positive perception of CALL's role in language teaching.

**Table 3:** In-service English Teachers' Attitudes

| **Components** | **Mean (M)** | **Standard Deviation (SD)** | **Rating** | **Interpretation** |
|---|---|---|---|---|
| PU | 2.55 | 0.56 | Low | In-service English teachers' perception on CALL usefulness is low, indicating it does not improve their teaching outcomes. |
| PEOU | 2.60 | 0.78 | Low | In-service English teachers' perceptions on CALL's ease of use are low. It is difficult to integrate into teaching activities. |
| Attitudes towards CALL in the classroom | 2.37 | 0.65 | Low | In-service teachers' attitudes about incorporating CALL into the classroom as teaching tool are low. |
| Behavavioral intention to use | 2.68 | 1.00 | Moderate | In-service English teachers demonstrate a moderate behavioral intention toward CALL. They neither support nor oppose its use. |
| **Overall in-service English teachers' attitudes** | 2.55 | 0.75 | Low | In-service English teachers hold negative attitudes |

The findings in Table 3 reveal that in-service English teachers generally negatively perceive Computer-Assisted Language Learning (CALL) (M = 2.55, SD = 0.75), reflecting doubts about its usefulness, ease of implementation, and role in instruction. The lowest-rated aspect, Attitudes toward CALL in the Classroom (M = 2.37, SD = 0.65), indicates that in-service teachers do not perceive CALL as an effective teaching tool. This skepticism may stem from limited exposure to technology-integrated teaching, a preference for conventional methods, or uncertainty about its pedagogical value (Warschauer & Grimes, 2020).

Similarly, Perceived Usefulness (PU) (M = 2.55, SD = 0.56) and Perceived Ease of Use (PEOU) (M = 2.60, SD = 0.78) suggest that in-service teachers find CALL challenging to implement and doubt its impact on instructional effectiveness. However, their highest-rated component, Behavioral Intention to Use CALL (M = 2.68, SD = 1.00), suggests a neutral stance. While they do not fully embrace CALL, they do not entirely reject its potential, implying that their perspectives may improve with adequate training and institutional support (Teo, 2011).

The study highlights that in-service teachers' reluctance is mainly due to their perception of CALL as complex and ineffective in improving learning outcomes. Institutions should offer hands-on professional development programs demonstrating how CALL can complement traditional methods (Redecker, 2017). Providing training on successful CALL integration can help shift their perceptions and encourage greater adoption.

**Table 4:** Summary of 3 Groups of People' Attitudes

| Attitudes | Mean (M) | Std. Deviation (SD) | Rating | Interpretation |
|---|---|---|---|---|
| EFL students | 3.26 | 1.00 | Moderate | EFL students demonstrate moderate attitudes. |
| Pre-service English teachers | 2.40 | 0.67 | Low | Pre-service English teachers hold negative attitudes. |
| In-service English teachers | 2.55 | 0.75 | Low | In-service English teachers hold negative attitudes. |

The findings in Table 4.16 provide a comparative summary of the attitudes toward CALL among EFL students, pre-service English teachers, and in-service English teachers. The highest-rated group, EFL students (M = 3.26, SD = 1.00), demonstrates moderate attitudes toward CALL, suggesting that while they recognize its potential benefits, they neither strongly advocate for nor oppose its integration into language learning. This moderate stance may indicate that EFL students are more open to ALL than teachers, possibly due to their familiarity with digital tools or exposure to CALL-integrated learning environments. In contrast, pre-service English teachers (M = 2.40, SD = 0.67) and in-service English teachers (M = 2.55, SD = 0.75) hold negative attitudes toward CALL, with pre-service teachers having the lowest overall rating. The lower score for pre-service teachers suggests a more substantial reluctance to adopt CALL in teaching, likely due to limited training, exposure, or uncertainty about its effectiveness in language instruction. In-service teachers, while also holding a low perception of CALL (M = 2.55), rate it slightly higher than pre-service teachers, suggesting that their practical teaching experience may allow them to see some potential applications of CALL, even if they remain skeptical.

**Findings of RQ2:**

**Table 5:** ANOVA Result of Attitudes

| Source of Variation | SS (Sum of Square) | df (Degrees of Freedom) | MS (Mean Square) | f-statistics | p-value |
|---|---|---|---|---|---|
| Between Groups | 16.2704 | 2 | 8.1352 | 5.3788 | 0.006315 |
| Within Groups | 66.7677 | 85 | 0.7855 | | |
| Total | 83.0381 | 87 | | | |

A one-way ANOVA was conducted to determine whether there were statistically significant differences in attitudes toward CALL among EFL students, pre-service English teachers, and in-service English teachers. The results showed a significant difference (F(2, 85) = 5.38, p = 0.0063), indicating that at least one group's attitude toward CALL significantly differs from the others.

**Table 6:** Post-hoc Tukey Test to Determine Specific Groups Significant Difference

| Comparison | Main Difference | p-Value | Significant (p<0.05) |
|---|---|---|---|
| EFL Students vs. Pre-service Teachers | 0.505775 | 0.062678 | No |
| EFL Students vs. In-Service Teachers | 0.653059 | 0.012945 | Yes |
| In-Service Teachers vs. Pre-service Teachers | 0.147284 | 0.845587 | No |

A Tukey post-hoc test used to examine group differences in attitudes toward Computer-Assisted Language Learning (CALL), revealing significant variations among EFL students, pre-service teachers, and in-service teachers. The comparison between EFL students and pre-service teachers showed a significant mean difference of 0.65 (p = 0.0129), indicating that EFL students have considerably more positive attitudes toward CALL. This suggests that pre-service teachers are the most resistant to CALL integration, likely due to limited exposure, insufficient training, or a more substantial reliance on traditional teaching methods (Warschauer & Grimes, 2020). These findings highlight the importance of incorporating CALL-focused training in teacher education programs to enhance confidence and familiarity with technology-assisted teaching.

The comparison between EFL students and in-service teachers revealed a mean difference of 0.51 (p = 0.0627), which was not statistically significant. While EFL students demonstrated more favorable attitudes toward CALL, the similarity in perceptions suggests that in-service teachers recognize its potential but face practical challenges such as limited institutional support, time constraints, and technological barriers (Redecker, 2017). Addressing these challenges through structured support and ongoing training may help in-service teachers integrate CALL more effectively into their teaching practices.

Finally, the difference between in-service and pre-service teachers was minimal (mean difference = 0.15, p = 0.8456), indicating that both groups share similar skepticism toward CALL despite differences in experience. This suggests that both pre-service and in-service teachers require structured professional development to improve their perception of CALL's instructional value (Teo, 2011). The ANOVA test (p = 0.0063) confirmed significant differences in attitudes among the three groups, with EFL students showing the most positive perceptions. These findings underscore the need for targeted interventions to bridge the attitudinal gap between students and teachers. Implementing CALL-focused training and institutional support will be crucial in fostering greater acceptance and adoption of CALL in language teaching.

## Conclusion

This study examined the attitudes of EFL students, pre-service English teachers, and in-service teachers toward Computer-Assisted Language Learning (CALL) at a university in Kunming, China. Findings indicate varying perceptions, with EFL students showing moderate acceptance while pre-service and in-service teachers displayed more skepticism. Factors such as perceived usefulness ease of use, technological experience, and institutional support significantly shaped these attitudes. Although students recognized CALL's benefits for engagement and accessibility, their hesitancy stemmed from technological barriers, limited teacher guidance, and the lack of structured integration. Meanwhile, teachers' reluctance was linked to insufficient training, unfamiliarity, and concerns over CALL replacing traditional teaching. This study highlights the crucial role of teacher attitudes in CALL adoption, emphasizing the need for targeted training in teacher education and continuous professional development. Institutions must provide structured programs that enhance digital teaching competence and confidence. Institutional support, including CALL-friendly policies and technical assistance, is also essential for successful implementation. Rather than replacing traditional methods, CALL should complement existing pedagogical approaches. Future research should explore long-term interventions and policy frameworks to improve CALL integration in ELT. This study offers valuable insights for educators, policymakers, and institutions seeking to enhance CALL adoption in language teaching.

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# Factors Influencing Millennials' Motivation to Purchase Online Mystery Boxes in Thailand

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## Abstract

This study aims to examine the factors influencing Millennials' motivation to purchase online mystery boxes in Thailand. A quantitative research approach was employed, with a sample of 400 Millennials selected for the study. Data were collected through an online questionnaire and analyzed using descriptive statistics, including percentage, mean, and standard deviation, as well as inferential statistics, namely multiple regression and simple regression analyses. The results revealed that innovation adoption, curiosity, conformity to reference groups, expectation, and perceived price value significantly influenced Millennials' motivation to purchase online mystery boxes.

**Keyword:** Mystery Box, Consumer innovativeness, Curiosity, Subjective Norm, Expectancy, Perceived Price Value

## Introduction

According to the TTB Analytics Economic Analysis Center, the COVID-19 pandemic has significantly impacted numerous businesses. TTB Analytics conducted a study on various industries from the first nationwide lockdown in the second quarter of 2020 through the second quarter of 2021, analyzing the supplementary revenues of publicly listed companies. The findings indicated that while businesses were able to adapt and gradually recover from the impacts, their survival largely depended on expanding their presence in online marketing channels. Businesses also had to cope with shifting consumer behaviors, as consumers began saving more and reducing non-essential spending. To remain competitive, businesses were required to adopt technology and leverage the surrounding digital ecosystem, such as e-commerce (TTB Analytics, 2021).

In response to these changes in consumer behavior, many businesses have increasingly turned to online marketing strategies. Among these, gamified marketing approaches aimed at providing enjoyable experiences for customers have gained popularity. Such strategies not only enhance customer experiences but also encourage social proof through online reviews and endorsements. Using tools like Uber Suggest to identify popular search trends in the past year revealed a sharp increase in online searches for "mystery boxes" starting in July 2021 and continuing through the end of the year (Steps Academy, 2021).

Mystery boxes originated in Japan, where they were known as “Lucky Bags,” typically containing discounted or second-hand items offered as promotional packages. However, the contents evolved differently in each country to suit local preferences. In Thailand, mystery boxes have gained widespread popularity over the past two to five years, fueled in part by creative YouTube content creators who order and unbox these packages on camera, inviting viewers to share the excitement of discovering what is inside. This phenomenon has since become a major trend (Bangkok Biz News, 2021). From a marketing perspective, certain strategies target emotional triggers in human decision-making. This explains why many brands and influencers embrace “mystery box” campaigns to spark consumer curiosity and motivate purchases (Steps Academy, 2021).

Selling online mystery boxes has thus emerged as a marketing strategy capable of stimulating consumer purchase motivation while simultaneously boosting sales. This study aims to investigate the factors influencing Millennials’ motivation to purchase online mystery boxes in Thailand. The research seeks to identify and understand these factors, thereby providing insights that can help businesses adapt to current conditions, increase online sales, and employ more effective marketing tools. Millennials, in particular, prioritize spending on activities and products that enhance personal happiness over other types of expenditures. They place significant importance on maintaining a unique and attractive online image, value novelty, and frequently use social media to share and search for information (Office of Trade Policy and Strategy, 2020).

**Objectives**

1. To examine the factors influencing Millennials’ motivation to purchase online mystery boxes in Thailand.
2. To utilize the identified factors as a basis for business practices or as reference information for future research.

**Research Hypotheses**

H1: Consumer innovativeness has a significant influence on Millennials’ motivation to purchase online mystery boxes in Thailand.

H2: Curiosity has a significant influence on Millennials’ motivation to purchase online mystery boxes in Thailand.

H3: Subjective norm has a significant influence on Millennials’ motivation to purchase online mystery boxes in Thailand.

H4: Expectancy has a significant influence on Millennials’ motivation to purchase online mystery boxes in Thailand.

H5: Perceived price value has a significant influence on Millennials’ motivation to purchase online mystery boxes in Thailand.

## Literature Review

In studying the factors influencing Millennials' motivation to purchase online mystery boxes in Thailand, the researcher reviewed relevant concepts, theories, literature, and previous studies to serve as a framework for the analysis, as follows:

### Concept and Theory of Consumer Innovativeness

Consumer innovativeness refers to the predisposition to purchase new products and to choose goods or brands that differ from those previously consumed in more traditional ways (Steenkamp et al., 1999). It also denotes a consumer's willingness to adopt innovations in daily life, often stemming from a desire for novelty and unique experiences. Such individuals tend to exhibit distinctive decision-making patterns that are more self-directed rather than conforming to the majority.

Hirschman (1980) emphasized that "innovation is one of the few concepts that is critically important to consumers." From a sensory perspective, innovation may relate to the satisfaction derived from consuming novel products, which in turn can stimulate the motivation to seek new consumption experiences (Venkatraman, 1991).

Therefore, consumer innovativeness can be seen as a motivational driver prompting the purchase of new products over familiar or conventional ones (Steenkamp et al., 1999). The novelty inherent in a product or service can stimulate consumer curiosity and encourage trial (Venkatraman, 1991).

### Concept and Theory of Curiosity

The theory of human curiosity suggests that it is a driving force that compels individuals to devote time and considerable effort toward seeking knowledge, stimulated and motivated by the desire to learn new things (Skinner, 1947). Curiosity is considered a fundamental human emotion; however, its intensity and manifestation vary depending on the individual and the situation. It can be triggered by feelings of surprise or satisfaction, and may serve as the underlying reason for actively seeking information to resolve uncertainty (Livio, 2017).

In the context of purchasing mystery boxes, a study published in the *Harvard Business Review* concluded that surprise is a powerful marketing tool. The state of "not knowing" combined with the desire to know serves as a strong internal motivator that influences decision-making or prompts individuals to search for information to satisfy their curiosity (Bangkok Biz News, 2021). People tend to enjoy surprises and experience satisfaction when receiving something unexpected. Consequently, brands often use mystery boxes to stimulate curiosity and encourage purchase decisions (Steps Academy, 2021).

Therefore, curiosity, as a fundamental human emotion, underlies the sense of surprise and novelty, prompting individuals to seek information to fulfill their desire to know (Livio, 2017). This aligns with marketing theories that leverage emotional drivers in human decision-making. Such strategies explain why many brands and influencers employ "mystery box" campaigns to captivate consumer curiosity and motivate purchases (Steps Academy, 2021).

### Concept and Theory of Subjective Norm

A reference group refers to an individual or a group of individuals who influence a person's behavior, creating values that are adopted by the person seeking to act in accordance with the behavior of the reference group (Hawkins, Best, & Coney, 1998). Subjective norm is defined as a person's perception of the type of behavior they should perform or the beliefs they should hold, based on the influence of trusted and respected individuals, such as family members, friends, or public figures. Consequently, an individual's behaviors or attitudes are often shaped by the influence of these reference groups (Fishbein & Ajzen, 1977).

Reference group conformity can manifest in both general behavioral patterns and specific consumer behaviors, as reference groups influence consumers' attitudes and beliefs (Majumdar, 2010). Such groups can affect personal behaviors and shape shared or differing values, depending on the situation (Hawkins & Mothersbaugh, 2010).

Therefore, consumers' conformity to reference groups is partly derived from the influence of people around them, as well as exposure to recommendations, invitations, or various forms of media. When consumers are repeatedly exposed to such influences, they may develop purchase behaviors or motivation to buy online mystery boxes in alignment with those influential individuals.

**Concept and Theory of Expectancy**

Vroom (1964) proposed the Expectancy Theory, which posits that individuals hold beliefs about the value of certain goals, and these beliefs serve as a driving force that motivates them to engage in specific actions to achieve those goals. This theory explains that motivation is shaped by a person's expectation that their efforts will lead to goal attainment. It highlights the notion that motivation is valuable and requires individuals to exert effort in defining and pursuing their objectives (Napa-orn Tiasut, 2012). When expectations are met, individuals may set even higher aspirations for future efforts. Conversely, when expectations are not fulfilled, it can lead to discouragement, prompting a shift in desires, attitudes, or needs. In a consumer context, this means that customers expect to receive products that align with their envisioned outcomes, an anticipation often shaped by past experiences (Bhattacherjee, 2001).

Furthermore, Wen et al. (2011) found that when the received product meets a consumer's expectations, it results in satisfaction. Conversely, when the product does not meet expectations, dissatisfaction occurs, reducing the likelihood of repeat purchases.

Therefore, when consumers are motivated to purchase an online mystery box, they inherently develop expectations regarding the contents. If the items align with their expectations, they are more likely to form positive attitudes, recommend the product to others, and make repeat purchases.

**Concept and Theory of Perceived Price Value**

Perceived value refers to the benefits a consumer receives from the monetary price of a product, representing the consumer's evaluation of whether the purchase is worth the amount paid prior to making a buying decision (Zeithaml, 1988). This aligns with the definition provided by Piyapa Daengdet (2014), which describes it as the amount of money exchanged for goods or services based on the agreed price between the buyer and the seller. Perceived value is thus a form of perception that assesses the monetary benefits and costs associated with purchasing or using a product or service (Lee, Choi, & Hong, 2007).

Perceived price value influences consumer satisfaction, as monetary benefits occur when the value of the product exceeds its cost, resulting in a high perceived price value. Consumers benefit from purchases when they assess that the monetary value justifies the price paid, thereby creating motivation to purchase goods or services. Conversely, when the price paid exceeds the perceived benefits gained, the perceived price value becomes low (Matzler, Würtele, & Renzl, 2006), causing consumers to feel disadvantaged and demotivated to purchase.

In the context of mystery boxes, this can resemble a form of gambling, as defined by the Royal Institute Dictionary (2002): “a game played for money or other stakes, relying on intelligence, skill, tricks, ingenuity, and luck, in which the player risks gaining or losing benefits.”

In summary, perceived price value refers to the consumer’s evaluation of whether the money spent is worthwhile compared to the expected benefits from consuming the product or service, formed through the agreed price between the buyer and the seller before the purchase decision.

**Research Methodology**

This study employed a quantitative research approach, focusing on Millennials who engage in online spending behaviors. This group places importance on spending money to obtain happiness or peace of mind (Office of Trade Policy and Strategy, 2020).

The sample consisted of Millennials aged between 18 and 35 years. The sample size was determined using Cochran’s formula (1977), as the actual proportion and total population were unknown. With a 95% confidence level and a ±5% margin of error, the total sample size was set at 400 participants.

Data were collected using an online questionnaire designed to align with the concepts, theories, and variables of the study. The questionnaire consisted of one set, divided into seven sections:

Section 1: Demographic information (7 items)
Section 2: Consumer innovativeness (5 items)
Section 3: Curiosity (4 items)
Section 4: Subjective norm (4 items)
Section 5: Expectancy (5 items)
Section 6: Perceived price value (4 items)
Section 7: Motivation to purchase online mystery boxes (5 items)

Quota sampling was employed to ensure that the sample reflected the proportional characteristics of the population. A pilot test was conducted with 40 respondents to assess the questionnaire’s reliability. Cronbach’s alpha coefficient was calculated using statistical software, with an acceptable threshold set at 0.70 or higher (McGraw, KO, & Wong, SP, 1996). The pilot test yielded a Cronbach’s alpha value of 0.950, indicating a high level of internal consistency.

**Statistical Analysis**

The data analysis was conducted in two parts as follows:

1. Descriptive Statistics – Statistical measures were employed to describe various aspects of the data. Percentage was used to analyze Section 1 (respondents’ demographic information), while mean and standard deviation were used to analyze the other factors.

2. Inferential Statistics – Multiple regression analysis and simple regression analysis were applied to test all six research hypotheses.

**Research Findings**

1.Demographic Profile of Respondents

The sample, obtained through quota sampling, consisted of an equal proportion of male and female respondents. Most respondents were aged between 18 and 23 years (48%) and were students currently enrolled in educational institutions (49.8%). The majority held a bachelor's degree or equivalent (72.8%) and had an average monthly income of less than 10,000 Baht (36.8%). In terms of online media consumption behavior, the top three preferred platforms were YouTube (31%), Instagram (26.04%), and Facebook (23%), respectively.

2. Mean and Standard Deviation Analysis

The analysis of factors influencing Millennials' motivation to purchase online mystery boxes revealed that overall motivation was at a high level ($\bar{x}$ = 3.73, S.D. = 0.35). The most influential factors, ranked in descending order of mean scores, were:
Expectancy ($\bar{x}$ = 4.31, S.D. = 0.57) Curiosity ($\bar{x}$ = 4.19, S.D. = 0.50) Subjective norm ($\bar{x}$ = 4.18, S.D. = 0.51) Perceived price value ($\bar{x}$ = 4.03, S.D. = 0.58) Consumer innovativeness ($\bar{x}$ = 3.65, S.D. = 0.35)

3. Regression Analysis

The regression analysis results indicated that [Note: You have not provided the specific statistical values such as β, t, p-values, or $R^2$ here. These should be inserted if available to complete the section. Without them, only the general findings can be stated]. The analysis confirmed that the identified factors significantly influenced Millennials' motivation to purchase online mystery boxes.

**Table 1:** Results of the Multiple Regression Analysis of Factors Influencing Millennials' Motivation to Purchase Online Mystery Boxes

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | β | | |
| 1 | (Constant) | 1.285 | 0.185 | | 8.128 | 0.000 |
| | Consumer Innovativeness | 0.050 | 0.042 | 0.049 | 1.2 | 0.231 |
| | Curiosity | 0.189 | 0.038 | 0.263 | 4.98 | 0.000 |
| | Subjective Norm | 0.122 | 0.034 | 0.173 | 3.556 | 0.000 |
| | Expectancy | 0.65 | 0.032 | 0.104 | 2.07 | 0.039 |
| | Perceived Price Value | 0.169 | 0.163 | 0.271 | 5.759 | 0.000 |

**Note:** R = 0.686, $R^2$ = 0.471, Adjusted $R^2$ = 0.465, F = 71.645, *P < 0.05

From Table 1, the results of the multiple regression analysis of factors influencing Millennials' motivation to purchase online mystery boxes revealed that the variables with the greatest predictive power were Curiosity (β = 0.263, $p$ = 0.000), Subjective Norm (β = 0.173, $p$ = 0.000), and Perceived Price Value (β = 0.271, $p$ = 0.000). These were followed by Expectancy (β = 0.104, $p$ = 0.039) and Consumer Innovativeness (β = 0.049, $p$ = 0.231).

The analysis indicated that Consumer Innovativeness (β = 0.049, $p$ = 0.231) and Expectancy (β = 0.104, $p$ = 0.039) had no statistically significant influence on Millennials' motivation to purchase online mystery boxes.

## Discussion/Conclusion

**Hypothesis 1:** Consumer innovativeness influences Millennials' motivation to purchase online mystery boxes.

The findings revealed that consumer innovativeness did not significantly influence Millennials' motivation to purchase online mystery boxes. This result contradicts the study of Hirschman (1980), who asserted that "innovation is one of the few concepts critically important to consumers." This discrepancy may be due to various factors influencing consumers' adoption of innovation in mystery box purchases. For example, the products offered in the mystery boxes may lack novelty to attract consumers, even though novelty in products can stimulate consumers' desire to experiment (Venkatraman, 1991).

Additionally, the channels used to communicate product value to consumers might be unclear or ineffective. As Rogers (2003) noted, communication can be a double-edged sword—when conveyed effectively, it can address weaknesses and close gaps, but if delivered poorly, consumers may fail to perceive or accept the intended message.

Therefore, the absence of a significant relationship between consumer innovativeness and the motivation to purchase online mystery boxes may stem from communication errors or insufficiently effective promotional efforts. Furthermore, consumers may be reluctant to adopt new products in the market or may perceive frequent product updates as reducing novelty. Businesses might address this by promoting and clearly communicating product value to improve consumer acceptance.

**Hypothesis 2:** Curiosity influences Millennials' motivation to purchase online mystery boxes.

The findings indicate that consumers possess an inherent curiosity for new experiences, which can serve as a motivator or stimulus prompting them to seek answers. This result aligns with the concept proposed by Skinner (1947), who stated that human curiosity drives individuals to dedicate time and considerable effort in pursuit of knowledge, fueled by stimulation and motivation to learn new things. It also supports the view of Livio (2017), who suggested that curiosity can lead to feelings of satisfaction and can be a reason for seeking out information.

Similarly, STEPS Academy (2021) emphasized that certain marketing strategies leverage aspects of human decision-making, explaining why many brands and influencers employ "mystery box" campaigns to stimulate consumer curiosity and encourage purchases. This is consistent with the findings of the *Harvard Business Review*, which concluded that surprise is a powerful marketing tool, and that "not knowing and wanting to know" is a strong internal driver that influences decision-making and information-seeking behavior (Bangkok Biz News, 2021).

Therefore, curiosity significantly influences the decision to purchase online mystery boxes, as it prompts consumers to seek additional information to support their purchase decisions. The mystery box strategy serves as an effective trigger for stimulating consumer curiosity.

**Hypothesis 3:** Subjective norm influences Millennials' motivation to purchase online mystery boxes.

The findings indicate that consumers tend to conform to their reference groups, which aligns with the theory proposed by Majumdar (2010), suggesting that reference group conformity can manifest in both general behaviors and specific consumer behaviors. This also supports the perspective of Hawkins and Mothersbaugh (2010), who argued that reference groups influence consumers' attitudes and beliefs in ways that vary depending on the situation.

The results suggest that consumers' conformity to reference groups stems from the influence of people around them, including recommendations, invitations, or exposure through various media channels. When consumers are regularly exposed to such influences, they are more likely to develop purchase behaviors or motivation to buy online mystery boxes in alignment with influential individuals.

Therefore, the findings for subjective norm confirm that purchase motivation is shaped by the influence of individuals or groups whom consumers trust, and by repeated exposure to recommendations or promotional content from these sources.

**Hypothesis 4:** Expectancy influences Millennials' motivation to purchase online mystery boxes.

The findings reveal that expectancy—defined as an individual's belief in their goal, which serves as a major driver of motivation and product perception—did not significantly influence Millennials' motivation to purchase online mystery boxes. This result contradicts the study of Bhattacherjee (2001), which suggested that when expectations are met, individuals tend to set even higher aspirations in subsequent efforts, whereas unmet expectations may lead to disappointment, altering desires, attitudes, or needs. Such expectations are often shaped by prior experiences.

In the context of this study, consumers who had past experiences with mystery boxes that did not meet their expectations were likely to feel dissatisfied, reducing the likelihood of repeat purchases.

Therefore, the findings suggest that most consumers do not hold strong expectations about the contents of mystery boxes. Rather, they tend to purchase them primarily for the excitement and to satisfy their curiosity, rather than to meet a predetermined expectation about specific product contents.

**Hypothesis 5:** Perceived price value influences Millennials' motivation to purchase online mystery boxes.

The findings show that consumers perceive price value in a way consistent with the concept proposed by Matzler, Würtele, and Renzl (2006), which posits that perceived price value impacts consumer satisfaction. Monetary benefits arise when the product's value exceeds its cost, resulting in a high level of perceived price value. In such cases, consumers benefit from their purchase through the assessment of price value, which in turn generates motivation to buy goods or services. Conversely, when the price paid exceeds the benefits derived from the product or service, the perceived price value decreases.

Therefore, based on the findings for perceived price value, it can be concluded that respondents are able to assess price value and evaluate the worthiness of a product, as well as the appropriateness of its quality relative to its price, prior to making a purchase decision. This perception contributes to their motivation to purchase online mystery boxes.

## Suggestion

### 1. Recommendations for Applying the Research Findings

1. Expectancy – As expectancy was found to have the most significant impact on the decision to purchase online mystery boxes, businesses should study consumers' expectations and purchasing behaviors, such as preferences for efficient service, uncomplicated purchasing procedures, and high-quality, diverse products that exceed customer expectations. Meeting or surpassing these expectations may enhance customer satisfaction and encourage repeat purchases.

2. Curiosity – Since curiosity acts as a motivator or stimulus for seeking information, and "not knowing and wanting to know" is considered a powerful marketing tool, businesses should leverage the mystery box strategy as an effective method for stimulating consumer curiosity.

1.3 Subjective Norm – Given that reference groups significantly influence consumers' attitudes and beliefs, particularly through recommendations, invitations, or media exposure, businesses should communicate through reputable influencers and existing customers who have previously purchased the product to enhance credibility and appeal.

### 2. Recommendations for Future Research

1. Conduct studies involving different sample groups to compare behaviors and needs across varying demographics and consumer segments.

2. As this research employed a quantitative approach using online questionnaires, which may have yielded limited detail, future studies could incorporate in-depth interviews to gather more specific and comprehensive qualitative insights.

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# The Enhancement Product of Hom Mali 105 Rice Flour Through a Participatory Action Research Process in Ban Lao Community, Nong Kae Subdistrict, Mueang Roi Et District, Roi Et Province

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## Abstract

Community enterprises in Thailand often struggle with limited product innovation and weak marketing strategies, leading to low competitiveness and unsustainable growth. This study addresses this gap by focusing on the Ban Lao community enterprise producing Hom Mali 105 rice flour. The research aimed to evaluate management potential, develop a prototype product, apply the marketing mix (4Cs), design a Business Model Canvas, and examine the relationship between management capacity and marketing strategies. A mixed-methods approach was employed: qualitative data were collected through interviews with 46 members, a two-month product development experiment with 25 participants, and focus group discussions with 60 stakeholders, while quantitative data were obtained from 400 consumers. Results indicated that the enterprise demonstrated strong management capacity and that prototype product development was effectively driven by participatory processes. The marketing mix and Business Model Canvas were both rated highly, reinforcing strategic planning and community engagement. Statistical analysis confirmed that management capacity significantly correlated with and influenced the marketing mix, particularly in areas of customer service, reputation, product value, quality of life, and environmental factors. These findings highlight that strengthening management potential and integrating participatory approaches are critical for enhancing competitiveness and sustainability of community enterprises.

**Keywords**: Hom Mali 105 rice flour, Community Enterprise, Participatory Action Research, Management Capacity, Marketing mix

## Introduction

The development of Thailand, as outlined in the 13th National Economic and Social Development Plan spanning from 2023 to 2027, signifies a period of technological advancement. There is a notable increase in the intensity of climate change, an aging society, and geopolitical changes among countries. Driving the country's development necessitates a focus on strengthening internal capabilities to ensure sustainable growth amidst the various uncertainties. It also entails considering the long-term benefits for the country's economy, society, and environment.

However, community businesses have a continuous need to develop and adapt to rapidly changing environments and increased competition in the present. Therefore, community businesses require strategic business development to enhance competitiveness. Using the Business Model Canvas (BMC) theory as a tool can help visualize every aspect of the business, analyze its strengths and weaknesses, and most importantly, serve as a tool for business growth and differentiation. The analysis involves synthesizing data in each relationship channel relevant to the business model (Anukun, 2023).

The community enterprise producing Hom Mali 105 rice flour, located in Ban Lao Village, group 3, Nong Kaeo Sub-district, Mueang Roi Et District, Roi Et Province, is a registered community enterprise established on June 14, 2010. It started with 35 initial members and currently has a total of 45 members. The production equipment includes 3 machines, each with 25 horsepower, and 4 flour mixing machines. There are also packaging and warehouse storage rooms. The purpose of its establishment is to develop rice husks, create commercial added value, and generate income for community members to strengthen sustainability following the sufficiency economy philosophy.

The operations have provided livelihoods for members and some level of self-reliance. However, there is a lack of innovative ideas to significantly increase income and expand production and marketing bases to meet market demand. The emergence of the new epidemic, COVID-19, has adversely affected the sales of Hom Mali 105 rice flour, leading to a reduction in sales to date. Therefore, members of the group have expressed the need to elevate the development of Hom Mali 105 rice flour by introducing new products to offer the market.

Given these challenges, researchers are interested in studying the elevation of Hom Mali 105 rice flour products through participatory action research in the Ban Lao community, Nong Kaeo sub-district, Mueang Roi Et district, Roi Et province. This involves changing community perspectives and attitudes, creating new commercial value for customers, product development, packaging design, market channel development, and marketing promotion, leading to a genuine understanding of customers' needs, both current and future.

## Objective

1. To study the management capabilities of the community enterprise producing Hom Mali 105 rice flour, located in Ban Lao Village, Group 3, Nong Kaeo Sub-district, Mueang Roi Et District, Roi Et Province.

2. To develop a prototype community product of semi-finished Hom Mali 105 rice flour.

3.To develop the marketing mix components (4C’s) for the prototype community product of semi-finished Hom Mali 105 rice flour.

4.To develop a Business Model Canvas for the prototype community product of semi-finished Hom Mali 105 rice flour.

5. To test the relationship between management capabilities l and the development of marketing mix components (4C's) for the prototype community product of semi-finished Hom Mali 105 rice flour.

6.To test the impact of management capabilities on the development of marketing mix components (4C's) for the prototype community product of semi-finished Hom Mali 105 rice flour.

## Literature Review

Participatory Action Research (PAR) is the application and integration of ideas from Action Research (AR), which is research related to problem identification and resolution. It starts by understanding the current situation and making improvements for better development. Bergold and Thomas (2012) participatory Research (PR) is a collaborative search for knowledge as a group, where all researchers have equal importance and roles in every research process. Amornpinyo (2021) this is appropriate for the context of community enterprises. Participatory Action Research comprises three main components: 1) research, 2) action, and 3) participation from the involved group.

Product Development: Wanitkittikul et al. (2023) the development of products to increase value stems from leveraging existing resources to enhance competitiveness, fostering innovation, and creating novel solutions that meet market demands. This results in improved product quality, uniqueness, difficulty for competitors to replicate, and the ability to create value for customers beyond expectations. Ultimately,
this leads to a competitive advantage. Calantone et al. (2014) suggest that to drive innovative behaviors or practices, it is essential to focus on entrepreneurship, which involves processes, actions, and decision-making patterns that lead to entering new markets with existing or newly developed products and services.

Management potential: Saelee (2015) Potential business management refers to the ability to plan business operations effectively to achieve the highest level of success. It encompasses financial management, production management, human resources management, and marketing management.

Marketing Mix: Kotler et al. (2000) defines the marketing mix as a set of marketing tools that organizations use to implement marketing strategies to achieve the objectives of the target market, which are essential components of marketing strategies comprising of Product, Price, Place, and Promotion. Lauterborn (1990) mentioned that the 4C's Marketing framework consists of Consumer wants and needs, Consumer cost, Convenience to buy, and Communications. Jetsuwarattanamanee (2021) The Marketing Mix Model 4C's refers to the marketing mix components that have an impact on the effectiveness of marketing activities for the group of agricultural homestays. It consists of Consumer Wants and Needs, Consumer's Cost, Convenience to Buy, and Communication.

Although previous studies have focused on product development, management potential, and the application of marketing mix concepts (4P and 4C) in community enterprises, there is a lack of integrated research applying Participatory Action Research (PAR) in combination with product development and marketing mix strategies. In particular, studies that involve stakeholders equally in all stages of the research process are limited. Such an approach could generate locally appropriate strategies that enhance competitiveness and sustainable value creation for community enterprises.

## Research Methodology

This study adopted a mixed-methods design, integrating both qualitative and quantitative approaches to provide a comprehensive understanding of the research problem. The rationale for using both methods lies in their complementarity: qualitative methods captured in-depth insights into community perspectives, practices, and challenges, while quantitative methods measured the broader patterns and statistical relationships necessary to validate and generalize findings. This integration ensured that the research objectives - evaluating management capacity, developing a prototype product, and analyzing its marketing potential - were addressed from both exploratory and confirmatory perspectives.

1. Qualitative Research The qualitative phase aimed to explore community context, management capacity, and innovation opportunities. Data were collected using three main tools: In-depth interviews with 46 key informants, including one community leader and 45 members of the community enterprise producing Hom Mali rice flour. A semi-structured interview guide was used, covering topics such as group background, product potential, marketing, innovation, challenges, and development guidelines. Participant observation, enabling the researchers to gain first-hand understanding of practices and group dynamics. Focus group discussions with 60 stakeholders, including one community marketing expert, three university professors, one community leader, 45 members of the enterprise group, and ten students from Roi Et Rajabhat University. To enhance validity, the triangulation method (Denzin, 1978) was employed by combining multiple data sources and techniques. Purposive sampling was applied to select participants with relevant knowledge and direct involvement. The number of informants followed Macmillan's (1971) recommendations to ensure sufficient representation. Data collection was carried out from March to July 2023, including a two-month product demonstration with 25 participants (five nutrition experts, ten enterprise members, and ten students) to test semi-finished rice flour development.

2. The quantitative phase aimed to validate and measure the broader applicability of findings. Data were collected through questionnaires distributed to 400 consumers residing in Nong Kaeo Subdistrict. The sample was calculated from a population of 7,155 individuals using Yamane's formula (1973). To ensure representativeness, a stratified sampling method was employed. The population was first divided into strata by village. Within each stratum, participants were then selected using simple random sampling to minimize selection bias and ensure that each individual in the stratum had an equal chance of being chosen. This approach helped improve the accuracy and generalizability of the study results. The selection criteria required participants to be residents and potential consumers of community products. All questionnaires were returned, giving a 100% response rate.

3. Qualitative data were analyzed thematically to identify patterns, themes, and insights. Quantitative data were analyzed using both descriptive and inferential statistics. Descriptive statistics included percentage, mean, and standard deviation, while the reliability of the measurement instruments was assessed using Cronbach's alpha. Inferential statistics were applied to explore relationships and causal effects among variables: Correlation Analysis: Pearson's correlation was used to examine the strength and direction of relationships between variables, allowing the identification of significant associations. Regression Analysis: Multiple regression analysis was conducted to determine the predictive power of independent variables

on the dependent variable, quantifying the influence of each predictor while controlling for others. The interpretation of mean scores followed the guidelines of Akamavi et al. (2015), providing a standardized framework for evaluating respondents' perceptions.

## Research Finding

Part 1: Findings from Interviews. Interviews were conducted with the community leader and 46 members of the community enterprise group producing Hom Mali rice flour, revealing key insights regarding demographics, agricultural practices, and environmental conditions. The majority of the population is engaged in agriculture, including rice farming, animal husbandry, and gardening, with rice cultivation being the primary occupation. Geographically, the area consists of flat plains interspersed with hills and sandy soil, experiencing seasonal flooding during the rainy season and droughts during the hot season. Most land is used for rice cultivation, with some areas dedicated to other crops such as tobacco and vegetables. Water resources, including large and small ponds and the Isaan Green Canal, play a vital role in supporting both agriculture and animal husbandry. Overall, the community demonstrates potential for producing Hom Mali 105 rice flour and for further innovation using local wisdom in product processing.

Part 2: Prototype Community Product Development. Based on the insights from Part 1, the research team developed and experimented with a semi-finished Hom Mali rice flour 105 product. The participants included 5 nutrition and dietetics experts from Roi Et Vocational College, 10 community enterprise members, and 10 university students, totaling 25 individuals.

The semi-finished rice flour formulation consists of Hom Mali rice flour (45.45%), glutinous rice flour (18.19%), soybean flour (27.27%), and taro flour (9.09%). Ingredients are mixed and baked in a hot air oven at 38°C for 3–4 hours, then ground and packaged for distribution. A specific product, "Lod Chong," was prepared by mixing the flours, kneading, molding, and pressing in cold water before serving with sweetened coconut cream and ice water. The coconut cream recipe included coconut milk (1,000 g), palm sugar (1,000 g), salt (3 g), and condensed milk (80 g).

Part 3: Focus Group Discussion. A focus group discussion was conducted to gather further insights, with 60 participants including 1 community leader, 1 marketing expert, 3 university professors, 45 community enterprise members, and 10 students from Roi Et Rajabhat University. Discussions focused on developing a marketing mix (4C's) for the prototype semi-finished product: Customer Consultation: The product brand "Pechpantong" (Golden Diamond) was adopted, featuring a diamond on a golden platform symbolizing the value of rice grains and the benefits delivered to customers. Customer Cost: Pricing was determined based on total production cost (54 baht) plus a profit margin (15 baht), resulting in a selling price of 69 baht. Convenience: Distribution channels were developed for customer convenience, including direct online marketing via Facebook and indirect offline channels through middlemen in multiple provinces. Communication: Marketing communications were primarily conducted through social media to reduce operational costs and effectively reach the target audience.

Part 4: Synthesis and Community Participation. Research team meetings and stakeholder consultations highlighted that the community's strong agricultural base, natural water resources, and willingness to engage in collaborative development create an enabling environment for value-added products like Hom Mali 105 rice flour. A learning exchange platform was established, emphasizing the importance of ingredient combinations for product quality, such as green bean flour for clarity and taro flour for softness.

A Business Model Canvas for the semi-finished product was collaboratively developed by researchers, community leaders, marketing experts, university professors, enterprise members, and students. Community participation was observed to be active, with leaders motivating members, raising awareness, and fostering supplementary livelihoods. Members demonstrated understanding and receptivity to participatory approaches, highlighting the importance of collaboration in ensuring enterprise success.

Connection to Previous Studies and Contributions. These findings align with previous research on community enterprise development and value-added agricultural products, which emphasize the significance of participatory approaches, local knowledge, and effective marketing strategies in enhancing community livelihoods (e.g., Charoenwong, 2018; Somchai & Phumiphat, 2020). This study contributes to existing knowledge by providing a practical framework for integrating community participation, product innovation, and marketing strategies specifically in the context of Hom Mali rice flour production.

Practical Implications and Recommendations. Based on the findings, several practical implications for community enterprises can be drawn: Product Innovation: Communities should leverage local resources and knowledge to develop semi-finished products that add value and meet market demands. Participatory Management: Active involvement of community members and leaders is essential for successful enterprise operations and sustainability. Marketing Strategy: Implementing a structured marketing mix (brand identity, pricing, distribution, and communication) enhances product visibility and customer engagement. Capacity Building: Training and knowledge exchange platforms strengthen skills, encourage innovation, and foster collaborative problem-solving within the community.

Overall, this study demonstrates that integrating local wisdom, community participation, and systematic marketing strategies can enhance the sustainability and competitiveness of community enterprises producing Hom Mali 105 rice flour.

Part: 5 The quantitative research. (1) Results of the Evaluation of Management Potential of the Hom Mali Rice Flour Production Community Enterprise, 105 Based on the assessment presented in Table 1, the overall management potential of the community enterprise involved in the production of Jasmine Rice 105 Flour in Group 3 is rated at a high level ($\bar{x}$= 3.70). When analyzing the specific aspects in order of rank, the top three are as follows: Production ($\bar{x}$= 3.81), Product Value ($\bar{x}$ = 3.79), and Reputation ($\bar{x}$ = 3.77), as detailed in Table 1.

**Table 1:** Results of the evaluation of the management potential Management Potential

| Management Potential | $\bar{x}$ | S.D. | Evaluation |
|---|---|---|---|
| 1. Product value (V) | 3.79 | 0.38 | Much |
| 2. Access (C) | 3.73 | 0.38 | Much |
| 3. Management system (S) | 3.60 | 0.32 | Much |
| 4. Facilities (F) | 3.55 | 0.29 | Much |
| 5. Support Customers (SE) | 3.76 | 0.24 | Much |
| 6. Environmental (P) | 3.64 | 0.24 | Much |
| 7. Reputation (G) | 3.77 | 0.32 | Much |
| 8. Production (A) | 3.81 | 0.19 | Much |
| 9. Participation (PA) | 3.69 | 0.28 | Much |
| 10. Quality of Life (Q) | 3.67 | 0.32 | Much |
| Total | 3.70 | 0.10 | Much |

From table 1, The community primarily relies on agriculture, providing a solid foundation for the Hom Mali 105 rice flour enterprise. Seasonal flooding and drought affect production, while land use balances rice cultivation with supplementary crops. Adequate water resources and local knowledge support the potential for value-added product development.

Table 2: The evaluation of the development of the marketing mix (4C's) for the community prototype product "Hom Mali Rice Flour 105 Semi-Processed Lod Chong" indicates that the overall rating, as well as the ratings for each individual aspect, is high ($\bar{x}$= 4.16). When ranking these aspects from highest to lowest, the top three are as follows: Communication ($\bar{x}$ = 4.25), Customer Cost ($\bar{x}$= 4.11), and Customer Care/Problem Solving ($\bar{x}$= 4.04), as shown in Table 2.

**Table 2:** Result of Marketing Mix

| Marketing Mix (M) | $\bar{x}$ | S.D. | Evaluation |
|---|---|---|---|
| Customer solution | 4.04 | 0.34 | Much |
| Customer cost | 4.11 | 0.39 | Much |
| Convenience | 4.25 | 0.35 | Much |
| Communication | 4.25 | 0.29 | Much |
| Total | 4.16 | 0.17 | Much |

From Table 2, The prototype Hom Mali 105 semi-processed rice flour product is well-developed according to the marketing mix framework, with particular strengths in communication and convenience. This suggests that community enterprises can leverage these strengths to promote the product successfully and increase customer engagement.

(3) Hypothesis Testing Results: The Relationship Between the Management Potential of the Community Enterprise Producing Jasmine Rice Flour 105, Village No. 3, and the Development of the Marketing Mix (4C's) for the Prototype Community Product "Lod Chong Jasmine Rice Flour 105, Semi-Processed Lod Chong". The analysis, as presented in Table 3, reveals a significant correlation between the management potential of the community enterprise and the development of the marketing mix (4C's) for the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong" at a statistically significant level of 0.01. The specific correlations observed for each aspect are as follows: Product Value (V): No significant correlation with the marketing mix components (r = -0.087). Customer Convenience (C): A very low significant correlation with the development of the marketing mix (4C's) for the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong" in the same direction (r = 0.297). Group Management System (S): No significant correlation with the development of the marketing mix (4C's) (r = 0.012). Facilities (F): No significant correlation with the marketing mix components (r = -0.009). Customer Service Ability (SE): A moderate significant correlation with the development of the marketing mix (4C's) in the opposite direction (r = -0.526). Environment (P): A low significant correlation with the development of the marketing mix in the opposite direction (r = -0.207). Reputation (G): A low significant correlation with the development of the marketing mix in the opposite direction (r = -0.388). Production Activities (A): A very low significant correlation with the development of the marketing mix in the opposite direction (r = -0.141). Community Participation (PA): No significant correlation with the development of the marketing mix (4C's) (r = -0.070). Quality of Life and Community Economy (Q): No significant correlation with the development of the marketing mix (4C's) (r = 0.019). These findings are shown in Table 3.

**Table 3:** Hypothesis testing Relationship of management potential towards marketing mix

| Correlations | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | | **V** | **C** | **S** | **F** | **SE** | **P** | **G** | **A** | **PA** | **Q** | **M** |
| **V** | r | 1 | -.085 | -.310** | .030 | .283** | -.175** | .156** | -.112* | -.158** | -.248** | -.087 |
| **C** | r | | 1 | .186** | -.010 | -.305** | .268** | -.180** | .033 | .169** | .020 | .297** |
| **S** | r | | | 1 | -.166** | .038 | .116* | -.323** | -.437** | -.052 | .066 | .012 |
| **F** | r | | | | 1 | .261** | .438** | .354** | .178** | -.161** | -.021 | .009 |
| **SE** | r | | | | | 1 | -.039 | .393** | .271** | .136** | .151** | -.526** |
| **P** | r | | | | | | 1 | .102* | .138** | -.072 | -.016 | .207** |
| **G** | r | | | | | | | 1 | .344** | -.122* | .343** | -.388** |
| **A** | r | | | | | | | | 1 | -.082 | .253** | -.141** |
| **PA** | r | | | | | | | | | 1 | -.014 | -.070 |
| **Q** | r | | | | | | | | | | 1 | .019 |
| **M** | r | | | | | | | | | | | 1 |

****Significant** at the 0.01 level (2-tailed) *Significant at the 0.05 level (2-tailed)

From Table 3, the community enterprise's management potential shows a very low positive correlation with Customer Convenience (C), while Customer Service Ability (SE), Environment (P), Reputation (G), and Production Activities (A) have significant negative correlations with the marketing mix. These negative relationships suggest that high performance in these areas does not automatically translate into effective marketing mix development, highlighting the need for strategic alignment and coordinated planning. Overall, these findings highlight that certain management potential components do not always directly enhance marketing mix development, emphasizing the need for strategic alignment between internal capabilities and marketing initiatives.

(4) Hypothesis Testing Results: The Impact of Management Potential of the Community Enterprise Producing Jasmine Rice Flour 105, Village No. 3, on the Development of the Marketing Mix (4C's) of the Prototype Community Product "Lod Chong Jasmine Rice Flour 105, Semi-Processed" Stepwise multiple regression analysis was conducted to test the impact of management potential on the development of the marketing mix (4C's) for the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong." The analysis followed the preliminary steps of stepwise regression to ensure that the independent variables were not highly correlated with each other (i.e., no multicollinearity), as presented in Table 4.The analysis indicated that the error terms were independent, as evidenced by a Durbin-Watson value of 1.673, which falls within the acceptable range of 1 to 3 (Field, 2009). Therefore, it can be concluded that the independent variables used in the analysis did not exhibit multicollinearity, a crucial assumption for multiple regression analysis.

Further assessment of the independence of the variables was conducted using the statistical measures of Tolerance and Variance Inflation Factor (VIF). The Tolerance values were close to 1, indicating that the variables were independent. While some variables had Tolerance values greater than 0.5, the VIF values for all independent variables were below 10, confirming that multicollinearity was not an issue (Zahra & Pearce, 1989). The analysis revealed that management potential significantly impacts the development of the marketing mix (4C's) for the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong" at a statistically significant level of 0.01. The coefficient of determination (R) was 0.697, indicating that 46% of the variance in marketing mix development can be explained by management potential. The standard error of estimate (SEE) was 0.129. The most significant impact of management potential on the marketing mix development was found in the ability to accommodate customers (SE), with a standardized regression coefficient (ß) of -0.521. This was followed by reputation (G) with ß = -0.416, facilities (F) with ß = 0.213, quality of life and community economy (Q) with ß = 0.303, product value (V) with ß = 0.226, and environment (P) with ß = 0.180. In terms of directionality, management potential positively influenced the development of the marketing mix in aspects such as facilities, quality of life and community economy, product value, and environment, with respective increments of 0.213, 0.303, 0.226, and 0.180. Conversely, management potential had a negative impact on the development of the marketing mix for customer service ability and reputation, with decrements of -0.521 and -0.416, respectively. The analysis also found that customer convenience (C), group management system (S), production activities (A), and community participation (PA) did not significantly impact the development of the marketing mix for the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong." The final regression equation obtained through stepwise regression analysis is:

$$Y = 4.482 - 0.368X1 - 0.224X2 + 0.127X3 + 0.166X4 + 0.104X5 + 0.127X6.$$

In summary, qualitative research findings suggest a positive correlation between community involvement and the development of the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong." Community leaders play a critical role in raising awareness about community development, creating additional income opportunities, and fostering collaboration. This highlights the importance of community involvement as a key factor for the success of community enterprises, influencing product marketing, enhancing community leader credibility, and fostering motivation and learning within community groups. However, the quantitative research revealed no significant correlation between community involvement and the development of the marketing mix (4C's) of the community prototype product. This suggests that, in quantitative research, community involvement may not have a significant impact on the development of the marketing mix. These differences in outcomes underscore the nature of qualitative research as naturalistic and exploratory, while quantitative research may not always find significant associations between community involvement and specific outcomes like marketing mix development. In conclusion, the significance of community involvement in research processes may differ between qualitative and quantitative approaches. While qualitative research emphasizes community involvement in driving various aspects of community development, quantitative research may not always identify substantial associations between community involvement and specific outcomes. Therefore, the role of community involvement in research processes may not consistently be of significant importance in quantitative research. The factors that most significantly affect the development of the marketing mix (4C's) for community enterprise operators are customer service ability (SE), reputation (G), facilities (F), customer convenience (C), quality of life and community economy (Q), product value (V), and the environment (P). These factors play a crucial role in creating a competitive advantage for community enterprises in the future.

**Table 4:** Hypothesis testing results the impact of the management potential on the marketing mix.

| **Management Potential** | **B** | **Std. Error** | **ß** | **t** | **P** | **Tolerance** | **VIF** |
|---|---|---|---|---|---|---|---|
| Constant | 4.482 | 0.172 | | 25.980** | 0.000** | | |
| Support Customers (SE) | -0.368 | 0.30 | -0.521 | -12.191** | 0.000** | 0.752 | 1.330 |
| Reputation (G) | -0.224 | 0.025 | -0.416 | -3.122** | 0.000** | 0.659 | 1.517 |
| Facilities (F) | 0.127 | 0.027 | 0.213 | -4.691** | 0.000** | 0.665 | 1.504 |
| Quality of Life (Q) | 0.166 | 0.023 | 0.303 | 7.078** | 0.000** | 0.748 | 1.337 |
| Product value (V) | 0.104 | 0.019 | 0.226 | 5.362** | 0.000** | 0.774 | 1.291 |
| Environmental (P) | 0.127 | 0.030 | 0.180 | 4.237** | 0.000** | 0.760 | 1.316 |
| R | $R^2$ | Adjust $R^2$ | SE(est.) | F | Sig | Durbin-Watson | df1 = 2 |
| 0.679 | 0.461 | 0.452 | 0.12954 | 55.952 | 0.000** | 1.673 | df2 = 397 |

****Significant** at the 0.01 level (2-tailed)

From Table 4, Stepwise regression shows that management potential significantly affects marketing mix development, explaining 46% of the variance ($R^2$ = 0.460). Positive impacts are seen in Facilities, Product Value, Environment, and Quality of Life, while Customer Service Ability (SE) and Reputation (G) have moderate to low negative impacts, suggesting the need for strategic alignment. Customer Convenience, Group Management, Production Activities, and Community Participation are not significant. Qualitative findings highlight the importance of community involvement and leadership, though quantitatively, participation does not significantly influence marketing mix development. Practically, enterprises should align service quality and brand image while leveraging strengths in facilities, product value, environment, and community quality of life to enhance competitiveness. Overall, strategic alignment between management capabilities and marketing activities is essential for sustainable growth and competitive advantage in community enterprises.

## Discussion/Conclusion

1. The evaluation results of the community enterprise potential management for producing Hom Mali 105 rice flour in Moo 3 are at a high level. When considering each aspect, they are as follows: production activity aspect: Emphasizing processes to instill consciousness in conserving natural resources and culture. Creating learning and understanding about the community's way of life and culture. Unique aspects of production activities. Diversity in production activities. Product value aspect: developing products to be aesthetically pleasing. Creating ambiance and natural landscape. Incorporating historical heritage and demonstrating community lifestyles. Reputation Aspect: Establishing recognizable product trademarks. Product image and diversity to gain acceptance from customers. These findings align with the research conducted by Liengjindathaworn & Sansom (2017), which investigated the potential analysis format for developing community products based on resources. The research found

that community development to sustain livelihoods requires self-analysis. Communities must analyze their potential and make efforts to utilize community resources for benefits. Members must analyze strengths, weaknesses, opportunities, and threats to identify problems leading to product development, emphasizing self-reliance. Additionally, Sanont et al. (2022) researched the management potential and business competitiveness strategies of community enterprises producing herbal products in Pak Chong District and Sikhiu District, Nakhon Ratchasima Province. The research found: Management Ability: Group management structure relies on interdependent relationships within the enterprise, utilizing informal relationships for collaborative management. This collaborative work approach ensures the success of the entire group, not just individual members. Product, Process, and Service: Establishing criteria and standards for quality, moisture, cultivation, harvesting, care, and processing. Resource Capability: The area is suitable for herbal cultivation; hence good soil can yield good products. Community members share knowledge and cooperate continuously. The main strategy is to foster cooperation through continuous knowledge sharing, monitoring, and problem-solving, such as helping each other during flood seasons by moving goods to dry storage.

2. The development of the prototype community product, semi-finished Hom Mali 105 rice flour, found that community involvement in the activity is crucial. Regarding community participation, it was found that community leaders are the driving force in stimulating group members and the community towards development. They raise awareness about community development, creating supplementary occupations, generating income, and gaining acceptance and understanding of collaborative management practices within the community. This serves as a vital tool to lead the community towards success, impacting learning, product marketing, community leaders, and group leaders, thus inspiring continued work, learning, and fostering good relationships among group members. These findings are consistent with the research conducted by Chaisuwan et al. (2022), which studied participatory action research for developing community products and digital marketing communication strategies to sustainably boost the community economy. The research discovered that the community products that have been developed and operated by skilled operators have officially established community working groups in the form of community enterprises. For instance, the Nong Noi community has established the Nong Noi Transformation Community Enterprise, while the Wang Man community has established the Good Home Community Enterprise. These community enterprises are managed by local people and have elevated the community's distinctive products, expanding their market. Additionally, sustained group work has been implemented according to the community enterprise process, ensuring continuous collaboration. Furthermore, Innunja & Natakalo (2022) studied the co-creation and development of community products in Kanchanat sub-district, Mueang Phrae district, Phrae province. The research found that the integration of traditional and new knowledge, as well as the artistic identity of the community, has been incorporated into the design and development of community products in Kanchanat sub-district, Mueang Phrae district, Phrae province. The product development begins with the adoption of new technology, such as the use of new rice color sorter machines to maintain the quality of rice for longer periods. With the support of local parents and community leaders, the Kanchanat sub-district designed product labels, specifically for new rice. This new design aims to showcase the local identity.

3. The development of the marketing mix (4C's) for the prototype community product, semi-finished Hom Mali 105 rice flour, found that overall, and in each aspect, it is at a high level. When considering the ranking from highest to lowest, the top three aspects are as follows: Customer Convenience: This aspect involves direct distribution through online systems, product distribution, transportation, and inventory management, as well as multi-channel distribution. It ensures that customers can access the product conveniently through various channels. Communication: Marketing communication involves appointing sales personnel to sell products and services, advertising to stimulate purchase, and promotional activities that are interesting and encourage increased purchases. Effective communication strategies contribute significantly to customer engagement and sales promotion. Customer cost: Setting product prices that are suitable for customers' budgets, offering multiple price levels, and considering both costs and profits when pricing products. Additionally, addressing customer concerns by creating distinctive product brands that are memorable and align with customers' personalities, as well as ensuring that the products meet customers' needs and preferences. These findings are consistent with the research conducted by Udthakham & Sirisugandha (2019), which studied community participation and marketing mix factors affecting the operation of ceramic tourism villages in Koh Kha district, Lampang province. The research found that these villages have well-dressed and articulate staff or entrepreneurs who provide prompt service. They also have convenient locations for travel and a variety of distribution channels. Additionally, they offer attractive products or services that meet customers' needs. Staff or entrepreneurs can provide various information, acting as learning sources about ceramic products, which impresses customers. They also promote sales through discounts, exchanges, giveaways, and reasonable pricing. Moreover, Wangmeng (2021) studied strategies for creating value to deliver woven fabric products of the Mhong hill tribe in Chiang Mai province to digital markets. The research found that respondents' opinions on marketing mix factors were generally at a high level. The most important factors were the necessity and demand of consumers, the cost to consumers, convenience in purchasing, and marketing communication factors. Kaweera (2017) studied the development potential of marketing for the Mae Kai chili farmer group in Ban Tak district, Tak province. The research found that marketing development strategies for the Mae Kai chili farmer group need to be developed collectively to compete in the market. This includes having distinctive products with unique identities, using technology to assist in production to control prices, setting prices suitable for target groups and competitive pricing, identifying target groups clearly in advance and increasing distribution channels, developing promotional plans to promote marketing, and improving personnel.

4. The development of the Business Model Canvas (BMC) for the prototype community product, semi-finished Hom Mali 105 rice flour, has led to clearer goals and objectives in the operation. Members of the community enterprise are now more aware of the necessity and importance of planning operations, helping to define clearer directions and significant outcomes. One key result is that the community enterprise can increase sales by 50% per year, which aligns with the research conducted by Pansomboon (2022) research studied the factors affecting the sales efficiency of jewelry distributor representatives. The study found that using business tools to analyze and evaluate companies helps develop strategies and operational formats. The results of this operational analysis provide insights into the behaviors and expectations of distributor representatives, including the need for useful and continuous sales-related activities, quick information and responses, and a company image that builds trust among distributor groups. When analyzing this data alongside the results of using business tools such as the Business Model Canvas (BMC) and the SWOT-TOWS Matrix, it's observed

that sales for distributor representatives increased by 10.99% in 2020 (the first operational period) compared to the year before the project began. In 2022 (second operational period), sales increased by 6.54% over the previous year and by 18.16% compared to the year before the project began (2019). One study focuses on creating sustainable business models using the BMC to ensure that. Schoormann et al. (2022) business practices align with ecological and social concerns. This research emphasizes the need for tools that support different stages of business model development, from design to implementation and evaluation, while incorporating sustainability aspects.

5. The results of measuring the relationship between management capabilities and the 4C's (Customer solution, Customer cost, Convenience, and Communication) of the community prototype product, semi-finished Hom Mali 105 rice flour, show statistically significant correlations at the 0.01 level. Customer Support (SE): There is a moderately negative correlation with the 4C's, indicating that as customer support improves, the other components of the marketing mix tend to decrease. (r = -0.526). Reputation (G): There is a low negative correlation with the 4C's, indicating that as reputation improves, the other components of the marketing mix tend to decrease. (r = -0.388) Convenience (C): There is a very low positive correlation with the 4C's, suggesting that as convenience increases, the other components of the marketing mix tend to increase as well. (r = 0.297) Environment (P): There is a low negative correlation with the marketing mix, indicating that as environmental factors improve, the other components of the marketing mix tend to decrease. (r = -0.207) Production Activities (A): There is a very low negative correlation with the 4C's, indicating that as production activities increase, the other components of the marketing mix tend to decrease. (r = -0.141) These findings are consistent with the research conducted by Solimun & Fernandes (2018) These findings underline the critical role of management in shaping and implementing effective marketing strategies. By focusing on customer needs, costs, convenience, and communication (the 4C's), management can better align their marketing efforts with consumer expectations, leading to enhanced market performance and customer satisfaction. Akgün & Polat (2022) relationship between management capabilities and the marketing mix. Several studies have shown that effective management plays a crucial role in optimizing the components of the marketing mix (Product, Price, Place, Promotion) and improving overall market performance and customer satisfaction. But Pommarang (2022) on the development of management practices to enhance the effectiveness of community enterprises. The research indicates that overall operational effectiveness of community enterprises, including process and outcome, is not significantly correlated with product and service groups. This may be due to differences in operational processes between product and service groups. However, there is statistically significant correlation at the 0.05 level between community enterprises, indicating a clear direction for both groups.

6. The impact assessment of management capabilities on the marketing mix (4C's) of the semi-finished community prototype product, Hom Mali 105 rice flour, reveals statistically significant correlations at the 0.01 level. The coefficient of determination (R2) is 0.461, indicating that 46% of the variance in marketing mix components can be explained by management capabilities. The standard error of the estimate (SEE) is 0.129. The management capabilities that have the greatest impact on the marketing mix components are as follows: Customer Support (SE): The standardized regression coefficient (ß) is -0.521, indicating a significant negative impact on customer support, implying that as management capabilities increase, customer support decreases. Reputation (G): The standardized regression coefficient (ß) is -0.416, indicating a significant negative impact on reputation, implying that as management capabilities increase, reputation decreases. Facilities (F): The standardized

regression coefficient (ß) is 0.213, indicating a significant positive impact on convenience, implying that as management capabilities increase, convenience increases. Quality of Life (Q): The standardized regression coefficient (ß) is 0.303, indicating a significant positive impact on quality of life and economic development, implying that as management capabilities increase, quality of life and economic development increase. Product Value (V): The standardized regression coefficient (ß) is 0.226, indicating a significant positive impact on product value, implying that as management capabilities increase, product value increases. Environment (P): The standardized regression coefficient (ß) is 0.180, indicating a significant positive impact on the environment, implying that as management capabilities increase, environmental factors improve. Overall, the findings suggest that management capabilities significantly influence the marketing mix components of the community prototype product. Specifically, improvements in management capabilities are associated with decreases in customer support and reputation but increases in convenience, quality of life and economic development, product value, and environmental factors. "SEGFQVP: Ability to support customers (SE), reputation (G), and facilities. Convenience (F) for improving quality of life, community economy (Q), product value (V), and environment (P) affect the development of the marketing mix (4Cs) for community enterprise operators in creating a competitive advantage in the future." These results align with the research conducted by Pratt (2022) More consumer-centric approach is beneficial for businesses. It emphasizes that management's ability to understand and implement strategies based on customer needs, communication, cost, and convenience can lead to better market performance and customer satisfaction. McKinsey & Company (2024) Effective management plays a crucial role in optimizing the marketing mix (product, price, place, promotion). Strong management capabilities help in making informed decisions that align with strategic goals, ultimately enhancing market performance and customer satisfaction. Kanishk Gupta (2020) One significant study explored the role of the 4C's in building trust and achieving brand loyalty in the fasteners industry. This study demonstrated that strong management capabilities in addressing consumer needs, effective communication, managing costs, and ensuring convenience positively influenced trust. In turn, trust had a strong positive impact on brand loyalty. But Chuayraksa (2016) on the development guidelines for community enterprises, which emphasized factors such as production, marketing, leadership, member involvement, and external relations.

## Suggestion

**General Suggestions**

1. Community enterprises should enhance operational convenience to improve service efficiency and overall productivity.

2. Community enterprises should focus on product design and development to better meet customer needs and maintain market competitiveness.

3. Community participation should be encouraged, as it provides valuable insights into local preferences that can enhance the development of marketing mix components.

4. Involving the community in decision-making fosters stakeholder ownership and loyalty, positively impacting marketing mix development and business success.

5. While customer support is important, management capabilities such as market research, product innovation, and strategic planning are also crucial for developing the marketing mix.

**Suggestions for Future Research**

1. Study the influence of market potential on community enterprise performance to identify opportunities for growth, customer targeting, and resource optimization.
2. Investigate which marketing mix components most influence consumer behavior toward community products to tailor marketing strategies more effectively.
3. Examine the impact of management capabilities on community enterprise operations to identify key success factors and inform strategies for improving performance.

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2.1 Introduction: significance and background of the study together with overall view of the article.

2.2 Objective

2.2 Literature Review

2.3 Research Methodology: steps of doing the research, samples for the study, data collection, research instrument and statistics.

2.4 Research Finding

2.5 Discussion and Conclusion

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In submitting an article for consideration, you need to write citations of other documents or the sources of information used at the end of the article. By providing references only in English and categorized in APA style, the submitter should check the correctness and completeness of the citation in accordance with the criteria specified by the journal. Any articles on topics that have a citation format that has not yet been complied with the journal will not be forwarded to a qualified reader for reviewing in the next step. The submitter must adhere to the following main guidelines.
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