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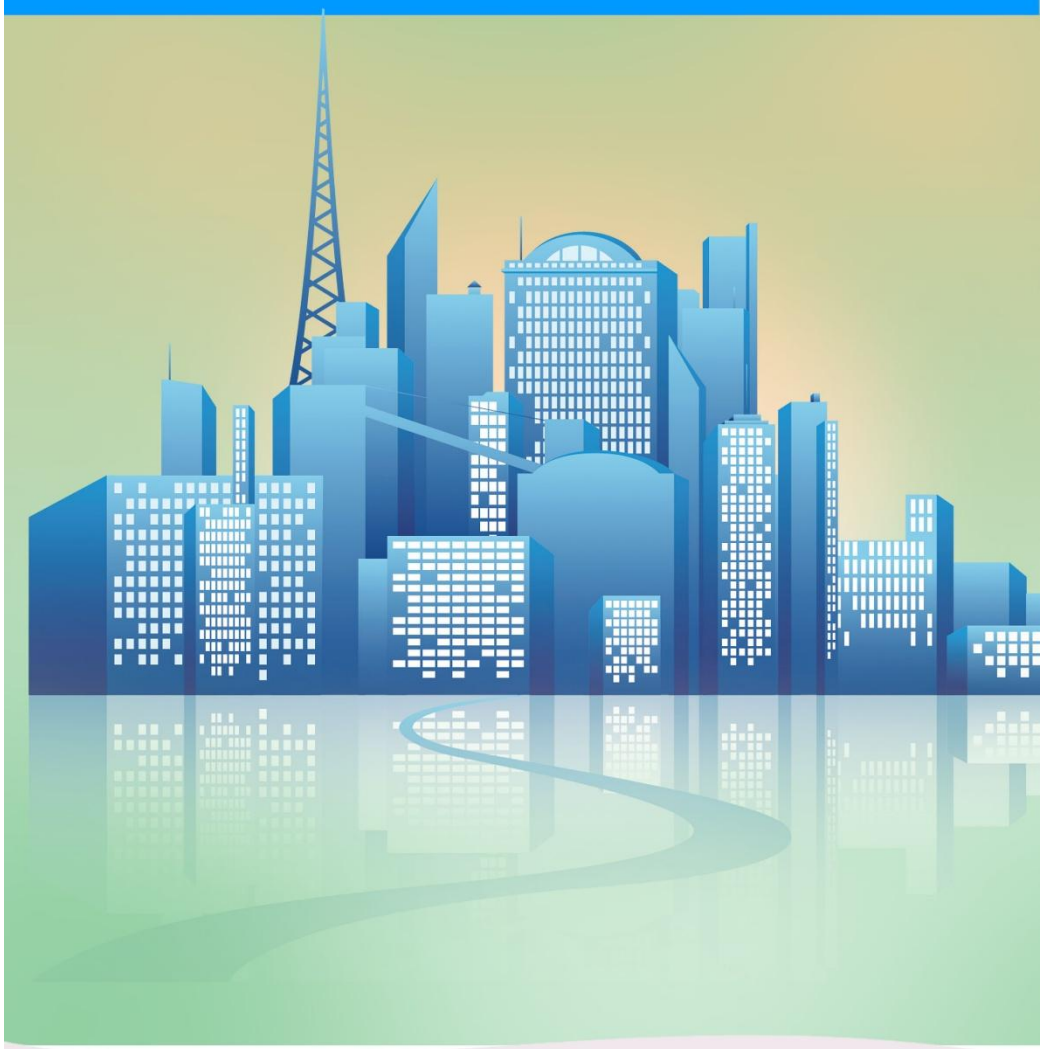

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AJHSI

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Asian Journal of Humanities and Social Innovation (AJHSI) is a journal in the humanities and social sciences. It aims to promote research and publish research articles, academic articles, review articles, and book reviews for scholars, researchers, lecturers, students at all levels, and interested persons in the dimensions of Sociologies, Anthropologies, Humanities, Social Sciences, Education, Business Administration, Politics, Public Administration, Development, Tourism, and other areas in Social Sciences. Articles that are considered for publication must be reviewed by at least 2 out of 3 qualified persons (Peer Review). Only English articles are considered for publication. Submitted works must not have been published or are under consideration by qualified persons for publication in other journals. Authors must strictly comply with the criteria for submitting academic or research articles for publication in the journal, and the referencing system must be in accordance with the criteria of the journal.

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Editorial

Asian Journal of Humanities and Social Innovation (AJHSI) is the first issue issue of the year 2026 with a total of 5 articles. The journal is currently developing and improving its format and main issues to meet the journal quality assessment criteria in the TCI database to support the assessment from the Thai Journal Citation Index (TCI). In order to ensure that the quality of the articles meets international conditions and rules, it provides opportunities for scholars, researchers, and students at all levels to publish academic articles, research articles, review articles, and book reviews. The editorial team has followed the principled process of publishing articles according to the criteria of the Office of the Higher Education Commission in all respects.

The editors of Asian Journal of Humanities and Social Innovation (AJHSI) would like to thank the authors, members and readers for their interest and trust in our journal. We sincerely hope that the selected articles will be of benefit to all readers. The editors would like to thank all the experts who have kindly read and suggested improvements to the research articles to improve their academic quality.

Finally, the editors sincerely hope that the contents of this journal will be of some use to readers. If readers have any suggestions for improving this journal to make it more complete, the editors will gladly accept them.

Editor-In-Chief

Contents

Editor-In-Chief **(b)**
Editorial **(e)**
contents **(f)**

Exploring the economic viability and marketability of aeroponics systems: An urban agriculture study in Navotas City **1-15**
Hanna Kye B. Pohanes, Samantha Andrea D. Farinas, Maricar G. Cangayao, Jasmin Mae B. dela Peña, Judielle G. Hertez, Chinie C. King Ho, Jonalyn D. Palconit, Jholan Hazel C. Tabance, Divina Gracia M. Cabaddu, Ryan C. dela Peña

Consumer Attitudes and Behaviors Influencing Perceived Benefits of "Tosakan Nakas" Herbal Balm: A Case Study of SCG Grand Martech Co., Ltd. **16-30**
Ntapat Worapongpat

Multicultural Leadership Models for Facilitating Participatory Administration in Local Government: Evidence from Maha Sarakham Province, Thailand **31-47**
Ntapat Worapongpat

A Guideline for Developing Digital Skills of Personnel in Private Higher Education Institutions for University Reform, Bangkok Metropolis **48-63**
Ntapat Worapongpat

The Kālāma Sutta and Its Reflections in Modern Buddhist Education: Authority, Critical Inquiry, and Pedagogical Transformation **64-83**
Yuqiong Chen
Author Guidelines **84-95**

Research Article

Exploring the economic viability and marketability of aeroponics systems: An urban agriculture study in Navotas City*

Hanna Kye B. Pohanes[1], Samantha Andrea D. Farinas[2], Maricar G. Cangayao[3], Jasmin Mae B. dela Peña[4], Judielle G. Hertez[5], Chinie C. King Ho[6], Jonalyn D. Palconit[7], Jholan Hazel C. Tabance[8], Divina Gracia M. Cabaddu[9] and Ryan C. dela Peña[10]

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Abstract

Aeroponics is an innovative soilless farming method increasingly recognized for its potential in urban agriculture. However, research on its economic and environmental viability remains limited, particularly in the Philippine context. This study explores the potential of aeroponics as a sustainable business model by focusing on its implementation in Navotas City. Using a qualitative approach, insights were gathered from individuals directly involved in operating aeroponics systems. Findings indicate that while aeroponics requires high initial investment, it offers notable benefits such as efficient resource use, scalability, and consistent high-yield production. These features suggest strong potential for profitability. Environmentally, the system reduces water usage and land requirements, supporting sustainable urban farming. Despite these advantages, challenges persist. Aeroponic produce, although marketable, often fails to meet specific weight standards required for sale. Additionally, energy consumption and high setup costs remain significant barriers to widespread adoption. In conclusion, aeroponics shows promise for increasing food production in space-constrained urban areas. However, for it to become a viable and scalable business model, further improvements in system efficiency and operational methods are needed. Future quantitative research is recommended to deepen the understanding of economic and environmental factors affecting its adoption in the Philippines.

Keywords: Creative leadership; Institutional effectiveness; Private higher education; Bangkok

Citation

BY NC ND

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Introduction

Particularly in highly populated locations like Navotas City, urban agriculture has grown in importance as a component of modern farming. To solve global agricultural difficulties, the Food and Agriculture Organization (FAO) proposed in 2017 that sustainable farming methods, such as hydroponics, aeroponics, and aquaponics, be used. Among these, aeroponics is a highly advanced soilless farming method that makes utilizes cutting-edge equipment to optimize the efficiency of food production.

Aeroponics is particularly helpful in times of crisis, like pandemics, when availability to fresh produce can be limited and food supply networks are upset. In these situations, aeroponics can be an effective means to guarantee food security. The necessity to investigate sustainable and creative food production methods is further highlighted by the difficulties urban farmers frequently encounter in maximizing profit and preserving market competitiveness, especially in urban environments where resources and space are limited.

With profit margins reportedly ranging from 10% to 40%, aeroponic farming has become a viable option (FinModelsLab, 2024; Agri Farming, 2024). Crop selection, operational effectiveness, and the rising demand for locally grown, fresh, and pesticide-free food are some of the variables that affect these margins. Health-conscious consumers are especially drawn to high-value crops that can be grown quickly and sold for high prices, such as herbs and leafy greens.

Notwithstanding its potential, aeroponics is still a relatively new idea, and little research has been done on it, particularly in the Philippine environment. The majority of research has been done in other nations with diverse climates and frequently focuses on rural rather than urban settings. Additionally, the majority of the literature now in publication places more emphasis on aeroponics' sustainability than on its economic feasibility.

Objectives

In response to these gaps, this study aims to evaluate the long-term sustainability and economic feasibility of aeroponics systems in Navotas City. Specifically, it investigates the challenges faced by local government units and organizations in establishing and managing aeroponic systems and explores potential solutions to promote sustainable urban agriculture.

Literature review

Aeroponics has emerged as a specialized branch of soilless agriculture in which plant roots are suspended in air and supplied with a nutrient-rich mist. This production method is increasingly discussed within the broader framework of controlled environment agriculture and vertical farming because it allows high levels of environmental control, efficient nutrient delivery, and intensive use of limited urban space. A recent systematic review of 47 aeroponics studies found that the technology is commonly associated with sensing systems, automation, and Industry 4.0 applications, which can improve time efficiency, production control, and sustainability; however, the same review also emphasized technical complexity and dependence on stable power systems as recurring implementation barriers (Garzón et al., 2023). More recent

synthesis work likewise positions aeroponics as a resource-efficient response to constraints on water, land, and emissions, especially in dense cities where conventional agriculture is spatially constrained (Chu et al., 2026).

Within the urban agriculture literature, profitability remains one of the most debated issues. A major review of urban agriculture noted that urban farming is often difficult to expand because of weak economic profitability, even though its social, health, and environmental benefits are widely recognized. This suggests that economic viability cannot be judged only by output volume, but must also consider savings in transport, freshness, resilience, and community-level value creation (Yuan et al., 2022). A related review on urban vertical farming argued that while controlled environment production is often promoted as a solution for local food security and urban sustainability, its socio-economic benefits are highly context-dependent and may be undermined by unaffordability, exclusion of low-income consumers, and weak integration into local food systems (Kluczkovski et al., 2025). Together, these studies indicate that the economic case for aeroponics in cities must be assessed not only through cost–benefit indicators, but also through the structure of local demand, accessibility, and the institutional environment in which the system operates.

The literature specifically on the **economic viability** of aeroponics shows both promise and caution. On the positive side, studies consistently report that aeroponics can increase land-use efficiency and reduce water use relative to conventional soil cultivation. In a city-scale techno-economic assessment in Hong Kong, rooftop aeroponics combined with photovoltaics was found to reduce land demand by up to 86.8%, with one strategy achieving a reported payback period of 0.8 years while also covering substantial fresh-vegetable demand for selected crops (Kazemian et al., 2025). In Bangladesh, a study on a vertical aeroponic tower made from locally available materials reported a benefit–cost ratio of 1.164, suggesting economic feasibility for small-scale adoption (Singha et al., 2026). These findings support the argument that aeroponics can be financially viable when systems are properly matched to crop type, energy conditions, and construction costs.

At the same time, the literature warns that the economic success of urban aeroponics is highly sensitive to energy and infrastructure costs. A recent review of technological innovations in urban and peri-urban agriculture noted that energy expenses alone can account for approximately 28% of total vertical farming costs, while several well-known commercial vertical farms have struggled or failed because of high operating expenditures (Fei et al., 2025). Similarly, a review on vertical farming efficiency stressed that economic viability in controlled environment systems depends heavily on crop productivity and operational costs, especially electricity for lighting and heating, ventilation, and cooling (Wheeler et al., 2024). Even environmental assessments of containerized aeroponic farms have shown that energy demand is the principal driver of impacts, although renewable power can substantially improve performance (Rivera et al., 2023). Therefore, while aeroponics offers strong technical advantages, its economic viability in urban areas depends on careful management of energy, scale, crop choice, and system design.

Another important strand of literature concerns the **marketability** of aeroponics produce. Marketability refers not only to whether produce can be sold, but also to how consumers perceive its quality, safety, freshness, price, and “naturalness.” Research on vertically farmed produce in Russia found that consumer attitudes were mixed: while

many respondents were favorable, others associated vertically farmed vegetables with being unnatural, less tasty, or less nutritious. The authors concluded that purchase intentions could be improved through better consumer education on nutrient content, safety, taste, and production methods (Yano et al., 2021). A separate comparative study on buying vertically farmed produce reported generally positive acceptance, though consumer evaluations varied according to prior knowledge and perceptions of production systems (Ares et al., 2023). Recent work from Scotland similarly focused on willingness to pay for vertical farming produce, reinforcing the importance of consumer attitudes in determining market success (Bucky et al., 2026). Taken together, these studies suggest that the marketability of aeroponics in urban settings depends not only on output quality, but also on communication strategies, labeling, public trust, and localized consumer education.

The literature also indicates that **marketability is strongest when aeroponics targets high-value, fast-turnover crops**. Reviews of vertical farming repeatedly note that leafy greens, herbs, and microgreens are the crop categories most compatible with indoor and soilless urban systems because they mature quickly, command relatively favorable prices, and fit consumer demand for freshness and convenience. Recent reviews further argue that the commercial viability of vertical farming often depends on high-value crops, because energy-intensive systems are much harder to justify for staple crops with lower margins (Akpenpuun et al., 2025). This has direct implications for aeroponics studies in cities like Navotas, where income diversity, purchasing power, and access to neighborhood markets may shape which crops are commercially feasible.

In the **Philippine context**, the literature on aeroponics remains limited, but adjacent work on hydroponics and urban aquaponics provides useful guidance. A 2025 case study in Nueva Ecija found that hydroponics could improve yields, reduce water and chemical inputs, and enhance financial returns, but adoption remained constrained by initial investment costs and the need for specialized knowledge (Macaso, 2025). Research on Philippine urban agriculture also documents efforts to promote low-space food production technologies in urban communities, while noting that many initiatives suffer from weak long-term monitoring, manpower constraints, or insufficient production data. This indicates that technological introduction alone does not guarantee sustainability; training, maintenance, and market linkage are also necessary for long-term success. These Philippine findings are highly relevant because they suggest that any study of aeroponics in Navotas should examine not just production performance, but also the institutional and human capacity required to sustain the system.

Navotas City presents a particularly relevant case for urban aeroponics because of its extreme land constraints and its recent investments in local food production infrastructure. The city's land area is only 10.69 square kilometers, and its physical profile describes Navotas as a flat, highly urbanized coastal city with limited agricultural land (Navotas City Government, 2016–2025). Recent local reporting also shows that the city has expanded greenhouse and vertical farming initiatives to strengthen local food supply and reduce reliance on external sources of produce (VerticalFarmDaily, 2024). These conditions make Navotas an important site for examining whether aeroponics can function as a commercially viable urban agriculture strategy in a dense coastal environment where land scarcity is acute and food resilience is a policy concern.

Despite the growing literature, several **research gaps** remain. First, much of the published work emphasizes technical performance, environmental efficiency, or generalized vertical farming discourse, while relatively few studies directly examine the combined issues of **economic viability and marketability** of aeroponics in a specific Philippine urban setting. Second, the international literature often assumes mature supply chains and higher-income consumers, which may not fully reflect the realities of neighborhood-based urban markets in Metro Manila. Third, there is still limited empirical work linking production-side indicators—such as capital cost, operating expenses, crop yield, and payback period—to market-side variables such as consumer awareness, willingness to buy, preferred crops, acceptable prices, and trust in soilless produce. For Navotas City, these gaps justify a study that integrates business feasibility analysis with consumer and market assessment, rather than treating the production system as a purely technical innovation.

In summary, the literature suggests that aeroponics has strong potential for urban agriculture because it is space-efficient, resource-saving, and adaptable to dense city environments. However, its economic success is not automatic. Profitability depends on capital costs, energy use, crop choice, and system scale, while marketability depends on consumer trust, product positioning, price acceptability, and local distribution channels. For Navotas City, where land is scarce and local food resilience is increasingly important, aeroponics appears promising, but its real viability must be tested through an integrated analysis of production economics and market demand.

Methodology

A qualitative research method was employed to gain deeper insights into the informants' experiences and involvement with the aeroponics system in Navotas City. This method is particularly effective for exploring complex human behaviors, perspectives, and the contextual factors influencing them (Creswell, 2014). Qualitative research enables the researcher to understand how individuals interpret and make sense of their experiences, making it suitable for examining social phenomena in real-world settings (Denzin & Lincoln, 2018).

In particular, a descriptive research design was employed to assess the aeroponics system's current condition, pinpoint its salient features, and offer thorough justifications to aid in interpretation. In order to accurately depict a condition or phenomena, descriptive research focuses on answering questions like what, when, where, and how—without necessarily looking into the underlying causes (Babbie, 2020). It lays the foundation for further investigation and study, even though it does not usually examine causal relationships. Representatives from the local government unit (LGU) of Navotas City, the Boy Scouts of the Philippines (BSP), and an aeroponics company in the city were among the chosen participants. These partakers were picked because they actively participated in the aeroponics system's implementation, which gave the researchers a deeper comprehension of aeroponic procedures and the difficulties that arise in various settings. This information was critical for informing improvements and best practices to enhance the effectiveness of aeroponic systems.

The study was conducted in Navotas City, a coastal urban area in Metro Manila, known for hosting the tallest aeroponic towers in the Philippines. Data were collected through interviews with informants involved in urban agriculture in Navotas Homes 2-Tanza. Researchers prepared nine interview questions, validated by professionals to ensure accuracy and credibility. These questions facilitated an in-depth exploration of participants' experiences, perceptions, and motivations, enabling researchers to gather rich and detailed data.

Through methodical coding and subject formulation, thematic analysis was used to find patterns in the interview responses. Triangulation was used by cross-referencing interview data with pertinent literature and supporting documentation in order to increase the validity of the results. The limits and possible biases of individual data sources were lessened by this technique. Through the use of numerous independent sources to corroborate findings, triangulation improved the study's credibility and reliability.

Results

This study generated empirical findings on the implementation of aeroponics systems in Navotas City, focusing on economic viability, sustainability, market acceptance, operational performance, and system effectiveness.

1. Economic Challenges and Benefits

The findings reveal that aeroponics requires high initial capital investment and operational costs. Infrastructure such as vertical towers, automation systems, and nutrient delivery mechanisms significantly increase expenses (Atlas Scientific, n.d.; Top Hydroponic Garden, n.d.). Informants reported initial setup costs of approximately ₱5 million, while operational expenses reached about ₱12 million since 2019.

Energy consumption is a major contributor to operational costs, as systems rely heavily on electricity for automation and environmental control (Grow Pod Solutions, n.d.; Booker & Booker, 2024). Nutrient solutions also add recurring costs (Ramalingannanavar et al., 2020).

Despite these constraints, the system enables year-round production, reduced labor, and high-quality crops, with some informants suggesting a potential return on investment within one year or slightly longer .

2. Sustainability of Aeroponics Systems

The findings highlight multiple sustainability advantages, including reduced water consumption, minimal pesticide use, space efficiency, and automation. Water usage was reduced by approximately 90% compared to traditional farming, supported by a closed-loop recycling system (Grow Pod Solutions, n.d.).

Aeroponics also demonstrated strong spatial efficiency, conserving up to 75% more space than conventional agriculture (Agrotonomy, 2024). Additionally, participants reported no need for pesticides, as the absence of soil reduces pest occurrence.

The system supports continuous production, with crops harvested 2–3 times per month, and automation allows operation with minimal labor input .

3. Market Acceptance and Stakeholder Perception

Findings indicate strong support from the Navotas City Local Government Unit (LGU), which recognizes aeroponics as a viable strategy for addressing urban food

insecurity. The system improves access to fresh, locally produced vegetables, reducing dependence on external supply chains.

Consumers reported increased trust in food safety, particularly due to the absence of pesticides. However, price sensitivity remains a concern, as aeroponics produce is perceived to be more expensive. Some residents opted for alternative systems such as hydroponics.

The system also contributes to social impact, particularly through programs targeting underserved communities .

4. Operational Barriers and Advantages

The findings show that the system has not yet achieved its target crop weight of 1 0 0 grams, largely due to ongoing adjustments and technological limitations. Challenges include:

-Limited technological infrastructure

-High energy costs (₱8,000–₱50,000/month)

-Need for continuous system calibration

Despite these barriers, aeroponics provides advantages such as:

-High yield in limited space

-Automation reducing labor requirements

-Job creation and community participation

Automation systems (e.g., sensors, mobile control) improve efficiency and consistency in plant growth .

5. Climate Adaptability and Production Stability

The findings reveal that while aeroponics reduces dependence on soil and climate, external weather conditions still affect operations. Typhoons damaged infrastructure, causing temporary disruptions, while dry seasons required adjustments in irrigation schedules.

Thus, system performance depends on the resilience of protective structures, such as greenhouses. Strengthening infrastructure is necessary to ensure continuous year-round production.

6. Proposed System Improvements

The study identified key innovations to enhance system performance, including:

-Rotating tower system to improve sunlight distribution

-Solar energy integration to reduce electricity costs

-Use of polycarbonate materials for durability and insulation

-Conveyor-based plant movement to ensure equal light exposure

The proposed system improves:

-Energy efficiency (reduced reliance on grow lights)

-Crop yield and quality

-Space utilization

Discussion

The findings of this study align with and extend existing literature on aeroponics and urban agriculture, particularly in terms of economic feasibility, sustainability, and market dynamics.

1. Economic Viability

The high capital and operational costs identified in this study support previous research indicating that aeroponics systems are **capital-intensive and energy-**

dependent (Fei et al., 2025; Wheeler et al., 2024). The reported costs in Navotas confirm that **financial barriers remain a primary constraint** to adoption.

However, the potential for **rapid return on investment** reflects findings from Kazemian et al. (2025), suggesting that profitability is achievable when systems are efficiently managed and aligned with high-value crop production.

Thus, aeroponics in Navotas demonstrates **conditional economic viability**, dependent on cost optimization, energy efficiency, and market alignment.

2. Sustainability and Resource Efficiency

The significant reduction in water use and elimination of pesticides strongly support prior studies that identify aeroponics as a **highly sustainable agricultural system** (Garzón et al., 2023; Chu et al., 2026).

The findings further reinforce the role of aeroponics in addressing **urban land scarcity**, particularly in densely populated areas such as Navotas. This confirms the argument that aeroponics is well-suited for **urban food systems where space and resources are limited**.

3. Marketability and Consumer Behavior

The positive perception of locally produced, pesticide-free crops aligns with studies showing **growing consumer acceptance of vertically farmed produce** (Ares et al., 2023).

However, concerns about price reflect broader literature indicating that **marketability is constrained by affordability and consumer awareness** (Yano et al., 2021). This suggests that market success depends not only on production efficiency but also on:

-Pricing strategies

-Consumer education

-Value-added products

The Navotas case highlights the importance of **linking production with local market conditions**, particularly in mixed-income urban communities.

4. Technological and Operational Constraints

The technological challenges observed in Navotas confirm findings from Ramalingannanavar et al. (2020) that developing countries face **limitations in precision agriculture infrastructure**.

Energy consumption also emerges as a critical issue, consistent with literature identifying electricity costs as a major barrier to vertical farming scalability (Fei et al., 2025).

Thus, improving **system design and energy efficiency** is essential for long-term sustainability.

5. Climate Resilience

Although aeroponics is designed for controlled environments, the findings demonstrate that **external climate risks still affect system performance**, particularly through infrastructure vulnerability.

This supports the argument that **technological systems alone are insufficient without resilient physical structures**, reinforcing the need for integrated design approaches combining engineering and agriculture.

6. Innovation and System Optimization

The proposed rotating tower system represents a practical innovation that addresses key limitations identified in both this study and existing literature—particularly **uneven light distribution and high energy use**.

The integration of solar energy aligns with sustainability frameworks promoting **renewable energy in urban agriculture systems**.

Furthermore, value-added processing strategies reflect market-oriented approaches that enhance profitability, supporting literature emphasizing the importance of **diversification in urban farming enterprises**.

Summary Insight

Separating the findings and discussion reveals that:

-Findings provide empirical evidence specific to Navotas City

-Discussion situates those findings within broader academic and practical contexts

Overall, the study demonstrates that aeroponics is **technically viable and environmentally sustainable**, but its **economic success and marketability depend on cost control, consumer acceptance, and system innovation**.

Knowledge Contribution

This study contributes to the body of knowledge on urban agriculture, particularly in the context of aeroponics systems, by integrating economic, technological, and market perspectives within a localized urban setting such as Navotas City.

First, the study provides **context-specific empirical evidence** on the economic viability of aeroponics in a densely populated coastal city. While existing literature often focuses on developed countries or generalized vertical farming models, this research demonstrates how high capital investment, operational costs, and energy consumption manifest in a real-world Philippine urban environment. By presenting actual cost estimates, return expectations, and operational challenges, the study advances understanding of **financial feasibility under resource-constrained conditions**.

Second, the research contributes to the literature by linking **sustainability with economic practicality**. It confirms that aeroponics systems are highly efficient in terms of water use, space utilization, and pesticide reduction, while also revealing that sustainability alone does not guarantee economic success. This dual perspective enriches theoretical discussions by emphasizing that **environmental efficiency must be balanced with financial and operational considerations** in urban agriculture systems.

Third, the study offers new insights into the **marketability of aeroponics produce**, particularly in emerging urban markets. It highlights the role of consumer perception, affordability, and trust in shaping demand for soilless agricultural products. By documenting both acceptance and resistance among local consumers, the research expands current knowledge on **consumer behavior in urban agriculture**, especially in developing country contexts where price sensitivity is significant.

Fourth, the study contributes to **technological and systems innovation** by proposing an improved aeroponics model, specifically the rotating tower system with solar integration. This proposed design addresses key limitations identified in the

findings, including uneven light distribution, high energy consumption, and suboptimal crop yield. The integration of renewable energy and mechanical innovation offers a **practical framework for improving efficiency and scalability**, thereby extending existing technological models in aeroponics.

Fifth, the research provides a **holistic analytical framework** by integrating production factors (costs, yield, efficiency) with market factors (consumer acceptance, pricing, value-added products) and institutional support (local government initiatives). This multidimensional approach contributes to the literature by demonstrating that the success of urban agriculture systems depends on the interaction of **economic, social, technological, and policy dimensions**, rather than on isolated variables.

Finally, the study contributes to **policy and practice** by offering evidence-based recommendations for local governments, private investors, and urban farmers. It highlights the importance of infrastructure resilience, energy optimization, skills development, and market linkage in ensuring the sustainability of aeroponics systems. These insights are particularly valuable for urban planners and policymakers seeking to enhance **food security and sustainable urban development** in similar metropolitan environments.

Conclusion

Interviews with employees of an aeroponics corporation in Navotas City, along with participation from the Boy Scouts of the Philippines, revealed several key themes, including economic challenges and the broad benefits of implementing aeroponics in the area. Despite financial hurdles, the aeroponics system's potential extends beyond profitability, encompassing social and environmental advantages.

Employees emphasized that urban agriculture in Navotas is viewed primarily as a social tool rather than solely a business venture. The aeroponics tower functions not only as a farming apparatus but also as a community resource, providing fresh vegetables and donations to local beneficiaries. This dual role highlights the system's contribution to food security and social welfare, fostering cooperation and resilience within the community.

While efforts to generate income through crop sales exist, the primary focus remains on creating lasting community impact. The system's sustainability is reflected in its low-maintenance farming methods and its capacity to engage residents in urban agriculture, empowering them and promoting a culture of environmental stewardship.

In conclusion, the aeroponics system in Navotas City holds significant promise for promoting sustainability and enhancing community welfare. It is crucial for stakeholders—including local government units and community organizations—to support and invest in initiatives that balance economic viability with social responsibility. Future research should explore the long-term sustainability and scalability of aeroponics systems in diverse urban contexts to optimize both social and economic outcomes.

Operating within the framework of the Triple Bottom Line, the aeroponics system addresses economic viability, environmental sustainability, and social equity.

Economically, it offers profit margins between 10 to 40 percent, although initial investments of several million pesos are required, with break-even achievable within a year due to lower labor costs and continuous production. However, high energy consumption remains a challenge, which could be mitigated through renewable energy integration.

Environmentally, aeroponics demonstrates significant water efficiency by utilizing a closed-loop irrigation system that uses much less water than conventional farming. It also maximizes vertical space in urban areas with limited land and eliminates the need for pesticides. Socially, the system enjoys strong support from local government and communities for enhancing food security and is increasingly integrated into educational programs. Nonetheless, high setup costs and the need for skilled labor continue to limit broader adoption.

Recommendation

To effectively promote the adoption of aeroponics systems in Navotas City, a strategic, multi-sectoral approach is essential. Local government units must develop policies that encourage financially sustainable investments in agricultural technology. Collaborations with NGOs can provide logistical support to expand adoption, while certification and branding initiatives will help differentiate aeroponic produce in the market, tapping into growing consumer demand for sustainable, local food. Partnerships with educational and technical institutions are critical for equipping farmers with the necessary skills. Establishing direct market channels—such as connections between farms, restaurants, grocery stores, and online platforms—will secure reliable sales avenues and broaden consumer access. By integrating strong partnerships, financial incentives, market development strategies, and continuous research and development, the long-term success of aeroponics in urban farming can be ensured, emphasizing ongoing improvements, cost reduction, and ecological benefits.

Analyzing the adoption of aeroponics in Navotas City is crucial to advancing sustainable urban agriculture in space-constrained environments. Aeroponics maximizes crop yields with minimal land use, particularly for fast-growing leafy greens like lettuce and kale. The system's ability to conserve water significantly and eliminate harmful agrochemicals underscores its environmental advantages. Additionally, the potential for profitability—estimated between 10 to 40 percent—provides a compelling economic incentive. The integration of solar-powered systems and innovative designs, such as rotating towers, promises to further reduce operational costs while improving efficiency and sustainability.

To ensure the viability and sustainability of aeroponics, active support from local government units, organizations, and consumers is imperative. LGUs should offer infrastructure support and financial incentives to encourage aeroponics adoption. Consumer education campaigns must highlight the benefits of aeroponics, including sustainability, improved food quality, and consistent year-round harvests. This comprehensive approach will address food scarcity issues and reduce urban food deserts by ensuring a steady supply of fresh, affordable, and locally grown produce accessible to urban populations.

Addressing operational barriers requires collaboration between schools and local communities to integrate aeroponics into educational curricula. Schools can educate students about modern farming technologies and nurture future professionals in agriculture and agribusiness. Dedicated resource allocation for research and development is needed to scale aeroponics effectively in urban areas. Moreover, partnerships among LGUs, businesses, and schools can establish pilot urban gardening projects, fostering community engagement and raising awareness of sustainable agriculture. Such coordinated efforts will facilitate knowledge sharing, overcome technical challenges, and enhance the long-term success of aeroponics.

Aeroponics systems provide resilience against unpredictable climate conditions by offering controlled environments conducive to year-round crop production in urban areas. However, challenges such as typhoon damage and extreme heat in Navotas City expose the need for more durable infrastructure and improved system efficiency. LGUs should provide funding to develop disaster-resistant farming setups, while educational programs can promote sustainable agricultural practices. Business investments in research and development will support technological advancements like rotating towers and solar-powered operations to boost efficiency and yields. Community and consumer support for local aeroponic farms is vital for strengthening urban food security. Through policy backing, technological innovation, and community engagement, aeroponics can evolve into a scalable and sustainable urban farming solution.

This study highlights both the strengths and challenges of aeroponics in Navotas City. While the system excels in space efficiency, improvements are needed in design, energy use, and market integration. A key limitation is that crops frequently fail to meet commercial weight standards, impacting profitability. Rotating aeroponic towers offer a solution by ensuring uniform sunlight exposure and consistent growth. Diversifying output to include value-added products such as vegetable-based snacks or powdered greens can enhance profitability. Energy consumption remains a significant concern due to high electricity costs for lighting and irrigation; transitioning to solar power can alleviate this issue and improve sustainability. LGUs have a crucial role in providing training and financial support to urban farmers. Wider adoption will depend on continued innovation, infrastructure investment, and supportive policies. With these improvements, aeroponics has the potential to strengthen urban food production and food security substantially.

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Research Article

Consumer Attitudes and Behaviors Influencing Perceived Benefits of "Tosakan Nakas" Herbal Balm: A Case Study of SCG Grand Martech Co., Ltd.*

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Abstract

This study investigates the factors influencing consumers' perceived benefits of the "Tosakan Nakas" herbal balm produced by SCG Grand Martech Co., Ltd. The research objectives are threefold: (1) to examine the effects of demographic differences on perceived benefits, (2) to analyze the influence of consumer attitudes toward herbal products on perceived benefits, and (3) to explore the impact of consumer purchasing and usage behaviors on perceived benefits.A quantitative research design was employed. Data were collected from 400 consumers who had previously purchased or used the product, using a structured questionnaire. The data were analyzed using descriptive statistics, including frequencies, percentages, means, and standard deviations, as well as inferential statistics through multiple regression analysis.The findings reveal that selected demographic factors significantly influence consumers' perceived benefits of the herbal balm. In addition, consumer attitudes toward herbal products and consumer behaviors related to herbal product usage and purchasing were found to have a positive and statistically significant effect on perceived benefits. Among the examined factors, consumer attitudes and behaviors demonstrated a stronger influence than demographic characteristics.The results provide practical implications for herbal product manufacturers and marketers, particularly in developing strategies that emphasize positive consumer experiences, brand credibility, and attitude-building to enhance perceived product benefits.

Keywords: Consumer Attitudes; Consumer Behavior; Perceived Benefits; Herbal Balm; Tosakan Nakas

Introduction

In recent years, herbal health products have received increasing attention as consumers become more aware of health maintenance and disease prevention and show a growing preference for natural and chemical-free remedies (Kim et al., 2022). Among

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these products, herbal balms are particularly popular in Thailand due to their effectiveness in relieving muscular pain, (Worapongpat, 2025i). reducing physical tension, and promoting relaxation (Manaswatcharapong, 2021).

Consumers' perceived benefits play a crucial role in purchasing decisions for herbal health products (Ningsih et al., 2025). Perceived benefits reflect consumers' evaluations of product effectiveness and value, which significantly influence product selection, usage, and continued consumption. (Worapongpat, 2025c). Previous studies suggest that demographic characteristics, consumer attitudes, (Worapongpat, et.al., 2025). and consumer behaviors are key factors shaping perceived benefits and explaining variations in herbal product adoption and expectations regarding efficacy (Oppong et al., 2021).

"Tosakan Nakas" herbal balm, developed by SCG Grand Martech Co., Ltd., is formulated based on traditional Thai herbal knowledge and aims to alleviate pain, reduce tension, and enhance relaxation. (Worapongpat, 2025d).Examining consumer attitudes and behaviors that influence perceived benefits of this product can provide valuable insights into determinants of purchase decisions, usage patterns, and word-of-mouth communication. Such insights are essential for developing effective marketing strategies, strengthening brand positioning, and designing communication campaigns that align with consumer expectations in the contemporary herbal health product market.

Objectives

1.To examine the influence of consumer demographic characteristics on the perceived benefits of the "Tosakan Nakas" herbal balm.

2.To investigate the impact of consumer attitudes on the perceived benefits of the "Tosakan Nakas" herbal balm.

3.To explore the effect of consumer behavior on the perceived benefits of the "Tosakan Nakas" herbal balm.

Literature Review

1. Demographics

Demographic characteristics constitute fundamental variables in consumer behavior studies, particularly in marketing and health-related research (Oppong, et.al., 2023). Factors such as gender, age, educational level, occupation, and income significantly influence patterns of herbal product usage. (Putra, et.al., 2023). For instance, older adults and individuals with medium to high income levels tend to prefer health-oriented herbal products. Moreover, consumers with higher education levels and greater health awareness generally exhibit more positive attitudes toward the use of herbal balms. (Qolbi, et.al, 2024).

2. Attitude

Attitude is a critical determinant of individual behavior, comprising three primary components: affective, cognitive, and behavioral (Singh, Malik, 2022). Consumer attitudes toward herbal products including beliefs regarding safety and

efficacy play a decisive role in purchase decisions and perceived benefits (Sofiana, 2021).

3. Consumer Behavior

Consumer behavior refers to the decision-making processes and actions related to the selection, usage, and evaluation of products (Srisunthron, Daungprom, 2025, March). In the context of herbal balms, research indicates that contemporary consumers are increasingly health-conscious and inclined toward natural, body-safe products. (Worapongpat, 2021).Perceptions of product quality, scent, and usage experience significantly influence satisfaction and brand loyalty (Worapongpat, 2023a).

4. Perceived Benefit

Perceived benefit is defined as the consumer's understanding and interpretation of the value and advantages obtained from a product (Worapongpat, 2023b). The perception process involves processing stimuli, sensory experiences, prior knowledge, and contextual factors (Worapongpat, et.al., 2023). For herbal balms, perceived benefits may include pain relief, tension reduction, and relaxation enhancement. These perceptions directly affect consumers' purchase decisions and satisfaction levels. (Worapongpat, 2024a).

5. Summary of Literature Review

The literature indicates that demographic characteristics, attitudes, and consumer behavior are key determinants of perceived benefits in health-related herbal products. (Worapongpat, 2024b).Conducting an in-depth study within the context of the "Tosakan Nakas" herbal balm provides insights into these factors, thereby supporting effective marketing planning and targeted communication strategies. (Worapongpat, Uttamavangso, 2024).

Methodology

1. Population and Sample

The study targeted residents in Bangkok and surrounding areas. The sample comprised 400 individuals who had used or had the opportunity to use the "Tosakan Nakas" herbal balm. Due to the unknown total population size, the Cochran formula for unknown population was applied, with a 95% confidence level and a 5% margin of error, resulting in a sample size of 400 respondents.

2. Research Instrument

The primary instrument was a structured questionnaire divided into five sections:

Section 1: Demographic Information

Variables: Gender, Age, Education, Occupation, Income

Question Type: Closed-ended

Analysis: Mean, Frequency, Percentage

Section 2: Consumer Attitudes

Measured beliefs, feelings, and opinions toward using the herbal balm

Question Type: Closed-ended, 5-point Likert scale (1 = least to 5 = most)

Section 3: Consumer Behavior

Investigated product usage behavior, purchase sources, and rational selection criteria

Question Type: Closed-ended, 5-point Likert scale

Section 4: Perceived Benefits

Assessed perceived benefits such as:

Pain relief

Tension reduction

Safety for the body

Comfort enhancement

Question Type: Closed-ended, 5-point Likert scale

Section 5: Open-ended Questions

Collected additional suggestions or opinions regarding the herbal balm

Validity and Reliability Testing:Content Validity: Consulted three experts; calculated the Item-Objective Congruence (IOC) index

Reliability: Cronbach's alpha for attitudes and consumer behavior $\geq$ 0.7

3. Data Collection

Data Type: Primary data

Method: Self-administered questionnaires

Sample Size: 400 respondents

Location: Bangkok and surrounding provinces

Respondents: Individuals who had used or had the opportunity to use the "Tosakan Nakas" herbal balm

4. Data Analysis

4.1 Descriptive Statistics

Demographic variables: Frequency, Percentage, Mean

Attitude, Consumer Behavior, Perceived Benefits: Mean and Standard Deviation

4.2 Inferential Statistics

H1: Examined using independent sample t-tests (for two groups) and One-Way ANOVA (for three or more groups) at a 0.05 significance level

H2 & H3: Examined using Multiple Regression Analysis to assess the influence of independent variables on perceived benefits

Results

1. Demographic Profile of Respondents

The analysis of respondents' personal information, categorized by gender, age, education level, occupation, and monthly income, revealed the following:

Gender: The majority of respondents were female (n = 294, 73.5%), followed by male respondents (n = 106, 26.5%).

Age: Most respondents were aged 20–25 years (n = 188, 47.0%).

Education Level: The largest group held a bachelor's degree (n = 291, 72.8%).

Occupation: Most respondents were private-sector employees (n = 203, 50.8%).

Monthly Income: The majority earned between 10,000–20,000 THB per month (n = 148, 37.0%).

2. Consumer Attitudes toward "Tosakan Nakas" Herbal Balm

Consumer Attitude Aspect	Mean ($\bar{X}$)	SD	Interpretation
Confidence in herbal ingredients	1.65	0.74	Low
Perceived product quality (scent, heat, efficacy)	1.70	0.70	Low
Brand image and credibility	1.54	0.72	Low
Overall	1.55	0.75	Low

Interpretation: Respondents' attitudes toward the herbal balm across all dimensions were generally low, indicating limited perception and trust regarding the product and brand.

3. Consumer Behavior

Consumer Behavior Aspect	Mean ($\bar{X}$)	SD	Interpretation
Frequency of use	1.62	0.54	Low
Convenience of purchase	1.61	0.50	Low
Situations of use (pain, dizziness, insect bites)	1.60	0.48	Low
Overall	1.52	0.51	Low

Interpretation: Consumer engagement with the herbal balm is low, suggesting that regular or habitual use in daily life is minimal.

4. Perceived Benefits of "Tosakan Nakas" Herbal Balm

Perceived Benefit Aspect	Mean ($\bar{X}$)	SD	Interpretation
Efficacy in relieving symptoms	1.60	0.54	Low
Safety and suitability for the body	1.53	0.52	Low
Satisfaction after use	1.50	0.50	Low
Overall	1.53	0.55	Low

Interpretation: Consumers' perceived benefits of the herbal balm were low, indicating limited recognition of the product's outcomes.

5. Hypothesis Testing

5.1 Hypothesis 1: Influence of Demographic Factors on Perceived Benefits

Gender Differences:

Perceived Benefit	t	df	Sig.
Efficacy	-2.765	400	.006*
Safety	-2.101	400	.008*
Satisfaction	-3.126	400	.011*

*Significant at $\alpha = 0.05$

Interpretation: Gender differences significantly influence perceived benefits in all aspects. H_0 is rejected, and H_1 is accepted.

Age Differences (ANOVA):

Aspect	Sig.	Result
Efficacy	.113	Not significant
Safety	.044	Significant
Satisfaction	.703	Not significant

Interpretation: Age affects perceived safety only; other aspects are not significantly different.

Education Level (ANOVA):

Aspect	Sig.	Result
Product attributes	.044	Significant
Importance level	.041	Significant
Satisfaction	.052	Not significant

Interpretation: Education level significantly affects perceived product attributes and importance, but not satisfaction.

Occupation: All variables: Sig. > .05 → Not significant

Interpretation: Occupation does not significantly affect perceived benefits.

Monthly Income (ANOVA):

Aspect	Sig.	Result
Product attributes	.012	Significant
Importance level	.016	Significant
Satisfaction	.021	Significant

Interpretation: Monthly income significantly affects all aspects of perceived benefits.

5.2 Hypothesis 2: Influence of Consumer Attitudes on Perceived Benefits (Multiple Regression)

Variable	Sig.	Result
Product awareness (X1)	.021	Significant
Perceived quality (X2)	.016	Significant
Brand relationship (X3)	.021	Significant

Model Summary: Sig. = .018 < .05, R^2 = 0.852

Interpretation: Consumer attitudes significantly influence perceived benefits, explaining 85.2% of the variance.

5.3 Hypothesis 3: Influence of Consumer Behavior on Perceived Benefits (Multiple Regression)

Variable	Sig.	Result
Benefit awareness (X1)	.015	Significant
Ease of purchase (X2)	.028	Significant
Daily life behavior (X3)	.018	Significant

Model Summary: Sig. = .036 < .05, R^2 = 0.872

Interpretation: Consumer behavior significantly influences perceived benefits, accounting for 87.2% of the variance.

Overall Summary of Hypotheses Testing:

•Gender: Significant effect on all perceived benefit aspects (Sig. < .05)

•Age: Significant effect only on perceived safety

•Education Level: Affects product attributes and importance, not satisfaction

•Occupation: No significant effect

•Monthly Income: Significant effect on all perceived benefit aspects

•Attitudes: Significant positive influence on perceived benefits

•Consumer Behavior: Significant positive influence on perceived benefits

Discussion

Hypothesis **1 :** Influence of Demographic Factors on Perceived Benefitshe findings indicate that demographic factors namely gender, age, education level, occupation, and income differentially influence certain aspects of perceived benefits of Tosakan Nakas herbal balm. These results suggest that consumers' backgrounds in herbal product usage and health perspectives vary across demographic groups, resulting in diverse responses to the product. For example: Older consumers may prioritize pain and muscle relief.Higher-income consumers may emphasize brand image and source credibility. Working-age consumers may focus on portability or versatility of product benefits. These findings align with previous studies on herbal products in the Thai context, which (Era, 1886, December 3). (Bhattacharjee, et.al., 2024). indicate that demographic differences often affect perceptions of health benefits, safety, and herbal efficacy, especially for products related to self-care. Thus, consumer perceptions of herbal balm are not solely determined by (Worapongpat, 2025a). and (Worapongpat, 2025e). the product itself but are also shaped by prior experiences, cultural beliefs, and the usage context of each consumer group.

Hypothesis **2:** Influence of Consumer Attitudes on Perceived Benefitshe results demonstrate that consumer attitudes significantly affect perceived benefits. This finding is consistent with consumer behavior theory, which posits that attitudes determine

individuals' feelings, beliefs, and interpretations of product value. Consumers with positive attitudes toward Thai herbal products such as beliefs in natural, chemical-free, and safe ingredients tend to perceive higher benefits. They may evaluate the balm as effective for: Pain relief, Respiratory comfort, Muscle relaxation, Feeling of safety from using herbal productsonversely, neutral or negative attitudes may lead to skepticism regarding:Efficacy of the herbal ingredients, Credibility of (Huang, et.al., 2025). And (Worapongpat, 2025f) product components,Product standardshis reduces perceived benefits. (Worapongpat, 2025b). and (Worapongpat, et.al., 2023).These results correspond with belief-driven buying theories, highlighting that brand image and beliefs about herbal efficacy strongly influence perceived product value, especially in health and self-care markets.

Hypothesis **3 :** Influence of Consumer Behavior on Perceived Benefits The study shows that actual usage behaviors and purchase patterns influence consumers' perception of benefits. Key factors include:Frequency of use,Purpose of use (pain relief, muscle relaxation, cold symptom alleviation),Selection of purchase channels, Information acquisition from media or word-of-mouthegular users of herbal products perceive greater effectiveness, whereas inexperienced users may have limited understanding and rely mainly on marketing communication. (2025b). (Worapongpat, 2025g). This underscores that herbal products are highly experience-driven compared to conventional industrial products. Consumers often evaluate herbal balm based on tangible outcomes rather than label information, consistent with (Khayru, et.al., 2021). And (Worapongpat, 2025h). social science perspectives on consumer behavior indicating that actual usage directly impacts perceived efficacy and value. Thus, differences in consumer behavior explain variations in perceived benefits effectively.

New Knowledge Contribution

The study generates several important insights into consumer attitudes, behaviors, and perceived benefits of Tosakan Nakas herbal balm:

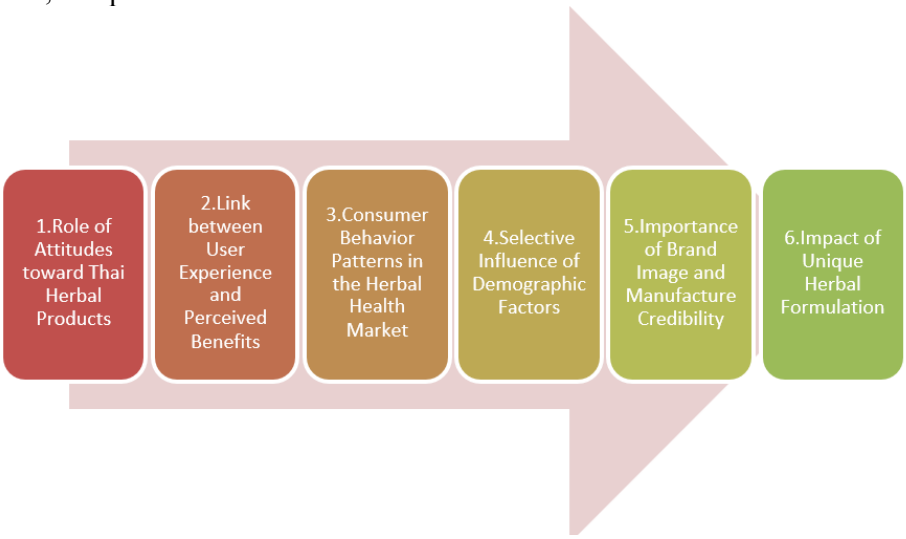

Figure 1 New Knowledge Contribution

1. Role of Attitudes toward Thai Herbal Products

Consumer attitudes directly influence perceived benefits, confirming that beliefs and feelings shape perceptions more than some objective product information. This reinforces consumer behavior theory, highlighting that cultural beliefs are more influential than price or packaging in herbal products.

2. Link between User Experience and Perceived Benefits

Regular users demonstrate higher perception of product efficacy than inexperienced users. This emphasizes the importance of direct experience, showing that perceived benefits depend more on actual usage than marketing communication.

3. Consumer Behavior Patterns in the Herbal Health Market

The study provides insights into modern consumer behavior in the Thai herbal balm market, including:

•Reasons for product choice

•Usage frequency

•Information channels (family, healthcare providers, online, pharmacies)

•Trust in herbal ingredients

This constitutes new knowledge about contemporary consumer behavior, which differs from previous generations relying solely on traditional wisdom.

4. Selective Influence of Demographic Factors

Gender, age, education, occupation, and income do not uniformly determine perceived benefits, affecting only specific aspects such as safety or ingredient credibility. This suggests that perceived benefits increasingly transcend demographic boundaries.

5. Importance of Brand Image and Manufacturer Credibility

Brand image and credibility of SCG Grand Martech significantly influence perceived benefits, marking a shift from reliance solely on local traditional knowledge toward organizational trust in Thai herbal products.

6. Impact of Unique Herbal Formulation

Consumers perceive greater value from unique multi-herb blends, distinctive formulas, and characteristic scents, highlighting that innovation in herbal formulations enhances perceived efficacy compared to traditional products.

Summary of New Knowledge:

•Positive attitudes toward herbal products increase perceived benefits.

•Direct user experience is more influential than marketing communication.

•Consumer behavior in the Thai herbal market is becoming more modernized.

•Demographic factors are not the primary determinants of perceived benefits.

•Brand image and manufacturer credibility are critical.

•Specialized herbal formulations enhance perceived product efficacy.

Conclusion

This study aimed to examine consumer attitudes, behaviors, and perceived benefits toward the “Tosakan Nakas” herbal balm, including the influence of demographic factors on these perceptions. The findings provide important insights into both consumer characteristics and factors affecting product acceptance.

The demographic analysis revealed that the majority of respondents were female, aged between 20–25 years, held a bachelor’s degree, worked in the private sector, and earned a monthly income of 10,000–20,000 THB. This profile reflects a

relatively young, educated, and working-age consumer group, which is typically considered an important target segment for consumer products.

Despite this, the overall findings indicate that consumer attitudes toward the herbal balm were low across all dimensions, including confidence in herbal ingredients, perceived product quality, and brand image. Similarly, consumer behavior related to the product—such as frequency of use, convenience of purchase, and usage situations—was also at a low level. In addition, perceived benefits, including efficacy, safety, and satisfaction, were consistently rated low. These results suggest that the product currently lacks strong market positioning, consumer trust, and engagement.

The hypothesis testing further revealed that demographic factors partially influence perceived benefits. Gender and monthly income significantly affected all aspects of perceived benefits, while age influenced only perceived safety, and education level affected perceptions of product attributes and importance. Occupation, however, showed no significant effect. These findings indicate that consumer perceptions vary depending on specific demographic characteristics, particularly economic capacity and gender-related differences in product evaluation.

Moreover, the study found that consumer attitudes and behaviors play a critical role in shaping perceived benefits. Both multiple regression analyses demonstrated that attitudes and behaviors significantly influence perceived benefits, with high explanatory power (R^2 = 0.852 and 0.872, respectively). This indicates that improving consumer awareness, perceived quality, brand relationships, ease of purchase, and everyday usage behavior can substantially enhance consumers' perception of the product's benefits.

In conclusion, although the "Tosakan Nakas" herbal balm has potential as a consumer health product, its current level of acceptance remains low. The findings highlight the need for stronger marketing strategies, improved brand credibility, enhanced consumer education, and better distribution channels to increase product awareness and usage. Ultimately, increasing positive consumer attitudes and encouraging regular usage behavior are key factors in improving perceived benefits and achieving greater market success.

Recommendation

1.Exploration of Additional Behavioral and Social Factors

Future studies should investigate personal motivation, cultural beliefs, safety perception, and health trends affecting attitudes and behaviors toward herbal balm. This will support the development of new hypotheses aligned with diverse consumer behaviors and enable practical marketing applications.

2.Qualitative Research

Incorporating in-depth interviews or focus groups can provide deeper insights into consumers' perspectives, beliefs, feelings, and experiences with herbal balm, which cannot be fully captured by quantitative surveys alone.

3.Further Examination of Demographic Impacts

Although current findings suggest limited demographic effects, future research should explore other influencing factors such as trial usage, access to information, or interest in Thai herbal products to better understand consumption decisions.

4.Legal and Safety Considerations

Future studies should monitor and analyze herbal regulations and safety standards to ensure accurate marketing communication, enhance credibility, and improve perceived benefits.

5.Advanced Statistical and Analytical Techniques

Methods such as Path Analysis, Structural Equation Modeling (SEM), and Subgroup Analysis can provide deeper insights into complex, multidimensional relationships affecting consumer attitudes and behaviors.

Overall Recommendation:

Future research should integrate individual, social, cultural, and experiential factors, combine qualitative and quantitative analyses, and consider safety standards to produce comprehensive insights that are actionable for marketing and product development.

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Research Article

Multicultural Leadership Models for Facilitating Participatory Administration in Local Government: Evidence from Maha Sarakham Province, Thailand*

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Abstract

Local government administration in Mueang District, Maha Sarakham Province, faces increasing challenges arising from growing cultural diversity. Although previous studies suggest that multicultural leadership can enhance decision-making quality and reduce conflict, its application within the northeastern Thai local government context remains underexplored. This study addresses this gap by developing and testing a multicultural leadership model designed to promote participatory administration among local administrators.The objectives of this research were to: (1) analyze the components of multicultural leadership among local administrators; (2) develop a leadership model that facilitates participatory administration; and (3) evaluate the suitability and effectiveness of the proposed model. A mixed-methods research design was employed. The study population consisted of 45 local governance stakeholders, including administrators, community leaders, and public representatives, selected through purposive sampling. Quantitative data were collected using a questionnaire with a five-point Likert scale, while qualitative data were obtained through semi-structured interviews. Research instruments were validated for content validity and reliability by experts. Quantitative data were analyzed using descriptive statistics, Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA), while qualitative data were analyzed using thematic analysis.The findings identified four key components of multicultural leadership: multicultural vision, cross-cultural communication, acceptance of diversity, and conflict resolution. Local administrators demonstrated high levels across all components. The developed leadership model was rated as highly effective in facilitating participatory administration, particularly in terms of trust-building, organizational commitment, shared goal setting, and administrative autonomy. The model also received high evaluations for feasibility and practical utility within the local context.The study concludes that multicultural leadership plays a critical role in promoting effective participatory administration in culturally diverse local governments such as Mueang

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District, Maha Sarakham Province. The proposed model offers a practical and empirically grounded framework with strong potential to enhance transparency, public trust, and citizen participation. The findings contribute to local administrator development and provide policy-relevant insights applicable to similar multicultural governance contexts.

Keywords: Multicultural Leadership; Participatory Administration; Local Administrators; Local Government Organizations; Maha Sarakham

Introduction

Local government administration in Thailand is increasingly shaped by cultural, economic, and social diversity, particularly in urban and semi-urban areas with high population mobility. Mueang District, Maha Sarakham Province, serves as a major administrative, economic, and educational center in the northeastern region of the country (Chantarasombat, 2021). The district is characterized by a culturally diverse population, including Thai Isan, Lao, Khmer, migrant hill tribes, and labor migrants from other provinces and neighboring countries (Dongling & Worapongpat, 2023). This diversity presents both opportunities and challenges for local government organizations, including Provincial Administrative Organizations, municipalities, and sub-district administrative organizations.

Local administrators in such contexts must manage differences in language, cultural values, social norms, and public expectations while delivering public services and promoting inclusive development. (Worapongpat, 2025l). Previous studies have demonstrated that multicultural leadership can enhance collaborative decision-making, strengthen social cohesion, and reduce community conflict (Gqamane & Taylor, 2013; Zhou et al., 2024). However, empirical research focusing specifically on multicultural leadership among local administrators in Thailand's northeastern region particularly in Maha Sarakham Province remains limited. (Worapongpat, 2025m). This gap constrains understanding of the leadership characteristics and strategies required to effectively leverage cultural diversity in support of sustainable participatory administration.

Mueang District's administrative structure includes a Provincial Administrative Organization, municipal authorities, and multiple sub-district administrative organizations (Jianfeng & Worapongpat, 2024). These institutions are responsible for delivering public services, urban and rural development planning, local economic promotion, and cultural preservation (Yasuttamathada & Worapongpat, 2025). Administrators must respond to diverse public needs related to infrastructure, education, public health, and environmental management (Khaenamkhaew et al., 2023). Based on the researcher's professional experience as a local development consultant and involvement in community development initiatives, the ability of leaders to foster cooperation among culturally diverse groups is critical to successful governance (Kitanant et al., 2025).

Supporting evidence from studies conducted in nearby regions indicates that local leaders who lack cross-cultural communication skills often face difficulties in building consensus and encouraging citizen participation (Lim et al., 2023; Nua-amnat et al., 2021). These findings highlight the importance of developing leadership models that integrate multicultural competencies with participatory administrative practices.

Accordingly, this study aims to develop a multicultural leadership model that facilitates participatory administration among local administrators in Mueang District, Maha Sarakham Province. A mixed-methods approach is employed, integrating quantitative survey data with qualitative insights from in-depth interviews and focus groups. This approach enables a comprehensive analysis of leadership characteristics, strategies, and enabling factors that support participatory administration in a multicultural local governance context. The article presents the local administrative context and cultural diversity of Mueang District, reviews relevant theories of multicultural leadership and participatory administration, outlines the research methodology, reports empirical findings, and discusses policy and practical implications. The study seeks to contribute to the body of knowledge on multicultural local governance and provide practical guidance for policymakers and local administrators in developing inclusive and sustainable administrative strategies.

Objectives

1.To analyze the components of multicultural leadership among local administrators in local government organizations within Mueang District, Maha Sarakham Province.

2.To develop a multicultural leadership model that facilitates participatory administration among local administrators in Mueang District, Maha Sarakham Province.

3.To test the suitability and effectiveness of the developed multicultural leadership model by evaluating its feasibility, applicability, and utility for participatory administration.

Literature Review

1. Multicultural Leadership

Multicultural leadership has become an increasingly important concept in contemporary organizational management, particularly in contexts characterized by workforce diversity and culturally heterogeneous stakeholder groups. (Worapongpat, 2025n).Scholars have defined multicultural leadership as the ability to effectively lead, influence, and coordinate individuals from diverse cultural backgrounds by recognizing, respecting, and leveraging cultural differences to achieve organizational objectives (Namwong & Chansirisira, 2020; Worapongpat & Kangpheng, 2025; Xunan & Worapongpat, 2023). Rather than minimizing differences, multicultural leadership emphasizes cultural awareness, adaptability, and inclusivity as core leadership capacities.

Existing literature identifies several key components of multicultural leadership, including multicultural vision, cross-cultural communication, acceptance of diversity, and conflict management. Empirical evidence suggests that leaders who demonstrate strong multicultural competencies are more successful in building consensus, fostering mutual understanding, and reducing ethnic or cultural tensions within diverse communities (Phimkoh et al., 2015; Worapongpat & Kanokon, 2025). These competencies enable leaders to navigate complex social dynamics and promote cooperation among culturally distinct groups.

However, despite its growing prominence, much of the existing research on multicultural leadership has focused on corporate, national, or international

organizational settings. Studies examining its application in local government contexts particularly within Thailand's northeastern region, which is characterized by a unique cultural mosaic remain limited (Pintong & Worapongpat, 2024). This gap highlights the need for context-specific research that examines how multicultural leadership operates within decentralized governance structures and community-based administrative environments.

2. Participatory Administration

Participatory administration refers to a governance approach that actively involves citizens, community leaders, and civil society organizations in both decision-making and implementation processes (Worapongpat & Arunyakanon, 2025). Rooted in democratic and participatory governance theory, this approach aims to enhance transparency, accountability, responsiveness, and public trust in government institutions (Worapongpat & Song, 2025).

Key principles of participatory administration include collaborative engagement, shared responsibility, open communication, and inclusiveness. Research on participatory local governance in Thailand, particularly in the central region, emphasizes the importance of strong relationships between administrators and citizens in shaping effective participation outcomes (Worapongpat, 2025f; Sirisawat & Chaiya, 2025). When administrative leaders facilitate dialogue and create accessible participation mechanisms, public involvement tends to be more meaningful and sustained.

Despite these recognized benefits, participatory administration faces persistent challenges, especially in multicultural contexts. (Worapongpat, 2025o). Differences in cultural values, communication styles, power relations, and social expectations often hinder consensus-building and equitable participation (Worapongpat, 2025e). These challenges suggest that participatory mechanisms alone are insufficient without leadership capacities capable of managing cultural complexity.

3. The Nexus of Multicultural Leadership and Participatory Administration

Although multicultural leadership and participatory administration are well-established concepts in governance and leadership literature, their integration within local government contexts characterized by cultural diversity remains underexplored. (Worapongpat, 2025p). Existing studies often treat these constructs as separate analytical domains. (Worapongpat, 2025q).For instance, research examining communication barriers and public participation in Thai local governance acknowledges cultural complexity but does not explicitly situate these challenges within a formal multicultural leadership framework (Sinjindawong et al., 2023; Saman Siri Charoensuk, 2022).

This study builds on emerging scholarship that conceptualizes multicultural leadership as a foundational prerequisite for effective participatory administration in culturally diverse local contexts (Worapongpat, 2025d). It argues that participatory administration must move beyond procedural or symbolic participation toward genuinely empowering diverse community groups. (Worapongpat, 2025r).Achieving this requires local administrators to develop specific multicultural leadership competencies, including trust-building, cross-cultural communication, inclusivity, and conflict resolution (Worapongpat, 2025c).

These competencies function as critical mechanisms through which equitable and meaningful citizen participation can be facilitated. (Worapongpat, 2025s).By

integrating multicultural leadership with participatory administration, local governments are better positioned to manage diversity constructively, (Worapongpat, et.al., 2025). enhance social cohesion, and strengthen democratic governance outcomes (Worapongpat, 2025b). This conceptual linkage provides the theoretical foundation for the development of the multicultural leadership model examined in this study.

Methodology

1. Population and Sample

The population for this study comprised local administrators and key stakeholders involved in local government organizations (LGOs) in Mueang District, Maha Sarakham Province. The population included mayors, municipal permanent secretaries, deputy permanent secretaries, division directors or section heads, public representatives, community leaders, religious leaders, and civil society representatives.

A purposive sampling technique was employed to ensure the inclusion of participants who were directly engaged in local administration and who possessed relevant experience and knowledge related to multicultural leadership and participatory administration. The final sample consisted of 45 participants, including 15 local administrators, 10 public representatives, 10 community leaders, 5 religious leaders, and 5 civil society representatives. This sampling strategy was designed to capture diverse perspectives across multiple stakeholder groups involved in participatory local governance.

2. Research Instruments

Two primary research instruments were utilized in this study: a structured questionnaire and a semi-structured interview guide.

The questionnaire was divided into two sections. Part 1 collected general demographic information about the respondents, including gender, age, educational background, work experience, and organizational affiliation. Part 2 consisted of items measuring the components of multicultural leadership and participatory administration within the local governance context. Responses were recorded using a five-point Likert scale, ranging from 5 = Strongly Agree to 1 = Strongly Disagree.

The semi-structured interview guide was designed to collect in-depth qualitative data related to multicultural leadership characteristics, challenges, obstacles, and strategies for promoting participatory administration among local administrators. The open-ended nature of the interviews allowed participants to elaborate on their experiences and perspectives.

Instrument Quality Assurance

Content Validity:

The questionnaire and interview guide were reviewed by three experts in public administration and social sciences. Content validity was assessed using the Item–Objective Congruence (IOC) Index, with all items achieving values of 0.50 or higher, indicating acceptable content validity.

Reliability:

A pilot test was conducted with 30 individuals who shared similar characteristics with the target population but were not included in the main study. Internal consistency reliability was evaluated using Cronbach's Alpha Coefficient, with all scales meeting or exceeding the acceptable threshold of 0.70.

3. Data Collection

The data collection process was conducted in several systematic steps. First, a comprehensive review of relevant literature, theories, and prior research was undertaken to inform variable definition and instrument development. Second, the research instruments were constructed and validated. Third, formal permission to collect data was obtained from the relevant local government organizations.

Subsequently, questionnaires were distributed to the selected participants, and semi-structured interviews were scheduled and conducted with representatives from each stakeholder group. All completed questionnaires and interview data were carefully checked for completeness and accuracy prior to analysis.

4. Data Analysis

Quantitative data obtained from the questionnaires were analyzed using descriptive statistics, including frequency, percentage, mean, and standard deviation. Exploratory Factor Analysis (EFA) was employed to identify the underlying components of multicultural leadership. Confirmatory Factor Analysis (CFA) was then used to test the consistency and goodness-of-fit of the proposed leadership model.

Qualitative data obtained from the semi-structured interviews were analyzed using thematic analysis to identify recurring themes and patterns related to multicultural leadership practices and participatory administration.

Results

Table 1: Levels of Opinion on the Components of Multicultural Leadership

Components	Mean	S.D.	Level of Opinion
Multicultural Vision and Awareness	4.68	0.42	Highest
Cross-Cultural Communication	4.55	0.48	High
Acceptance of Diversity and Promotion of Equality	4.62	0.39	Highest
Ability to Resolve and Mediate Conflict	4.57	0.45	High
Overall Mean	4.61	0.44	Highest

Local Context Note: Local administrators in Maha Sarakham must work with multiple ethnic communities, including Thai-Lao, Thai-Chinese, and Thai-Cambodian groups. This requires a high level of multicultural vision and cross-cultural

communication skills. Therefore, the ability to build equality and resolve conflict are crucial factors for success.

Table 2: Levels of Opinion on Leadership Components that Facilitate Participatory Administration

Components	Mean	S.D.	Level of Opinion
Trust	4.64	0.38	Highest
Organizational Commitment	4.66	0.47	Highest
Goals and Objectives	4.61	0.48	Highest
Autonomy	4.59	0.55	High
Overall Mean	4.63	0.47	Highest

Local Context Note: Local administrators place great importance on building trust between officials and the public. Setting clear goals and delegating decision-making authority were found to significantly increase community participation.

Table 3: Levels of Perceived Utility of the Multicultural Leadership Model for Participatory Administration

Components	Mean	S.D.	Level of Utility
Trust	4.61	0.57	High
Multicultural Competence	4.58	0.40	High
Visionary Leadership	4.41	0.63	High
Diversity Management	4.61	0.48	High
Overall Mean	4.55	0.52	High

This model helps local administrators reduce conflicts between different groups and effectively build cooperation between agencies and communities.

Table 4: Evaluation of the Feasibility and Utility of the Leadership Model

Components	Feasibility Mean	S.D.	Feasibility Level	Utility Mean	S.D.	Utility Level
Trust	4.72	0.09	Highest	4.38	0.99	High
Multicultural Competence	4.61	0.36	Highest	4.44	0.24	High
Visionary Leadership	4.61	0.30	High	3.83	0.42	High
Diversity Management	4.77	0.23	Highest	4.53	0.66	High
Overall Mean	4.68	0.30	Highest	4.45	0.58	High

Local administrators evaluated the model as having high feasibility for implementation and being highly useful for building cooperation and reducing community conflict. The model is deemed suitable for use in municipal council meetings, community activities, and communicating with various ethnic groups.

Discussion

Objective 1: Components of Multicultural Leadership.The findings related to the first objective indicate that multicultural leadership among local administrators in Mueang District, Maha Sarakham Province, comprises four interrelated components: multicultural vision and awareness, cross-cultural communication, acceptance of diversity and promotion of equality, and the ability to resolve and mediate cultural conflicts. Local administrators demonstrated a clear understanding of the ethnic diversity, languages, values, and ways of life present within their communities. This awareness enables them to respond appropriately to culturally diverse needs and expectations.In terms of cross-cultural communication, administrators were found to employ local dialects and culturally appropriate communication channels tailored to different community groups. Such practices enhance mutual understanding and reduce barriers to participation. Moreover, administrators actively promoted inclusivity by organizing joint activities such as community traditions, local markets, and municipal council meetings that provide opportunities for participation across diverse cultural groups. These activities not only strengthen social cohesion but also create shared spaces for dialogue and collaboration.The ability of administrators to coordinate diverse viewpoints and mediate conflicts among multiple stakeholder groups further underscores their multicultural leadership capacity. By managing disagreements constructively, administrators were able to reduce tensions and foster cooperation within culturally heterogeneous communities. (Niyomthanawat, Worapongpat, 2025). And (Worapongpat, 2025g).These findings suggest that local administrators in Maha Sarakham, operating within a highly diverse cultural environment, have developed advanced competencies in communication, trust-building, and conflict management. This aligns with the principles of diversity management and the importance of multicultural leadership in organizational administration, as emphasized by Butsara Phon Phuangpanya (2024).

Objective 2: Development of a Multicultural Leadership Model for Participatory Administration.In addressing the second objective, this study developed a multicultural leadership model designed to facilitate participatory administration in local government organizations. The model integrates four key components of participatory administration: trust-building, organizational commitment, goal setting, and autonomy. Together, these elements provide a structured approach through which administrators can enhance citizen participation and collaborative governance.Trust-building is emphasized by creating opportunities for public involvement in administrative activities and decision-making processes. By engaging citizens directly, administrators strengthen mutual confidence and legitimacy. Organizational commitment is fostered through strategies that motivate staff, encourage cooperation, and align individual responsibilities with collective goals. The model also highlights the importance of collaborative goal setting, ensuring that administrative objectives reflect community needs and priorities.Autonomy represents a critical dimension of the model, as it encourages administrators to delegate decision-making authority to section heads

and staff. This delegation enables more responsive and context-sensitive governance, particularly in culturally diverse settings. (Worapongpat, 2025h). and Worapongpat, 2025i). The incorporation of participatory management principles within the model supports increased cooperation, shared responsibility, and public engagement. These findings are consistent with Arnstein's (1969) ladder of citizen participation and Putnam's (2000) work on social capital, both of which emphasize meaningful engagement and trust as foundations for effective participatory governance.

Objective 3: Suitability and Effectiveness of the Model.The evaluation of the developed multicultural leadership model demonstrates a high level of suitability and effectiveness within the local governance context of Mueang District, Maha Sarakham Province. The model was rated at the highest level of feasibility (Mean = 4.59), indicating that local administrators perceive it as practical and readily applicable in their daily administrative operations. This suggests that the model aligns well with existing organizational structures and administrative capacities.In terms of utility, the model received a high rating (Mean = 4.46), reflecting its effectiveness in promoting participatory administration. Respondents indicated that the model supports increased public participation, reduces conflict, and strengthens cooperation between local government agencies and community groups. The success of the model can be attributed to its context-sensitive design, (Worapongpat, 2025j). and (Worapongpat, 2025k). which reflects local cultural dynamics, administrative realities, and community engagement practices.Additionally, the model's flexibility and its integration of digital media and community-based activities as participation mechanisms are consistent with contemporary perspectives on multicultural leadership and the influence of cultural context on management practices (Chompotjananan & Vichit-Vadakan, 2022). These features enhance the model's adaptability and sustainability in diverse local governance environments.

Knowledge Contribution

This study contributes new empirical and conceptual knowledge by demonstrating that the components of multicultural leadership among local administrators can be systematically integrated into an effective participatory administration model tailored to the specific context of Mueang District, Maha Sarakham Province. Unlike previous studies that examine multicultural leadership or participatory administration separately, this research empirically links the two constructs within a localized governance setting.

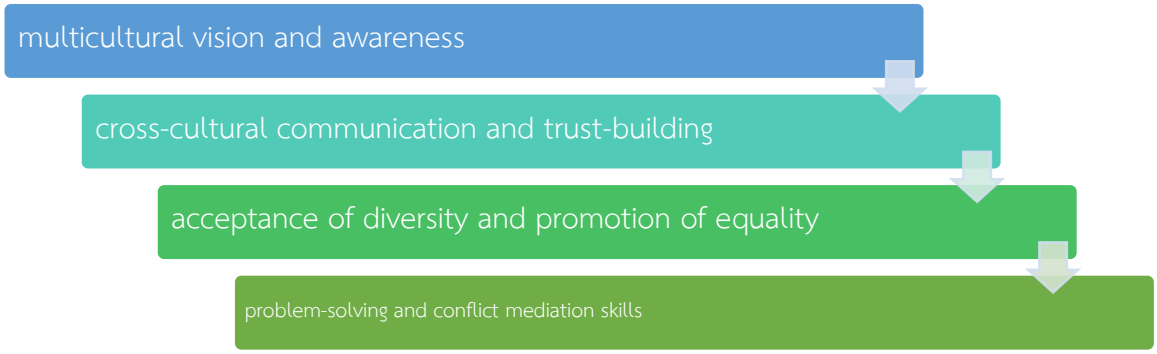

Figure 1 Knowledge Contribution

The new knowledge generated by this study is structured around four interrelated dimensions of multicultural leadership that directly influence participatory administration. First, multicultural vision and awareness enables administrators to recognize and strategically respond to ethnic, linguistic, and cultural diversity within local communities. Second, cross-cultural communication and trust-building facilitate mutual understanding and strengthen relationships between local government organizations and culturally diverse stakeholders. Third, acceptance of diversity and promotion of equality ensures that administrative processes are inclusive and provide equitable opportunities for participation across all cultural groups. Fourth, problem-solving and conflict mediation skills allow administrators to manage disagreements constructively and coordinate effectively among diverse community groups and government agencies.

Together, these dimensions form a coherent leadership mechanism that enhances trust, cooperation, and meaningful public participation in local governance. The conceptual model developed in this study illustrates how multicultural leadership functions as a foundational driver of participatory administration, ultimately contributing to social cohesion and effective local governance in culturally diverse settings.

By grounding the model in empirical evidence from Maha Sarakham Province, this study extends existing leadership and governance theories to a previously under-researched local government context in Thailand's northeastern region. The findings provide both theoretical enrichment and practical guidance for policymakers and local administrators seeking to strengthen participatory administration through culturally responsive leadership.

Conclusions

This study confirms that local administrators in Mueang District, Maha Sarakham Province, demonstrate a high level of multicultural leadership competence, particularly in terms of strategic vision, cross-cultural communication, and trust-building. The findings show that administrators are capable of managing cultural diversity effectively and fostering cooperation among diverse stakeholder groups. The multicultural leadership model developed in this research is both practical and effective in facilitating

participatory administration, as evidenced by its high levels of feasibility and utility.

The implementation of the model contributes to strengthened cooperation between local government organizations and communities, increased transparency in administrative processes, and enhanced public trust. Importantly, the findings indicate positive social outcomes, including reduced ethnic and cultural conflict, greater community engagement, and more meaningful public participation in local governance. These outcomes highlight the critical role of multicultural leadership as a key enabler of participatory administration, particularly in ethnically and culturally diverse local contexts such as Maha Sarakham Province.

Recommendations

1. Recommendations for Applying the Research Findings

1.1 Recommendations Based on Objective 1.The analysis of multicultural leadership components revealed that local administrators possess strong capabilities in multicultural vision, cross-cultural communication, acceptance of diversity, and conflict resolution.Recommendation:Local authorities should implement continuous training and professional development programs focused on multicultural leadership competencies for administrators and staff. In addition, platforms for ongoing learning and knowledge exchange between local government organizations and communities should be established to strengthen mutual understanding and sustain participatory administration practices.

1.2 Recommendations Based on Objective 2.The developed multicultural leadership model was found to enhance cooperation, public participation, and transparency in decision-making processes.Recommendation:Municipalities and sub-district administrative organizations should pilot the multicultural leadership model and adapt it to their specific local contexts. The model may also be used as a guideline for developing local strategic plans, participatory governance mechanisms, and integrated administrative systems.

1.3 Recommendations Based on Objective 3.The model was evaluated as highly feasible and beneficial for participatory administration.Recommendation:Local authorities should apply the model as an assessment tool for evaluating leadership potential among administrators and for monitoring the effectiveness of participatory administration initiatives. Furthermore, the model can be integrated into the planning and implementation of community development projects and multicultural activities.

2. Recommendations for Future Research

The findings of this study indicate that multicultural leadership is a crucial factor in strengthening participatory administration. Future research may extend this work in several directions.First, comparative studies between areas with high and low levels of cultural diversity could provide deeper insight into the impact of multicultural leadership on participatory administration outcomes. Second, longitudinal research examining the long-term effects of implementing the multicultural leadership model in community development projects and public participation initiatives would be valuable. Finally, future studies may consider additional influencing factors, such as the role of

digital technology and social media platforms, in enhancing public participation and inclusive governance.

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Research Article

A Guideline for Developing Digital Skills of Personnel in Private Higher Education Institutions toward University Reform in Bangkok Metropolis*

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Abstract

The digital skills of personnel in private higher education institutions (PHEIs) are a critical driver of university reform, particularly in Bangkok Metropolis, which serves as a national hub for higher education and faces intense competition in academic quality and innovation. This study aimed to: (1) examine the current state, desired state, and development needs of digital skills among PHEI personnel in Bangkok; (2) investigate best practices for digital skill development; and (3) develop and validate a guideline for enhancing personnel digital skills to support university reform.A three-phase mixed-methods design was employed. Phase 1 assessed the current and desired states and priority needs using a questionnaire administered to PHEI personnel in Bangkok. Phase 2 explored best practices through structured interviews with administrators and personnel from successful institutions. Phase 3 involved the formulation and validation of the digital skill development guideline through focus group discussions and expert evaluation.The findings revealed that personnel digital skills were at a moderate level, while the overall need for development was high. Priority areas included the use of learning management systems (LMS), application of information technology for research, and the development of online instructional innovations. The proposed guideline consists of four components: (1) principles, (2) objectives, (3) development process, and (4) success conditions. Expert evaluation indicated that the guideline demonstrated a high level of appropriateness, accuracy, and feasibility.The study concludes that systematic development of digital skills among PHEI personnel is essential for driving university reform, strengthening educational management quality, enhancing institutional competitiveness, and improving responsiveness to rapid digital transformation.

Keywords: Guideline; Digital skills development; Private higher education institutions; Personnel development; University reform

Citation

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Introduction

In the contemporary digital era, rapid advancements in information technology and innovation have profoundly transformed educational systems, particularly higher education institutions, which are increasingly required to respond to lifelong learning demands, global competition, and innovation-driven development. (Worapongpat, Boonmee, 2025). Digital transformation has become a central mechanism for university reform, affecting teaching and learning, research, academic services, and institutional governance. However, the effectiveness of such transformation largely depends on the digital skills of university personnel.

In Thailand, challenges remain in translating national digital transformation policies into institutional practice. (Worapongpat, 2025c). A report by the Office of the Higher Education Commission (OHEC) indicated that private higher education institutions (PHEIs) in Bangkok utilize digital systems for teaching, learning, and administration at a rate of only 58%, which remains below the targets outlined in the Thai Higher Education Reform Plan. (Worapongpat, 2025d). Similarly, the World Economic Forum has emphasized that competencies related to big data, artificial intelligence (AI), and e-learning are essential digital skills for higher education personnel to enhance institutional competitiveness in the digital economy (Dongling & Worapongpat, 2023). Empirical studies further suggest that the development of university personnel's digital skills is positively associated with instructional quality, research productivity, and administrative efficiency (Worapongpat, 2025a). Despite this evidence, Thailand lacks clearly articulated and validated guidelines for systematic digital skill development tailored to private higher education institutions.

Bangkok Metropolis hosts the largest concentration of PHEIs in Thailand and serves as a key center for producing graduates to support the national knowledge-based economy (Good, 1973). Nevertheless, a survey conducted by the Association of Private Higher Education Institutions of Thailand revealed that a substantial proportion of personnel remain inadequately prepared to use digital technologies in teaching, learning, research, and academic services (Worapongpat, 2024b). Deficiencies are particularly evident in the use of learning management systems (LMS), big data analytics, and the development of blended and online instructional innovations (Haruthaithanasan et al., 2024). In addition, the researcher's professional experience working with faculty members and administrators in PHEIs identified a persistent institutional challenge: the absence of a clear, systematic, and sustainable guideline for developing personnel digital skills, which has become a significant barrier to effective university reform (Jing et al., 2024).

In response to these challenges, this study was conducted with three primary objectives: (1) to examine the current state, desired state, and development needs of digital skills among personnel in private higher education institutions in Bangkok; (2) to investigate best practices in digital skill development; and (3) to develop and validate a guideline for digital skill development to support university reform. (Worapongpat, Kangpheng, 2025). A mixed-methods research design was employed to achieve these objectives (Jinlei et al., 2024). Phase 1 involved a questionnaire survey to assess the current and desired states and priority needs. Phase 2 utilized structured interviews with administrators and faculty from successful institutions to identify best practices. Phase 3 employed focus group discussions and expert validation to refine and confirm the proposed guideline (Worapongpat, 2024a).

This article presents a digital skill development guideline for personnel in private higher education institutions in Bangkok, structured around four key components: (1) principles, (2) objectives, (3) development process, and (4) success conditions. The findings are expected to provide practical guidance for PHEI administrators in formulating personnel development policies and digital transformation strategies, while also contributing to the broader academic discourse on higher education administration and university reform in the context of digital transformation.

Objectives

1.Examine the current state, desired state, and development needs of digital skills among personnel in private higher education institutions (PHEIs) in Bangkok Metropolis.

2.Identify and analyze best practices in digital skill development for personnel in PHEIs.

3.Develop and validate a guideline for enhancing the digital skills of personnel in private higher education institutions in Bangkok Metropolis to support university reform.

Literature review

A rigorous literature review serves to synthesize existing theoretical and empirical studies in order to identify unresolved issues and establish a clear research gap. Prior research emphasizes that effective literature reviews must go beyond descriptive summaries by systematically analyzing relationships, assumptions, and limitations across studies (Tamanna & Sinha, 2024; Ye et al., 2024). Accordingly, this review examines global and regional trends in digital transformation in higher education, national policy and institutional contexts in Thailand, and existing digital competency frameworks, culminating in the identification of a critical gap addressed by the present study.

Global and Regional Trends in Digital Transformation in Higher Education

Globally, digital transformation (DX) has become a central strategy for reforming higher education institutions in response to technological advancement, labor market demands, and increased competition. (Makjod, et. al., 2025). Reports from UNESCO and the World Economic Forum consistently emphasize that digital skills particularly in e-learning systems, big data analytics, and artificial intelligence (AI) are no longer supplementary competencies but core capabilities required of higher education personnel (Tianshu & Worapongpat, 2023). Empirical studies across regions indicate that institutions with digitally competent personnel demonstrate higher levels of instructional quality, organizational efficiency, and innovation capacity.

However, international literature also reveals variation in the scope and implementation of digital transformation across institutional types and regional contexts. (Worapongpat, 2025e). While many studies focus on public universities or technologically advanced systems in Western countries, fewer address private higher education institutions operating under competitive and resource-constrained environments. (Worapongpat, et. al., 2025). This global evidence establishes the universal importance of digital skills while simultaneously highlighting the need for context-sensitive approaches (Xunan & Worapongpat, 2023).

The global literature underscores the necessity of digital skill development but does not sufficiently address how these competencies should be operationalized within private higher education institutions in emerging economies, particularly in urban competitive contexts such as Bangkok.

National Context: Digital Skills and Private Higher Education in Thailand

At the national level, Thailand's Digital Economy and Society Development Plan positions digital competence as a foundational driver of economic growth and educational reform. (Worapongpat, 2026). Reports from the Office of the Higher Education Commission (OHEC) and the Association of Private Higher Education Institutions of Thailand indicate persistent challenges in digital adoption among PHEIs, including limited utilization of learning management systems (LMS), insufficient application of digital tools for research, and weak integration of digital technologies into academic services (Yun & Worapongpat, 2023; Worapongpat & Arunyakanon, 2025).

Empirical studies further suggest that personnel in Thai PHEIs face structural constraints such as inconsistent institutional policies, limited professional development opportunities, and a lack of systematic guidance for digital skill enhancement. (Worapongpat, et. al., 2026). These challenges are particularly pronounced in Bangkok Metropolis, where private universities operate in a highly competitive environment and are under increasing pressure to demonstrate innovation and educational quality (Worapongpat et al., 2024).

Although national policies clearly articulate the importance of digital transformation, existing research reveals a disconnect between policy objectives and institutional-level implementation, particularly regarding personnel development in Thai private higher education institutions.

Digital Competency Frameworks and Their Limitations

International frameworks such as UNESCO's Digital Competency Framework and the European Commission's Dig Comp provide comprehensive models for conceptualizing digital skills across domains including information literacy, communication, content creation, and problem-solving. (Worapongpat, 2025f). These frameworks offer valuable reference points for benchmarking and policy alignment. Nevertheless, prior studies indicate that such models are often generalized and may not fully account for the operational realities, governance structures, and reform priorities of private higher education institutions in Thailand (Worapongpat & Chayboonkrong, 2024).

Moreover, best-practice studies derived from Western or public university contexts tend to emphasize institutional capacity and infrastructure that may not be readily transferable to Thai PHEIs. (Worapongpat, et. al., 2025). As a result, there remains limited empirical guidance on how global frameworks can be adapted into actionable and validated development guidelines tailored to the Thai private higher education context (Worapongpat et al., 2024).

The literature lacks a validated, context-specific guideline that integrates international digital competency frameworks with national policy priorities and the actual needs of personnel in private higher education institutions in Bangkok.

The synthesis of global trends, national policy analysis, and digital competency frameworks reveals a critical gap in the literature. (Worapongpat, 2025g). While the importance of digital skills for higher education reform is well established, there is

insufficient empirical research translating these concepts into practical, validated guidelines for personnel development in Thai private higher education institutions. (Worapongpat, 2025h). Existing studies tend to focus either on broad international models or on national policy discourse, without offering an integrated, institutionally grounded solution.

Grounded in human resource development theory and aligned with Thailand's Digital Economy and Society Development Plan, this study addresses this gap by developing and validating a context-specific guideline for digital skill development among PHEI personnel in Bangkok Metropolis (Worapongpat & Junsuk, 2024). By linking needs assessment, best practices, and expert validation, the study contributes both applied and scholarly value to the field of higher education administration and digital transformation.

Methodology

This study employed a mixed methods research design consisting of three sequential phases. The integration of quantitative and qualitative methods was intended to ensure that the proposed digital skill development guideline is accurate, appropriate, and responsive to the actual needs of personnel in private higher education institutions (PHEIs) in Bangkok Metropolis.

Phase 1: Investigation of the Current State, Desired State, and Needs Assessment

Population and Sample

The population comprised personnel working in private higher education institutions in Bangkok Metropolis during the academic year 2024. The sample included university administrators, full-time faculty members, and support staff. The sample size was determined using Krejcie and Morgan's table, resulting in a total of 200 respondents, consisting of 30 administrators, 120 faculty members, and 50 support staff.

Research Instrument

A questionnaire using a five-point Likert-type rating scale was developed to assess personnel digital skills across four domains:

1. digital skills for teaching and learning,
2. digital skills for research and innovation,
3. digital skills for administration and data management, and
4. digital skills for academic services and networking.

Instrument Development and Quality Verification

The questionnaire was developed based on established digital competency frameworks, including the European Commission's Dig Comp 2.2 Framework and the UNESCO Digital Literacy Framework. Content validity was examined by five subject-matter experts. Following revisions, the instrument was pilot-tested with 30 PHEI personnel who were not included in the main study. Internal consistency reliability was assessed using Cronbach's Alpha (α) coefficient.

Data Collection and Analysis

Data were collected using a hybrid approach, combining online surveys administered via Google Forms and paper-based questionnaires distributed at selected institutions. Data analysis involved descriptive statistics, including arithmetic mean ($\bar{x}$) and standard deviation (S.D.). The Modified Priority Needs Index (PNI Modified) was

employed to identify development priorities by comparing the current and desired states of digital skills.

Phase 2: Study of Best Practices from High-Performing Institutions

Population and Sample

Purposive sampling was used to select three PHEIs recognized for their effective digital skill development practices. A total of nine key informants were recruited, comprising one administrator, one head of an academic or IT-related unit, and one exemplary faculty member from each institution.

Research Instrument and Data Collection

A structured interview protocol was developed based on the findings from Phase 1. In-depth interviews were conducted either face-to-face or online via platforms such as Zoom or Google Meet, according to participants' availability.

Data Analysis

Interview data were transcribed and analyzed using content analysis. Key themes and patterns were identified and synthesized to generate preliminary recommendations for the digital skill development guideline.

Phase 3: Formulation and Validation of the Digital Skill Development Guideline

Step 1: Guideline Formulation through Focus Group Discussion

A focus group discussion was conducted with seven experts specializing in higher education administration, digital technology, and human resource development. Focus group discussion record sheets were used to collect feedback on the four core components of the guideline: principles, objectives, development process, and success conditions. Content analysis was applied to refine and synthesize the data into a draft guideline.

Step 2: Guideline Validation through Expert Verification

The draft guideline was validated by seven external experts, including two administrators, two heads of human resource or personnel units, and three faculty members. A checklist-type questionnaire was employed to evaluate the guideline in terms of validity, appropriateness, and feasibility. Data were analyzed using arithmetic mean ($\bar{x}$) and standard deviation (S.D.), and final acceptance of the guideline was determined based on predefined evaluation criteria.

Results

1. Current State, Desired State, and Priority Needs Index (Objective 1)

The findings related to Objective 1, which examined the current state, desired state, and priority needs for digital skill development among personnel in private higher education institutions (PHEIs) in Bangkok Metropolis, are presented in Table 1

Digital Skill Development of PHEI Personnel, Bangkok	Current State ($\bar{x}$)	S.D.	Interpretation	Desired State ($\bar{x}$)	S.D.	Interpretation	PNI Value	Priority Rank
Digital Teaching & Learning	2.95	0.25	Moderate	4.55	0.38	High	0.46	4
Digital Research & Innovation	2.56	0.31	Low	4.65	0.29	Very High	0.57	2
Digital Administration & Governance	2.45	0.44	Low	4.62	0.23	Very High	0.59	1
Digital Academic Services & Networking	2.76	0.22	Moderate	4.79	0.15	Very High	0.54	3
Needs Assessment	3.32	0.36	Moderate	4.28	0.53	High	0.44	5
Overall	2.81	0.32	Moderate	4.58	0.32	High	0.52	-

Overall, the current state of digital skill development was rated at a moderate level ($\bar{x}$ = 2.81, S.D. = 0.32), indicating that basic digital practices have been implemented but remain insufficient to support comprehensive university reform. Among the current-state dimensions, needs assessment received the highest mean score ($\bar{x}$ = 3.32, S.D. = 0.36), suggesting that institutions possess a moderate level of awareness regarding digital skill gaps, although such awareness has not yet been fully translated into systematic development actions.

In contrast, the desired state of digital skill development was rated at a high level overall ($\bar{x}$ = 4.58, S.D. = 0.32), reflecting strong institutional expectations and readiness for enhanced digital competencies. The highest desired-state score was observed in Digital Academic Services and Networking ($\bar{x}$ = 4.79, S.D. = 0.15), highlighting the increasing importance of digital platforms for academic services, collaboration, and stakeholder engagement in a highly competitive higher education environment.

The Modified Priority Needs Index (PNI) analysis revealed an overall PNI value of 0.52**,** indicating an urgent need for digital skill development across all domains. The highest priority need (Rank 1) was identified in Digital Administration and Governance (PNI = 0.59), reflecting a substantial gap between current practices and desired capabilities, particularly in areas related to digital monitoring, evaluation, and data-driven decision-making. The second highest priority (Rank 2) was Digital Research and Innovation (PNI = 0.57), underscoring the necessity for strategic planning and capacity development to strengthen digital research competencies and innovation capacity. These findings clearly justify the need for a structured and systematic guideline for digital skill development among PHEI personnel.

2. Best Practices in Digital Skill Development (Objective 2)

The analysis of qualitative data collected from institutions recognized for their best practices in digital skill development revealed five key themes.

Guideline Component	Accuracy ($\bar{x}$ / S.D.)	Interpretation	Appropriateness ($\bar{x}$ / S.D.)	Interpretation	Feasibility ($\bar{x}$ / S.D.)	Interpretation	Criteria
Training & Capacity Building	4.82 / 0.51	Very High	4.82 / 0.51	Very High	4.82 / 0.51	Very High	Met
Digital System Utilization	4.97 / 0.49	Very High	4.82 / 0.51	Very High	4.82 / 0.51	Very High	Met
Knowledge Exchange & Development	(Data not shown, subsumed)	-	(Data not shown, subsumed)	-	(Data not shown, subsumed)	-	-
Continuous M&E	4.97 / 0.49	Very High	4.82 / 0.51	Very High	4.82 / 0.51	Very High	Met
Expected Outcomes (Overall)	4.97 / 0.49	Very High	4.97 / 0.49	Very High	4.82 / 0.51	Very High	Met
Personnel Digital Skills	4.97 / 0.49	Very High	4.97 / 0.49	Very High	4.68 / 0.64	Very High	Met
University Quality Enhancement	4.97 / 0.49	Very High	4.97 / 0.49	Very High	4.97 / 0.49	Very High	Met
National Strategy Alignment	4.82 / 0.51	Very High	4.82 / 0.51	Very High	4.97 / 0.49	Very High	Met
Supplementary Factors (Digital Policy)	4.97 / 0.49	Very High	4.97 / 0.49	Very High	4.97 / 0.49	Very High	Met
Resource Support	4.82 / 0.51	Very High	4.97 / 0.49	Very High	4.82 / 0.51	Very High	Met
Infrastructure Development	4.82 / 0.51	Very High	4.97 / 0.49	Very High	4.97 / 0.49	Very High	Met
Overall Average	4.90 / 0.50	Very High	4.91 / 0.48	Very High	4.87 / 0.50	Very High	Met

First, needs and potential assessment should be conducted systematically at least once a year using multiple tools, such as online questionnaires, in-depth interviews, and self-assessment instruments. This approach enables institutions to obtain an accurate and dynamic understanding of personnel digital competencies and development needs.

Second, strategic digital skill planning emerged as a critical success factor. Effective institutions implemented comprehensive development programs that included hands-on workshops, knowledge-sharing activities, the establishment of digital transformation oversight committees, and innovation-oriented initiatives such as hackathons. The creation of a centralized Digital Media Hub was also identified as an important mechanism to support personnel in teaching, research, and academic service innovation.

Third, monitoring and evaluation (M&E) systems were found to be essential for ensuring the effectiveness of digital skill development initiatives. Successful institutions employed clearly defined roles and responsibilities, combined internal and external evaluation mechanisms, and adopted standardized digital competency criteria, such as the DigComp framework, to align personnel development with institutional reform objectives.

Fourth, review and revision processes based on evaluation data enabled institutions to identify strengths and weaknesses and to allocate resources more effectively. Flexibility and adaptability were emphasized, particularly in response to rapid technological change.

Finally, reporting and dissemination of digital skill development outcomes were identified as important drivers of sustainability. Regular reporting through online platforms, institutional reports, innovation showcases, and digital competitions contributed to knowledge sharing, personnel motivation, and the development of a collaborative digital culture.

3. Formulation and Validation of the Digital Skill Development Guideline (Objective 3)

Proposed Digital Skill Development Guideline

Based on the findings from Phases 1 and 2, a Digital Skill Development Guideline for PHEI Personnel in Bangkok Metropolis was formulated, comprising four core components.

1. Principles

The guideline is grounded in the principles of lifelong learning, learning by doing (action learning), and adaptability to change, supported by a conducive digital environment and collaboration with academic and industry networks.

2. Objectives

The guideline aims to serve as a strategic roadmap for developing personnel digital skills in alignment with international standards, strengthening capacities in teaching, research, and academic services, and driving university reform toward a digital university model.

3. Development Process

The development process is structured according to the PDCA (Plan–Do–Check–Act) quality cycle and consists of five steps:

(1) needs and potential survey,

(2) strategic planning,

(3) monitoring and evaluation,
(4) review and revision, and
(5) reporting and public communication.
4. Success Conditions
Success conditions are identified at three levels:
-University level: clear policies and adequate budget support for digital transformation;
-Administrator level: strategic leadership and effective governance;
-Personnel level: motivation, digital competence, and critical digital literacy awareness.

Discussion

1. Current State, Desired State, and Digital Skill Gaps (Objective 1). The results revealed that the overall current state of digital skills among PHEI personnel remains at a moderate level (x = 2.81), particularly in relation to the effective utilization of institutional digital systems such as learning management systems (LMS), enterprise resource planning (ERP), and basic office automation tools. While these competencies indicate partial digital readiness, the findings also point to substantial deficiencies in advanced digital capabilities, including digital learning innovation design, data literacy, and awareness of cyber ethics and digital governance. The Priority Needs Index (PNI) analysis further underscores the severity of these gaps. The highest priority needs were identified in Digital Administration and Governance (PNI = 0.59) and Digital Research and Innovation (PNI = 0.57), highlighting an urgent need for capacity development in strategic digital planning, data-driven decision-making, research analytics, and innovation-oriented academic services. These gaps reflect broader structural challenges faced by PHEIs in Bangkok, where institutions operate under intense market competition, rapid technological change, and limited availability of personnel with advanced digital expertise (Ali, 2023; Ziyia, Wongkumchai, Soprakana, & Worapongpat, 2024).Importantly, the pronounced disparity between the moderate current state and the high desired state of digital skills indicates that digital competency development in PHEIs is not merely an operational enhancement but a strategic imperative. In this context, digital skills function as a critical determinant of institutional resilience, competitiveness, and long-term sustainability in the digital economy. These findings reinforce the argument that fragmented or ad hoc training initiatives are insufficient, and that systemic, institution-wide interventions are required.

2. Best Practices and Critical Success Factors (Objective 2). The analysis of best-practice institutions revealed three recurring factors that underpin effective digital skill development: (1) the presence of clear and organization-wide digital transformation policies,(2) the implementation of mentoring systems, particularly pairing digitally proficient junior staff with experienced senior personnel, and (3) continuous and targeted budget allocation for personalized digital upskilling. The convergence of these factors suggests that successful institutions conceptualize digital skills as a core organizational capability rather than as auxiliary or technical competencies. This strategic orientation aligns with the findings of Baashar et al. (2022) and Zhou, Worapongpat, and Liuyue (2024), who emphasize that sustainable digital transformation in higher education requires an integrated capability framework spanning policy, leadership, infrastructure, and human resources. Furthermore, the

emphasis on mentoring and policy-driven change supports Breckler's (1986) notion of adaptive leadership, which argues that meaningful organizational transformation necessitates cultural and behavioral change in addition to technological adoption. In this regard, digital skill development emerges as both a technical and socio-organizational process, requiring sustained leadership commitment, institutional learning cultures, and cross-generational knowledge exchange.

3. Validation of the Digital Skill Development Guideline (Objective 3). The proposed Digital Skill Development Guideline, consisting of four key components principles and vision, strategic objectives, a systemic development process, and critical success factors was rigorously validated by domain experts. The overall evaluation results, with an average mean score of 4.90 (S.D. = 0.50) across accuracy, appropriateness, and feasibility, indicate a high level of expert consensus regarding the quality and applicability of the guideline. These findings are consistent with the work of Cantú-Ortiz et al. (2020), who emphasize that effective digital development frameworks must integrate technological leadership with robust internal support systems. Additionally, the guideline's structure, grounded in the Plan–Do–Check–Act (PDCA) cycle, reflects contemporary approaches to sustainable and agile organizational development in higher education (Worapongpat, 2025b). The very high feasibility ratings suggest that the guideline is not only conceptually sound but also practically implementable within the operational constraints of PHEIs in Bangkok Metropolis, thereby offering a viable mechanism for supporting university reform.

Knowledge Contribution

This study contributes new knowledge to the field of higher education management and digital transformation by integrating empirical evidence from Private Higher Education Institutions (PHEIs) in Bangkok Metropolis with international digital competency frameworks and best-practice strategies.

The principal original contribution of this research is the validated "Guideline for Digital Skill Development in Private Higher Education Institutions", which systematically links:

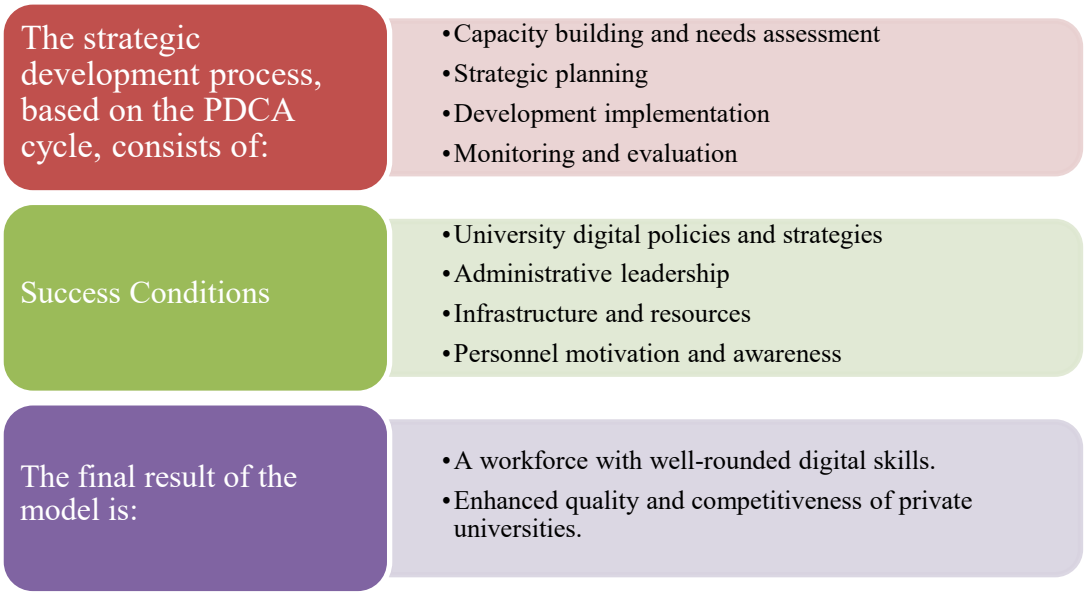

Figure 1 A Digital Skill Development Model for University Reform in PHEIs

The diagram illustrates a systemic model for developing digital skills among personnel in private higher education institutions. The model begins with an empirical assessment of the current state, desired state, and priority needs (PNI), identifying critical digital skill gaps particularly in digital administration, governance, and research innovation.

These findings inform a PDCA-based development process, consisting of needs assessment, strategic planning (including mentoring systems and dedicated funding), implementation, monitoring and evaluation, and continuous improvement. The process is reinforced by enabling conditions at the policy, leadership, infrastructure, and personnel levels.

The model demonstrates how targeted digital skill development leads to enhanced personnel capacity, improved institutional quality and competitiveness, and ultimately, successful university reform aligned with national and global digital transformation agendas.

Conclusion

This study confirms that digital skill development among personnel in private higher education institutions in Bangkok Metropolis remains at a moderate level and is characterized by significant gaps between existing competencies and institutional expectations. The high priority needs identified particularly in digital administration, governance, research, and innovation demonstrate that current development approaches are insufficient to support the demands of digital university reform.

By synthesizing empirical needs assessment data with best-practice analysis, the study formulated a comprehensive and systematically validated digital skill development guideline. The very high levels of expert agreement regarding its accuracy, appropriateness, and feasibility indicate that the guideline provides a credible

and practical framework for strengthening personnel digital competencies. Ultimately, the findings suggest that strategic, system-driven digital skill development is essential for enhancing institutional competitiveness, resilience, and sustainability in the evolving digital higher education landscape.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

Policy-Level Recommendations

PHEIs should institutionalize digital skill development as a core strategic priority by integrating it into university policies, quality assurance systems, and long-term development plans. Clear governance structures and sustained budgetary support are essential for ensuring continuity and impact.

Administrative and Managerial Recommendations

University administrators should adopt the proposed guideline as a structured roadmap for personnel development, emphasizing data-driven planning, systematic monitoring and evaluation, and adaptive leadership. The establishment of mentoring systems and cross-functional digital task forces is strongly recommended.

Operational-Level Recommendations

Digital skill development initiatives should prioritize advanced competencies, including data literacy, digital research tools, learning innovation design, and ethical digital governance. Development activities should move beyond short-term training toward experiential and collaborative learning models.

Recommendations for Future Research

Future studies should examine the longitudinal impacts of guideline implementation on institutional performance and personnel outcomes. Comparative studies across different regions or types of higher education institutions would further enhance the generalizability of the findings.

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Academic Article

The Kālāma Sutta and Its Reflections in Modern Buddhist Education: Authority, Critical Inquiry, and Pedagogical Transformation*

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Abstract

Employing qualitative textual analysis of Pāli canonical sources combined with conceptual analysis of modern pedagogical frameworks, this paper examines the Kālāma Sutta (Aṅguttara Nikāya, 3.65), as well as modern pedagogy within Buddhism, to clarify what methods and means are taught in the Kālāma Sutta for learning about the Dharma. The analysis focuses on the sutta's critique of uncritical deference to tradition and authority. The study also considers the moral and empirical standards that the Buddha recommends for decision-making and knowledge acquisition. These findings suggest that the sutta offers a pedagogical model that is grounded in critical inquiry, personal experience, ethics rather than dogma, and a willingness to make mistakes. This study shows how it is possible to break the rigidity of tradition by using this method, enabling a balanced integration of critical thinking, practice-based learning, and moral cultivation in response to the challenges of modernity.

Keywords: Kālāma Sutta; Modern Buddhist education; Critical inquiry; Buddhist epistemology; Religious pedagogy; Educational philosophy; Experiential learning

Introduction

Critical thinking is a skill that education has been increasingly trying to teach students over recent decades, with student-centered learning and reflective engagement as core components of effective pedagogy. Furthermore, there is renewed interest in classical sources used to teach about the relationships among primary sources, knowledge, wisdom, and virtue within religious education. The Kālāma Sutta is of particular interest from a Buddhist perspective because it directly challenges uncritical reliance upon tradition, scriptures, lineages, and teachers. It is frequently cited as canonical endorsement of free inquiry, as Soma (1994) and Bodhi (1998) noted, and it

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raises some important questions regarding the meaning of learning, the role of authority, and standards for judging what is true or not in Buddhist education settings.

The way monastic education is carried out today, however, is quite different from the past. Their curriculum and syllabi are updated according to modern educational standards (Chuanming, 2022), while the training of laity has increased greatly through universities, temples, and transnational Dharma centers or meditation centers. The above developments raise a number of pedagogical issues, including the interplay between tradition and critical study: combining the role of the teacher as a guide for students who learn by themselves and employing classic objectives from Buddhism within a modern pedagogical framework. Therefore, the research questions raised here are: 1) How does the Kālāma Sutta articulate a model of knowing and learning? 2) In what ways has this model influenced or can it inform modern Buddhist education in its pedagogical transformation? Within this context, the Kālāma Sutta offers a potentially valuable resource for educational reflection on its pedagogical model that is grounded in critical inquiry, personal experience, and ethics rather than dogma.

The primary objective of this paper will be to approach the Kālāma Sutta from a pedagogical and epistemic perspective with a view toward discerning what it has to say about contemporary Buddhist teaching and practice. Instead of interpreting the sutta as an expression of skepticism or individualism, this study will seek to distinguish between the Kālāma Sutta's historical pedagogical method—emphasizing ethical verification over doctrinal authority—and its contemporary applications in modern Buddhist educational reform. This is the way that this paper shall employ to give us an idea about what critical inquiry was like in early Buddhist thought and how we ought to responsibly apply it in modern Buddhist educational contexts.

Methodologically, the paper employs qualitative textual analysis of the Pāli canon, with attention to the historical and doctrinal context of the Kālāma Sutta. This analysis is complemented by engagement with modern Buddhist scholarship like that of Bhikku Bodhi & Stephen Evans. By combining textual and conceptual analysis, the article seeks to bridge classical Buddhist sources and modern educational discourse without reducing either to the terms of the other.

Why does this ancient discourse on epistemological uncertainty remain particularly prominent in contemporary reforms? The Kālāma Sutta offers a unique perspective as it addresses the pedagogical dilemma of how to teach critical thinking without falling into authoritarian dogmatism or relativistic individualism. So we can say that the significance of this research lies in its contribution to both Buddhist studies and educational theory. In regard to Buddhist studies, it offers a careful reexamination of a frequently cited but often misinterpreted discourse, situating it within a coherent framework of ethical and soteriological concerns. As for Buddhist education itself, this study provides a conceptual model that supports critical inquiry while maintaining a clear normative orientation toward the reduction of suffering and the cultivation of wholesome qualities. More broadly, the article contributes to ongoing debates about the role of critical thinking in religious education by showing that classical Buddhist texts can inform contemporary pedagogical challenges without abandoning their distinctive philosophical and ethical foundations.

The *Kālāma Sutta*: Textual Context and Core Teachings

1. Historical and Canonical Context

Within the *Aṅguttara Nikāya (AN*), the *Kālāma Sutta* is unique in that it explicitly engages with the problem of epistemic uncertainty and evaluates competing teachings. This is significant, as the discourse culminates in a threefold evaluative framework that distinguishes between wholesome, unwholesome, and morally neutral states, thereby aligning the sutta's epistemological concerns with ethical discernment.

As far as historical context goes, the *Kālāma Sutta* has been taken to reflect a pluralistic, even sometimes competitive, intellectual climate in ancient India during the early Buddhist period. In the period contemporary with the Buddha's teaching, society featured an abundance of śramaṇa movements, Brahmanical schools, and itinerant monks with their own answers to ultimate issues, ethics, and means of salvation. There was a lot of debate on things like what the soul is, how karma works, how you attain enlightenment, and the use of rites and rituals. Lay communities such as the Kālāmas in Kesaputta, who had taken up residence, were subject to opposing views put forth by rival authorities. The resulting confusion that this causes in the minds of the Kālāmas upon hearing these contradictory opinions provides the setting for a very famous teaching of the Buddha.

This socio-intellectual context will help us understand the *Kālāma Sutta*'s direction and its limits: it is important to note that this text does not aim to provide an overall theory of knowledge; rather, it addresses an educational situation in which ordinary believers are exposed to contradictory religious claims without having been taught philosophy. The Buddha's initial refusal to endorse tradition (*anussava*), lineage (*paramparā*), scriptural authority, speculative reasoning, or the charisma of individual teachers should therefore be read as a pragmatic strategy designed to address this condition of doctrinal competition. The sutta does not reject these sources of knowledge in principle but cautions against their uncritical acceptance in situations where they function as substitutes for careful evaluation and ethical reflection.

Equally important is the pedagogical setting of the *Kālāma Sutta*, which is directed explicitly toward laypeople rather than monastics. Unlike many discourses that presuppose familiarity with monastic discipline or advanced meditative practice, this sutta addresses the concerns of householders engaged in social, economic, and familial life. The evaluative criteria proposed—namely, whether a teaching leads to greed, hatred, and delusion or to their abandonment—are framed in terms accessible to ordinary experience and observable consequences. This orientation reflects an educational approach that emphasizes practical judgment and moral clarity over doctrinal mastery.

Canonical scholarship has further noted that the concluding section of the *Kālāma Sutta*, which introduces the notion of the "four assurances" (*cattāro assāsā*), reinforces this practical orientation. By presenting benefits that hold regardless of metaphysical uncertainty—such as living without hostility and remorse—the discourse situates ethical practice as the primary educational outcome. This reinforces the view that the sutta's epistemological guidance is inseparable from its ethical aims.

2. The Ten Grounds for Doubt

What is unique about the *Kālāma Sutta*, however, is that the Buddha goes on to enumerate ten grounds why one should not accept any teaching solely because it

satisfies these criteria. This passage has often been cited as evidence of early Buddhism's endorsement of critical inquiry (*sokakāṅkha*) or skepticism (*saṃśaya*). A closer reading shows that it is primarily about the limits of non-questioning use of traditional authority as sources. The point here is not that tradition, reason, or expertise are unimportant; it is rather a cautionary note about regarding them as ultimate and authoritative criteria, particularly in cases of conflict among the religions or when morality is not clear:

> *Come, Kālāmas, do not go by oral tradition, by lineage of teaching, by hearsay, by a collection of scriptures, by logical reasoning, by inferential reasoning, by reasoned cogitation, by the acceptance of a view after pondering it, by the seeming competence [of a speaker], or because you think: 'The ascetic is our guru.' (*Bodhi, 2021*)*

The first ground mentioned here is *anussava*, which has been rendered variously in English as "tradition," "oral teaching," and "learning by heart." In ancient Indian religious terms, oral transmission was regarded as the best method for preserving and verifying doctrinal truth. But it is clear from the Buddha's admonition not to rely exclusively upon *anussava* that simply longevity and popularity do not guarantee a teaching's ethical validity or efficacy. The transmission of even well-known teachings can lead to harmful mental states and unwholesome actions. We are not criticizing the practice of recitation, which remained important for early Buddhist practice, but the assumption that traditional status confers automatic authority.

The second issue to be noted is that many relied upon succession or lineage teachers (*paramparā*), and these were often used as criteria for authenticity—that they are linked to a respected lineage of teacher–student chain. The warning in this case is that what may be traced back to a revered teacher still needs ethical evaluation. In situations where there are rival genealogies claiming to be authentic, transmission alone is not an adequate criterion of authenticity for rites and teachings.

The discourse also cautions against the blind following of what is reported from others (*itikirā*) or hearsay, indicating a concern for accepting things that are not investigated when they have been passed on by others in this way. In many different contexts where caricatures of other beliefs were rampant along with rumors about them, reliance upon these anonymous accounts would easily lead to errors of judgment and incorrect inferences. The Buddha's teaching encourages learners' free inquiry and critical thinking over the uncritical reception of what is passed on.

The notion of scriptural authority (*piṭakasampadā or byañjanā*) is also present among the grounds for doubt. Special mention is made of this, suggesting that early Buddhism was not committed to scripture per se as a source of authority, and although scriptural texts are valuable repositories of doctrine, they are interpretive and applicable. Without the accompanying reflection on morality and one's own conduct, however, reciting scriptures may encourage dogmatism over insight (Chongla-iat, 2023).

The discourse also refers to various forms of reasoning, such as reliance on mere reasoning *(takka*), inference (*naya*) (refers to formal reasoning procedures that,

while valuable, can become speculative when disconnected from ethical consequences), and analogy on grounds of external similarity (*ākāraparivitakka*). At first glance it seems that these warnings could be interpreted as an aversion to inquiry in general. But such interpretation would run counter to the general Buddhist epistemological tradition, which applies proofreading, analysis, and reasoning in an organized manner. The sutta more explicitly points out the problems with treating rationalizations as independent, ultimate authorities for issues of truth. Internal consistency and aesthetic elegance don't ensure that certain opinions are good for us mentally or in other ways. If we separate our thinking process from morality and facts, they are at risk of being speculative and/or misleading.

Another ground for doubt is agreement with what one has heard, inclination, and view (*diṭṭhinijjhānakkhanti*). This prefigures modern notions such as confirmation bias. It appears the Buddha warns his followers not to assent to views simply on account of them agreeing with their previously held beliefs or philosophies; this type of acceptance will only entrench positions rather than lead to understanding.

The final grounds are about authority figures: whether one refers to an authoritative figure's knowledge or "the monk is our teacher." (*samaṇo no garū*) (Bodhi, 1998) The caution here points towards authority figures' charisma and power. While the Buddha was respected, he deliberately refrained from demanding obedience merely by virtue of his position. It is an education for judgment, not obedience, and it seeks to make men responsible for their own opinions, not dependent upon others.

All together, the ten grounds are not a rejection of tradition, scripture, or reason as such. Rather, they act as an antidote to cognitivist modes of thought, which ignore ethics or reflection. The second point is supported also by these canonical texts, which set an ideal standard of what Buddhist education should look like:

> *If at any time you know of yourselves: 'These things are profitable; they are blameless; they are praised by the intelligent; ... — then you should undertake them and abide therein.*(Woodward & Hare, 2019*)*

When referring to the standard "praised by the intelligent" (*viññuppasatthā*), it might replace traditional authority with a form of intellectual elitism. In the context of modern education, the term "wise" should not be understood as a social category but rather as those who demonstrate ethical capabilities.

Based on the above ten grounds for doubt, we can see that the "Critical Buddhism" (Hihan Bukkyō) advocated by Matsumoto (1997) and Hakamaya (2006) resonates profoundly. They emphasize that true Buddhism should be founded on "criticism," which means a thorough examination of all established authorities. This is highly consistent with the Buddha's teachings in the sutta that reject ten kinds of blind adherence. Its critical spirit always serves the practical goal of the path to liberation, rather than establishing another set of anti-traditional dogmas. Therefore, the *sutta* provides a "normative critique"—while rejecting blind faith, it uses ethical

effectiveness as an anchor to avoid falling into the infinite regression of "criticism of criticism."

3. Ethical and Experiential (Criterion)

After rejecting unquestioning trust in the authority of others, the *Kālāma Sutta* articulates some positive evaluative principles for judging what is or is not valid: providing objective criteria by which to judge the content and quality of religious doctrines, rather than relying upon philosophical speculation and/or authority. The discourse directs attention to qualitative effects and actions on behavior and mental states. In this way, the sutta integrates epistemic discernment with moral cultivation.

Note also that moral purity does not simply refer here to inner states of mind, but in general Buddhism tends to associate psychological elements with what can be seen and experienced as the result. Teachings encouraging greed, hatred, and delusion are said to lead to harm, conflict, and suffering, producing harmful effects on people and society. While teachings about non-greed/hatred/delusion support well-being, social harmony, and ethical integrity. This relational dimension underscores the socially embedded nature of Buddhist ethics and resists interpretations that reduce evaluation to purely subjective experience (Li, 2022).

The importance of results is another indication that the *Kālāma Sutta* addresses a practical concern. Right action depends upon estimating consequences, not upon the observance of rules or dogma. This consequential position could be interpreted as allowing for a certain amount of moral relativism; it retains its rigor through the invocation of general principles such as the avoidance of harm, maximization of happiness, and cultivation of virtue. Instead of relying on situational ethics, we take an educational approach to encourage careful thinking about the role of how intentions, actions, and outcomes are linked.

The second component of the evaluation schema is personal experience. The Buddha instructs the Kālāmas that they should "know for themselves" (*attānaṃ yeva jāneyyātha*) (Bodhi, 2012), emphasizing personal inquiry and critical judgment over uncritical intuition or gut feelings, but rather to a continuous exercise of the discernment that is formed by experience, reflection, and ethical sensitivity. In the light of these considerations, our experiences are analyzed and interpreted in a moral sense.

The capacity for critical thinking is seen here as being a key mediator between experience and evaluation; this view supposes that individuals have the capability to reflect upon themselves cognitively and understand better the consequences of their actions if they are provided with appropriate tools for evaluation. Critical thinking skills constitute learning outcomes. Knowledge is neither something we have, nor can it be conceived of as the result of an act or process, but as an ongoing process of discernment responsive to changing conditions.

Epistemological Implications of the *Kālāma Sutta*

1. Buddhist Epistemology Beyond Dogmatism

The *Kālāma Sutta* is one example of a Buddhist philosophical answer to questions concerning knowledge and epistemic justification, suggesting that there is no need for an epistemology of morality or pragmatism, since it would be dogmatic in nature. In early Buddhism, dogmatic epistemology may be understood as the view according to which truth is guaranteed by external causes such as tradition, scripture, lineage, and the prestige of a guru. The sutta cautions strongly against uncritical trust in any one of these bases and thereby implicitly challenges the view that a statement is justified simply because it is institutionally/socially approved. Rather, it emphasizes the responsibility of the learner to engage in reflective evaluation guided by ethical criteria.

I do not see this study as offering an epistemic theory per se. The *Kālāma Sutta* refrains from enumerating the sources of information and setting up systematic tests for verification. Rather, it addresses a practical problem: how individuals should respond to competing truth claims in situations of uncertainty. The Buddha's response turns epistemic responsibility into ethical responsibility. The evaluation of comprehension changes from its origin to its effect, particularly its capacity to reduce greed, hatred, and delusion. Here the text is humbled by reason and acknowledges the limitations of human understanding while rejecting the delegation of judgment to external authorities.

Importantly, this should not be understood as an anti-intellectual position, nor a relativist one. The discourse does not deny the value of reasoned inquiry, textual study, or expert instruction. But it resists the temptation of absolutizing them in some way. Authority figures and reason itself remain provisional tools that must always be judged by ethical and experiential validation. This is consistent with the general Buddhist orientation towards pragmatic efficacy (*atthasaṃhita*), as opposed to a speculative certainty, and knowing and teaching that this is to be embedded in the highest religious value, which is to alleviate human suffering.

A comparison of later developments in Buddhist epistemologies, such as those of Dignāga and Dharmakīrti's *pramāṇasvāyāmcaṯtana* systems (Bogacz, 2024), exposes its permanent and changing features, as well as the classical pramāṇa framework that categorizes epistemic procedures that are considered to be trustworthy: it mainly accepts perception (*pratyakṣa*) and inference (*anuamana*) as sources of valid cognition (Hayes, 1980). The later thinkers are much more concerned with logic, precise language use, epistemic criteria of mental correctness, and so forth. They represent the move towards rationalism and formalization: satisfying both inter-traditional discussion and the demands of scholastic discourse.

Though these views differ, the ethical position in the *Kālāma Sutta* does not conflict with the *pramāṇa* theory. Both methods eschew uncritical adherence to authorities and are to be verified by experience. In this view of *pramāṇa*, inference or perception becomes epistemically relevant because it provides a valid basis for cognition. However, in contrast to thinkers like Dignāga or Dharmakīrti, who emphasize the epistemic quality of *pramāṇa* (truthfulness and veridicality), the *Kālāma Sutta* emphasizes more the ethical results. There is no contradiction here, just a difference of emphasis due to different pedagogical contexts.

2. Faith (*saddhā*) and Critical Inquiry

The Pali word for "faith" in Buddhism is *saddhā*, but it plays a different role than English words such as "faith," "belief," "trust," and "religion" often do; that is, *saddhā* does not mean unconditional belief or doctrinal assent. The *Kālāma Sutta* and related texts suggest that *saddhā* appears better captured by an epistemic attitude akin to provisional belief, which invites one to proceed along the path but not without critical scrutiny. This shift is important to understanding not only the lack of tension but also the compatibility of faith in devotion with inquiry in Buddhist educational and philosophical frameworks.

While the term *saddhā* does not appear explicitly in this passage of the *Kālāma Sutta*, its didactic function suggests that there was an understanding of faith in Buddhism quite different from what we have described above. In other words, instead of demanding blind faith in religion, the Buddha is quietly changing our definition for religious belief. Faith is not the slavish submission to teachers or traditions; it is the provisional willingness to test claims by ethical criteria and one's own experience. In this formulation, faith precedes inquiry—it does not substitute for it—which enables the practitioner to test the validity of spiritual principles by experience.

In early Buddhist texts, *saddhā* tends to be described as a preliminary stage in the path that comes prior to effort, mindfulness, concentration, and wisdom. So although faith is an important factor in getting started on the path, this is not thought of as perfect knowledge. This faith becomes the incentive to investigation (*vicaya/vimaṃsā*), and this leads to understanding. Through continued effort, this certainty slowly changes and becomes more internalized rather than based on other people's opinions. And the relationship between *saddhā* and inquiry dynamically develops and changes alongside the practitioner's engagement with the teachings.

The transition from "*saddhā*" to "*paññā*" can be understood through the scaffolding theory in educational psychology (Wood, Bruner & Ross, 1976). The initial belief provided the "scaffolding," enabling monastic learners to engage in practices that they could not fully verify yet. As the accumulated experiences through meditation and moral practice were verified, the scaffolding was gradually removed, leaving behind independent wisdom. This model explains why the *Kālamā Sutta* did not completely abandon faith but instead restructured it into a temporary epistemological support rather than an ultimate belief.

It also shows, in particular, the interplay between skepticism and trust—that some level of faith must be present to enable inquiry, neither too much faith, which leaves you drifting around uncontrolled, nor not enough faith, which leaves you without confidence. Inquiry, on the other hand, is required for protection from dogmatism. There's a tension here between the two, which we can see reflected in the *Kālāma Sutta*, where inquiry is encouraged but there are clearly set out some ethical criteria by which to judge this. Confidence is not thrown away nor taken to be fixed but instead updated in light of evidence and reasoning.

3. The Therapeutic Orientation of Knowledge

Another aspect that emerges from the presentation given here about Buddhist epistemology and especially shown by the *Kālāma Sutta* is a kind of therapeutic orientation: wisdom is valued primarily not because it can lead to ultimate metaphysical certainty nor because it allows us to build up large philosophical theories, but more as an instrument in reducing suffering (*dukkha*). Thus, epistemic evaluation is always inseparable from soteriological concerns. Teachings are evaluated according to the extent they change cognition, behavior, or feelings; and/or the cultivation of beneficial qualities.

The *Kālāma Sutta*, however, is a notable exception in that it urges one not to take for granted certain dogmatic presuppositions but rather to act pragmatically with regard to the consequences of actions. This approach favors the measurement of what is known by how it impacts one's actions as well as those of others in society; a pragmatic orientation reflects a prioritization of functional efficacy over theoretical completeness (Bodhi, 1998).

This view is reminiscent of some aspects of early Buddhist thought but also closely resembles the emphasis on the Four Noble Truths (*Cattāri Ariyasaccāni*) as a practical framework for understanding *dukkha* and finding ways to respond effectively to it (Bodhi, 2005). Just as with medicine, what counts as knowing is precisely this capacity to diagnose the cause(s) of pain and find effective remedies. It is in such a context that we may judge philosophical questions that do not contribute towards the realization of human liberty as educational irrelevancies—irrelevancies they are not necessarily by virtue of their being meaningless, but because there is no real benefit in them towards the relief of suffering. This kind of mental cultivation therefore has a pragmatic purpose, so as not to get bogged down and distracted by ideas that are irrelevant to the pursuit of liberation.

This practical and liberative use of knowledge has important implications for pedagogy. First, it suggests that the teaching process of Buddhism must focus more on self-cultivation rather than rote learning, although reading and studying scriptures are still important. Their major usefulness is in their application to moral and psychological education. Information is regarded as transient and utilitarian rather than an end in itself.

Secondly, it is proposing to use an iterative, experience-based model of education: knowledge grows by acting upon the wisdom learned and assessing and critically reflecting on it. So teaching methods are flexible, and who will prize evidence no less than understanding? This model breaks down the traditional distinction between theory and practice because they are constantly being evaluated against each other in this feedback loop.

Thirdly, it is clear that the knowledge-as-therapy view has important implications for notions of authority within a learning context. Authority does not come only through one's title or role, knowledge of texts, or conventional connections; moral authority derives from demonstrated competence at helping pupils reduce suffering and increase ethical insight. This perspective is compatible with the *Kālāma Sutta*'s critique of authoritative epistemic claims but not incompatible with a pedagogical structure in an ethics of instruction.

Finally, the above epistemic model provides an analytical platform to address contemporary concerns of Buddhist education, especially in academic and profane settings. When knowledge is understood as its practical and ethical ways, in which Buddhism has been taught, it could be challenged by current epistemic standards without undermining its aims of transformation. The *Kālāma Sutta* outlines an epistemological strategy that is both critical and active in nature: it shows us how to critically evaluate the validity of things while simultaneously relieving suffering and cultivating ethical habits.

Modern Buddhist Education: Concepts and Challenges

1. Defining "Modern Buddhist Education"

Modern Buddhist education encompasses a range of educational practices, institutions, and curricula that engage with Buddhist teachings in contexts shaped by contemporary social, intellectual, and pedagogical developments. Whereas classical monastic education historically studied only textual memorization, rites and ceremonies according to the tradition, and meditation training (Keown, 2000). Modern Buddhist education has been radically altered through processes of globalization and interaction with secular educational paradigms (Liu, 2022). In order to understand this broad phenomenon, we need to look at different expressions of it, e.g., changes in monastic education or university programs.

Monastic education has been affected by many factors both inside and outside the monastery. In addition to traditional rote memorization and ritualistic practice, modern Buddhist education throughout Asia is introducing new teaching methods that incorporate in-depth study of philosophy, historical events, and ethical lessons. Such programs are frequently taught using contemporary teaching strategies that focus on conceptual learning, and textual analysis. These changes are intended to produce religious professionals equipped with knowledge of traditional practices and also the critical skills needed to participate in contemporary scholarly discourse and public life. With the development of international cultural exchanges, the dissemination and spread of the Buddhist education system among nations is becoming faster and faster, supporting cross-cultural communication among the different epistemological traditions and pedagogical strategies.

2. Pedagogical Challenges

Some pedagogical problems confront modern Buddhist education, arising from attempts to harmonize traditional doctrinal transmission with modern educational requirements. In the old tradition, there was an emphasis on rote learning, ritual competence, and scrupulous adherence to authoritative texts. While all of these approaches provide doctrinal fidelity and institutional stability, none of them may necessarily foster meditative understanding and independent reasoning by default; on the contrary, contemporary pedagogy encourages critical inquiry, and being able to critically evaluate teaching on either an ethical or a pragmatic basis. This tension requires a careful curricular design that maintains core principles and at the same time allows for the training of critical thinking skills.

The other problem is a tension between the authority of teachers on one hand and student autonomy on the other. In monastic programs and university courses, instructors possess epistemic and ethical authority based on experience, knowledge, and institutional role. It's a pedagogical question that requires some balancing of intervention vs. non-intervention, because if we intervene too much, then we can promote blind following and passive education. In contrast, too much freedom promotes individualistic or partial knowledge without a moral basis. The challenge is to create learning opportunities that promote reflection, yet provide the appropriate level of guidance.

The above-mentioned pedagogic problems share the same peril, besides others that are specific to each of them: dogmatism and relativism. The former means that syllabi or teaching encourages blind submission to books or teachers' orders. Students may just repeat dogma, rather than reflect on what this information means for them in terms of action or development. The second one, however, happens whenever analysis is encouraged without any value criteria and ethical norms being available to guide it, at such a point that students may come to believe that all positions are justifiable and acceptable actions.

The difficulty of these questions is compounded by the diversity of contemporary pedagogical environments. There have been many models—from classical monastic formation, the content of the curriculum (e.g., religion, academic curriculum, secular mindfulness class), basic assumptions, method of teaching, or particular needs of students. Teachers will need to be judicious in their implementation so as not to over- or under-emphasize traditions and critical analysis, while simultaneously providing the pedagogical direction of instruction and the autonomy for students, as well as being specific to certain learning objectives. All this requires flexible instruction that is responsive to variations in cognitive capacity, previous experience, and student interests.

In order to overcome these educational problems, it is helpful if a moral standard and a practical standard are introduced into the learning framework, as exemplified in the *Kālāma Sutta* above. If teachings are judged according to their effects on mental states, then ethics and social responsibility are emphasized, and educators provide an intellectual framework within which to analyze the issue. This process cultivates a teaching model in which transmission, morality training, and mental cultivation are interwoven together so that monastic students can develop their own judgment skills without losing touch with authentic Buddhist teachings.

Reflections of the *Kālāma Sutta* in Modern Buddhist Educational Practices

1. Learner-Centered Pedagogy

In modern Buddhist education practices, it has been greatly changed by applying learner-centered teaching methods and promoting active learning, personal reflection, and inquiry-based learning rather than through the rote teaching-learning process only. These teaching methods are in line with contemporary education's emphasis on the development of analytical thinking skills, ethical discernment, and experiential understanding, e.g., in the Guangdong Buddhist College, these are progressive pedagogical methods that attempt to balance contemporary learning goals against the fundamental spiritual and meditative objectives of Buddhism.

The second major feature of learner-centered pedagogy is the encouragement of questioning methods. The instructor encouraged learners to ask questions and analyze what they learned in the courses, explore alternative interpretations, and ask questions that relate to their experiences. It is this mode of education that corresponds with the epistemological position articulated by the *Kālāma Sutta*, which stresses reflection instead of mere acceptance. Instructors who foster classrooms that make inquiry routine allow students to consider not only how their learning can be applied but also its ethics: more than just relying solely on authorities, or memorization, etc.

Dialogue plays a central role in learner-centered teaching and learning activities. Structured discussions, debates, and collaborative exploration enable students to articulate their knowledge, confront other perspectives, and foster civic engagement in the service of critical thought. Within a Buddhist school or monastery, such activity could be in the form of guided study sessions and monastic debates or group reflection exercises. These promote intellectual, moral, and social growth, as they learn to be respectful in their discussions about how religion works in real life.

The teaching strategy is incomplete without including the element of introspection. Reflection: Students are able to apply theory to real-life situations, analyze outcomes of actions, and reflect on changes in thoughts and behavior. Self-reflection through keeping a journal, meditation, or self-assessment can help internalize learning and use ethical judgment to make decisions about what one does. Self-reflection helps translate theory into practice, thus enhancing the utilitarian function of Buddhism and encouraging education in the long run.

A central element of learner-centered pedagogy is moving away from rote memorization toward deeper understanding. Education traditionally has focused on memorizing canonical texts as well as ritual procedures. This provides a legacy of content transfer, but it may inhibit analysis or common sense. On the other hand, learner-centered approaches lean towards a greater emphasis in terms of comprehension and use of information and evaluating results. Memorization may still be involved in learning but as part of more complex processes that include reflection, discussion, and experiential learning. This change empowers the students' capacity for reflective judgment, ethical awareness cultivation, and applying the concepts in complex contemporary contexts.

This has a profound effect on the role teachers play in the classroom. They are no longer simply transmitters of information; teachers become facilitators of learning. Teachers provide a structure and context in which inquiry can occur, debate may take place, and we show how we think analytically while helping students learn to assess sources on their own, question assumptions, and integrate knowledge. This kind of teaching fosters an interactive classroom atmosphere where moral development, critical inquiry, and personal experience converge.

2. Experiential Learning and Practice-Based Validation

In modern Buddhist education, there is an increased focus upon experiential learning and practice-based validation: "what is verified by direct experience instead of mere thinking." (Sujato, 2025) According to this perspective in the *Kālama Sutta*, one must evaluate religious teachings based on what they produce as effects within oneself (mental states and ethical conduct).

Meditation is one of the most important aspects of Buddhist pedagogy that can be described as a form of experimental education. Through regular meditative practices on mindful attention, people cultivate concentration and insight into their minds; they are able to observe how different processes arise and pass away, providing first-hand evidence for the effect that moral precepts have on mental conditions. The combination of theory and inner reflection makes meditation a practice of confirmation, enabling individuals to experience firsthand the efficacy.

Ethical cultivation, paired with meditative practice, can help put one's experience into the context of a social and relational framework. Moral virtues such as compassion should be lived out, and virtue, goodness, and candor should be present in daily life and human relations. The experience that moral actions can have direct effects on our lives and society is an empirical proof for morality (Yutlert & Panyavachiro, 2024). This aligns with what the *Kālāma Sutta* advises us to consider about teachers according to their effects on greed, hatred, and delusion, demonstrating that moral outcomes are an integral component of knowledge assessment.

Mindfulness training broadens the context for learning from experience through cultivating moment-to-moment awareness of one's own mind, behavior, and how they are interacting with the world around us. By practicing mindfulness, we observe what is going on in our thoughts, emotions, and habitual patterns. This awareness can enhance one's metacognitive skills so that students are able to evaluate not only the practical utility but also the ethical aspects of what they learned during the learning process against their real-life scenarios. Therefore, mindful observation is both a pedagogy and an evaluation technique, establishing the link between direct experience and conceptual understanding.

These experiential methods parallel contemporary theories of experiential learning in modern education, such as the experiential learning cycle proposed by Kolb (2014). According to this learning theory, there are four stages in a process of experience: concrete experience, reflective observation, conceptualization, and active experimentation. Likewise, meditation practices in Buddhism provide structured approaches to attention and reflection, and behavior training provides an adaptive means to integrate character education and academics. Both models show how knowledge is acquired as a constructive, active process that results when understanding derives from and is tested by experience with the world.

Therefore, the experiential learning and practice-based verification in modern Buddhist education employ meditation, moral cultivation, and mindful observation to connect theory with practice. These methods provide direct evidence of the impact of doctrines on mental and moral development, aligning with the principles expounded in the *Kālāma Sutta*. The similarities with modern experiential learning theories highlight the relevance of this approach to contemporary pedagogy, indicating that organized and reflective experiential engagement can serve as a core mechanism for knowledge acquisition, moral development, and critical evaluation.

3. Ethical Discernment as Educational Outcome

A central pedagogical goal in modern Buddhist education is to cultivate ethical discernment, reflecting the unity of the cognitive, moral, and technical dimensions of teaching (Baker, 1996). It is different than a mere memorization of scripture or pure academic study, modernity. Today, the pedagogical emphasis in Buddhist education is on cultivating wisdom (*paññā*) and compassion (*karuṇā*). These qualities are both the standard by which to judge and a guide to how we should practice Buddhism, knowledge that should be used for the moral improvement of ourselves and others, not left as idle in our minds.

Here, *paññā* means insight or intelligence in accurately seeing things as they are and understanding *kamma-vipāka,* separating the ethical from the pragmatic implications of action. Teaching methods encourage pupils toward reflective consciousness through integration of biblical interpretation, meditation, contemplation, and experiential learning as means of cultivating insight. This emphasis on critique helps professionals examine ideas, practice, and the context of the society, where the moral values and aims of Buddhism are also taken into account; hence, learning is tied up with applying what has been learned for cultivating mental states conducive to a healthy mind as well as good conduct.

The counterbalancing virtue is compassion (*karuña*), which guides the ethical application of insight. Through engaging with ethical reflection, interactive learning, and social action, we help our learners expand their concern beyond personal development toward that of society as a whole. Such an approach reinforces the collective nature of moral knowledge—that educational results will be both individual and social obligations. In this way, empathy translates moral evaluation from the metaphysical realm to a concrete level of social life.

We can see that *paññā* and *karuṇā* are vital factors here. The goal of modern critical thinking is the validity of propositions, while the Buddhist inquiry (*vicaya*) provoked in the *Kālāma Sutta* aims to achieve non-attachment (*virāga*) and the cessation of suffering (*dukkha-nirodha*). The former assesses the arguments; the latter examines whether the viewpoints will intensify or alleviate suffering—transforming epistemological criticism into soteriological practice.

Conclusion

The key findings of this study suggest that the *Kālāma Sutta* provides an early critique of intellectual authoritarianism, emphasizing reflective assessment rather than blind reliance on tradition, scripture, or teacher authority. Buddhist institutions failing to adopt these Kālāma-taught methods face specific risks: dogmatic stagnation (inability to adapt to contemporary challenges), authority crises (scandals involving unquestioned teacher power), and epistemic irrelevance (inability to engage critically with modernity). Conversely, successful implementation offers Buddhist education a distinctive contribution to global educational discourse: a model of critical inquiry that maintains ethical normativity without authoritarianism. Its core evaluation criteria—distinguishing between wholesome and unwholesome behavior and assessing the impact of doctrine on oneself and others—show that knowledge in the Buddhist framework is inherently ethical and experiential, aimed at reducing suffering rather than pursuing abstract or metaphysical certainty. Thus, the sutta provides a coherent model for integrating critical thinking, ethical reflection, and practical application in modern Buddhist education, focusing on curriculum design, educational theory, and experiential understanding to develop monastic students who are reflective, morally responsible, and socially engaged in diverse contemporary contexts. However, the limitation of this study is conceptual; empirical validation through ethnographic research remains

necessary. Future studies could be carried out including qualitative interviews with Buddhist educators regarding classroom "doubt" management and longitudinal tracking of ethical outcomes across pedagogical models.

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Author Guidelines
Asian Journal of Humanities and Social Innovation (AJHSI)

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1. Publication Policy in Asian Journal of Humanities and Social Innovation

Asian Journal of Humanities and Social Innovation (AJHSI) is a journal in the humanities and social sciences. It aims to promote research and publish research articles, academic articles, review articles, and book reviews for scholars, researchers, lecturers, students at all levels, and interested persons in the dimensions of Sociologies, Anthropologies, Humanities, Social Sciences, Education, Business Administration, Politics, Public Administration, Development, Tourism, and other areas in Social Sciences. Articles that are considered for publication must be reviewed by at least 2 out of 3 qualified persons (Peer Review). Only English articles are considered for publication. Submitted works must not have been published or are under consideration by qualified persons for publication in other journals. Authors must strictly comply with the criteria for submitting academic or research articles for publication in the journal, and the referencing system must be in accordance with the criteria of the journal.

The views and opinions expressed in journal articles are the responsibility of the authors of the articles and are not the opinions of the editorial team. The editorial team does not reserve the right to copy but requires references to show the source.

Publication Frequency

Release scheduled of four issues per year (Biweekly 3 months per time):

Issue 1 January – March

Issue 2 April – June

Issue 3 July - September

Issue 4 October – December

2 . Types of works published in the Asian Journal of Humanities and Social Innovation

1. Research Article is a report of the results of a systematic study, research, or development.

2. An Academic Article is a work of writing an interesting topic in which the author presents new knowledge by using theories, concepts, and related research results as information sources.

3. Review Article is an article that combines theories, concepts, and research results on many subjects, the author will synthesize the literature to compile it into a conclusion or argument on a particular matter, which is a review of the academic progress of that matter.

3. Guidelines for Manuscript Preparation and Submission

Research Articles

Title
The title should be precise, concise, and accurately reflect the article's content and focus. Clearly specify the title: AJAJ - Writing Article Titles with Initial Capital Letters. (Times New Roman, 14 pt, Bold)

Author's name and surname
Full names of all authors, without including any titles, ranks, or honorifics. For multiple authors, separate the names with commas, and for the last author, use "and." (Times New Roman, 12 pt, Bold)

Full Address
Affair and country
E-mail:
Received xx/xx/20xx Revised xx/xx/20xx Accepted xx/xx/20xx
(Times New Roman, 11 pt, Italic)

Abstract

The abstract should succinctly summarize the article, including its objectives, methodology, key findings, and discussion, all within 300-400 words. The abstract must be written as a single, coherent paragraph. Text (Times New Roman, 11 pt, Tab 0.5 cm)

Keywords: Keyword, keyword, keyword
Authors should provide a minimum of three keywords and a maximum of five, reflecting the core themes of the study. (Times New Roman, 11 pt; 5 keywords/phrases

Introduction
The introduction of a research paper is a crucial component, as it is the first section that readers encounter to understand the topic under investigation. A well-written introduction should begin by presenting the general background of the issue or topic, gradually narrowing down to the specific problem that the researcher intends to explore. It should also highlight the significance and necessity of conducting the research.

Furthermore, the introduction should point out the gap in existing knowledge that the research aims to fill. It must clearly state the objectives of the study to ensure that readers can comprehend the rationale, importance, and direction of the research. A well-structured and thoughtful introduction not only enhances the credibility of the

study but also engages the reader's interest to continue exploring the entire research paper. Text (Times New Roman, 11 pt, Tab 0.5 cm)

Objectives

1.
2.
3.

Text (Times New Roman, 11 pt, Tab 0.5 cm)

Literature review

The literature review is a crucial component of the research process. Its primary purpose is to explore relevant information, concepts, theories, and previous studies related to the research topic. A thorough literature review helps researchers understand the current state of knowledge, identify academic trends, and recognize gaps that need further investigation.

A high-quality literature review involves the careful selection of credible, up-to-date, and directly relevant sources. Researchers should analyze, synthesize, and compare information from various references to establish a clear conceptual framework or research hypothesis. Moreover, the literature review enhances the credibility of the study and demonstrates that the researcher has a deep and comprehensive understanding of the topic being studied. Text (Times New Roman, 11 pt, Tab 0.5 cm)

Methodology

The methodology section is a critical part of a research study that outlines the systematic process for data collection, analysis, and presentation of research findings. A well-written methodology clearly specifies the type of research—whether it is quantitative, qualitative, or mixed-methods—and explains the sampling procedures, research instruments, data collection steps, and data analysis techniques.

An appropriately designed methodology ensures that the research questions can be accurately addressed and enhances the **credibility** and **reliability** of the study. Furthermore, a clear methodology provides a framework that allows other researchers to replicate the study if they wish to explore the same topic in future research. Text (Times New Roman, 11 pt, Tab 0.5 cm)

Results

The results section presents the findings derived from the analysis of collected data based on the established research methodology. At this stage, no interpretations or personal opinions from the researcher should be included. The presentation of results must be clear, organized, and aligned with the research objectives.

Results can be conveyed through narrative descriptions, tables, charts, or figures to make the information easier to understand and compare. The language used should be neutral and objective, avoiding any exaggeration or interpretation beyond what the data reveals.

A well-structured results section enables readers to connect the findings directly with the research questions and objectives. It also lays the foundation for the discussion and interpretation that follows in the next section of the research paper. Text (Times New Roman, 11 pt, Tab 0.5 cm)

Discussion

The discussion section is a vital component that demonstrates the researcher's ability to interpret and critically analyze the findings in relation to the research objectives, hypotheses, and relevant literature or theories. The researcher should connect the results to theoretical frameworks and explain whether the findings support or contradict previous studies.

This section should include logical reasoning, possible explanations, and factors that may have influenced the results. It is also important to address any limitations of the study that could affect the accuracy or applicability of the findings.

A well-written discussion reflects academic depth and shows that the researcher understands the broader context of the research. It bridges the gap between raw findings and the implications they may have for theory, practice, or future studies. Text (Times New Roman, 11 pt, Tab 0.5 cm)

Conclusion

The conclusion of a research paper provides a concise, clear, and complete summary of the key findings in alignment with the study's objectives. It should not introduce any new information or data, but rather synthesize what has already been discussed to highlight whether the research questions were effectively answered or the research goals were achieved.

A strong conclusion also includes practical implications or recommendations based on the findings, and often suggests directions for future research to expand upon areas that remain unexplored or insufficiently studied. A well-crafted conclusion helps readers quickly grasp the core contributions of the study and appreciate its academic value. Text (Times New Roman, 11 pt, Tab 0.5 cm)

Recommendation

The **recommendation** section is an important component of a research paper, demonstrating how the findings can be applied in practice or used to inform future research. Recommendations should be based on the results and conclusions of the study, focusing on areas that can be developed, improved, or addressed more effectively.

Recommendations are typically divided into two categories:

1. **Practical or policy-related recommendations** – for implementation by organizations, institutions, or stakeholders.

2. **Recommendations for future research** – for exploring unresolved issues or expanding on the current study's findings.

Effective recommendations should be **clear, feasible, and relevant** to the context of the research problem, offering meaningful guidance for both practitioners and future scholars. Text (Times New Roman, 11 pt, Tab 0.5 cm)

References
References must adhere to the *APA 7th Edition* guidelines. All cited works should follow the *American Psychological Association* referencing style, particularly for articles in foreign languages.
Text (Times New Roman, 11 pt, Tab 0.5 cm)

Academic Articles:

Title
The title should be precise, concise, and accurately reflect the article's content and focus. Clearly specify the title: AJAJ - Writing Article Titles with Initial Capital Letters. (Times New Roman, 14 pt, Bold)

Author's name and surname
Full names of all authors, without including any titles, ranks, or honorifics. For multiple authors, separate the names with commas, and for the last author, use "and." (Times New Roman, 12 pt, Bold)

Full Address
Affair and country
E-mail:
Received xx/xx/20xx Revised xx/xx/20xx Accepted xx/xx/20xx
(Times New Roman, 11 pt, Italic)

Abstract
The abstract should succinctly summarize the article, including its objectives, methodology, key findings, and discussion, all within 300-400 words. The abstract must be written as a single, coherent paragraph. Text (Times New Roman, 11 pt, Tab 0.5 cm)

Keywords: Keyword, keyword, keyword
Authors should provide a minimum of three keywords and a maximum of five, reflecting the core themes of the study. (Times New Roman, 11 pt; 5 keywords/phrases

Main Text
The manuscript should be structured into an introduction, followed by the main body, with clear subheadings or sections to enhance readability. Authors' identities must not

be discernible from the text; any self-references should use the term "author(s)" instead of personal names.
Text (Times New Roman, 11 pt, Tab 0.5 cm)

Conclusion
Text (Times New Roman, 11 pt, Tab 0.5 cm)

Acknowledgments
This section should acknowledge sources of research funding, institutional or personal support, and any contributions from generative AI tools, if applicable**.**
Text (Times New Roman, 11 pt, Tab 0.5 cm)

References
References must adhere to the *APA 7th Edition* guidelines. All cited works should follow the *American Psychological Association* referencing style, particularly for articles in foreign languages.
Text (Times New Roman, 11 pt, Tab 0.5 cm)

Appendix
If applicable, supplementary materials or data may be included as appendices.
Text (Times New Roman, 11 pt, Tab 0.5 cm)

Highlight
Authors are requested to provide a concise summary that encapsulates the key arguments and significance of their article. This summary should not exceed 50 words and should effectively convey the central themes and contributions of the study, enabling readers to quickly understand the article's primary focus and relevance.

Graphical Abstracts
A graphical abstract is a single, concise, and pictorial summary of the article's main findings. It may be the concluding figure from the article or a specially designed image.

1. **Image Size:** Provide an image with a minimum resolution of **531 × 1328 pixels** (height × width) at **300 dpi**. For larger images, maintain the same aspect ratio (e.g., **200 × 500**).
2. **File Type:** Preferred formats include **TIFF, PNG, and JPEG**.
3. **Content:** Do not include additional text, outlines, or synopses outside the image. Any text or labels must be integrated within the image itself.

*** (Attached as a separate file) Name the file **Graphical Abstracts)**.

Figure X Text (Source: XXXXX) (Times New Roman, 10 pt, Align Text Left)

Figure 1 Asian Journal of Humanities and Social Innovation (AJHSI), 2024

Figure 1 Asian Journal of Humanities and Social Innovation (AJHSI), 2020

Table 1 Table Title

No.	Name	Mean
1	A	0.00
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Table 1 Experts specializing in the Nora performance

No.	Name	Expertise
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References

Cite references in APA 7th edition in the manuscript
Standard references and referencing methods in APA - American Psychological Association for Foreign Language

Reference example APA (American Psychological Association) 7th
Include the complete citation at the end of your paper in a **references** section. References are organized by the author's last name in alphabetic (A-Z) order. Use an hanging indent to separate each list item.

Basic Format:
Author, A. A., & Author, B. B. (Date). Title of the work. *Source where you can retrieve the work*. URL or DOI if available

Journal Article

Author(s). Note: List each author's last name and initial as Author, A. A., Author, B. B., & Author, C. C. Use an ampersand (&) before the final author's name. Read more from the APA Style website if there are 21 or more authors.

1. **(Year).**
2. **Title of the article.** Note: For works that are part of a greater whole (e.g. articles, chapter), use sentence case. Only the first word of the title and subtitle and proper nouns are capitalized.
3. ***Title of the Journal*,** Note: Italicize and capitalize each word in the journal.
4. ***Volume*** Note: Italicize the journal volume. If there is no issue, include a comma before the page range.
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7. **DOI (Digital Object Identifier)** Read more about DOIs from the APA Style wesbite.

Phathong, K., & Kenaphoom, S. (2024). Changes in Family Structure and Social Roles in Thai Rural Communities. *Asian Journal of Humanities and Social Innovation*, *1*(1), 1–15. https://doi.org/10.

Online News/Magazine Article

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2. **(Year, Month Date).** Note: You do not need to abbreviate the month.
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4. ***Title of the online newspaper or publication*.** Note: Capitalize each word in the publication and italicize. If the publication has an associated newly newspaper in print, use the newspaper article reference example .
5. **URL**

Phathong, K. (2021, December 30). Educational Inequality Between Urban and Rural Communities: A Case Study in Northeastern Thailand. https://so14.tci-thaijo.org/index.php/AJHSI

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3. ***Title of the book.*** Note: For works that stand alone (e.g. books, reports), italicize the title. Only capitalize the first word of the title and subtitle and any proper nouns.
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Phathong, K. (2021). *Analyzing Income Disparities and Social Mobility in Developing Economies.* Asian Journal of Humanities and Social Innovation Publishing.

Book Chapter with Editor(s)

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2. **(Year).**
3. **Title of the chapter.** Note: For works that are part of a greater whole (e.g. articles, chapter), use sentence case. Only the first word of the title and subtitle and proper nouns are capitalized.
4. **In Editor(s),** Note: List each editor's last name and initials as A. A. Editor, B. B. Editor, & C. C. Editors, include (Ed.) or (Eds.) in parentheses, and end with a comma.
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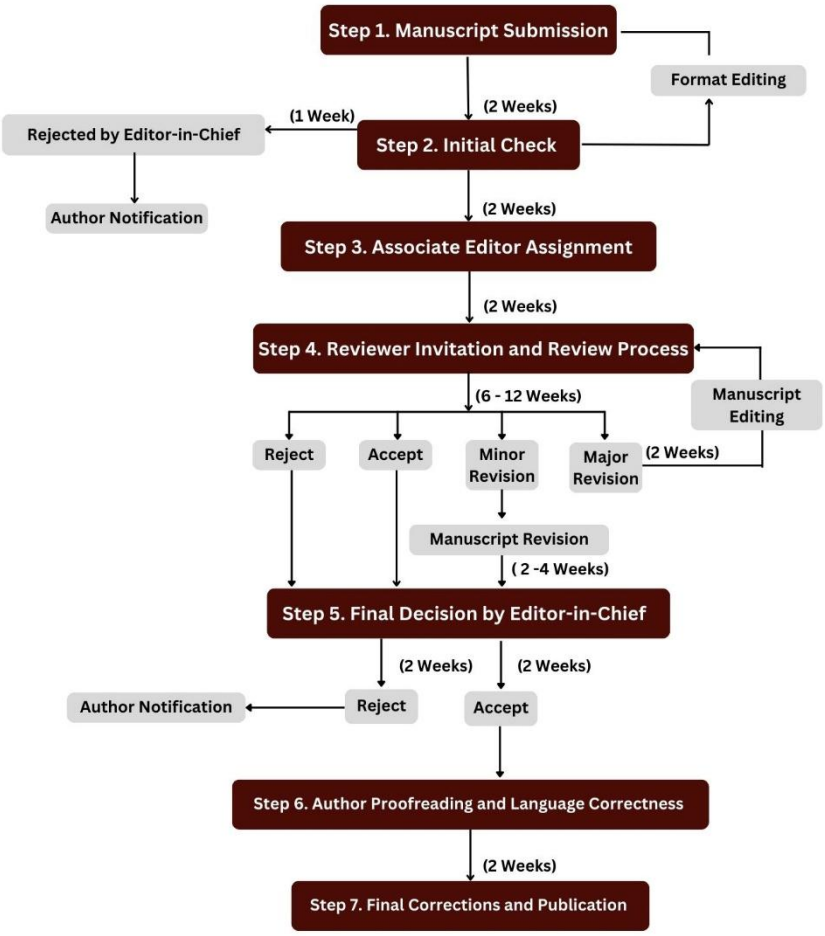
Hattha, K.(2012). Three southern border provinces, Thai history before the Sukhothai period to the present. In Thepthai,K. (Eds.), Dimensions of culture, history, and visions of the future: Restoring peace to the southern border provinces. (pp. 1-19). Ministry of Culture.

The process of reviewing articles in the Asian Journal of Humanities and Social Innovation



Peer Review Process

Step 1. Manuscript Submission

Authors begin by preparing their manuscripts according to the ACAJ format and submitting them through the user-friendly ThaiJO online system. This system ensures the smooth receipt, processing, and review of manuscripts by the AJAC editorial team. The streamlined process maintains order and consistency, enabling efficient review and publication.

Step 2. Initial Check (2 Weeks)

Upon receipt of the manuscript, the editorial team conducts an initial assessment to ensure that the submission aligns with the journal's scope and complies with publication

requirements. Manuscripts that fail to meet these criteria are rejected without further review. Submissions with a similarity index exceeding 30% are also rejected at this stage. Additionally, the editorial team also checks the article's formatting and citation style according to the specified author guidelines. Manuscripts that do not meet these requirements are returned to authors for reformatting and resubmission. If approved, the manuscript proceeds to the review stage.

Step 3. Associate Editor Assignment (2 Weeks)
Following the initial review, the Editor-in-Chief assigns an Associate Editor with relevant expertise to oversee the review process. The Associate Editor identifies and invites three qualified reviewers with expertise in fields related to the manuscript's scope. If the initial invitations are not accepted, additional reviewers are invited. This process typically takes 2 weeks**.**

Step 4. Reviewer Invitation and Review Process (6-12 Weeks)
ACAJ employs a double-blinded review system with a minimum of 3 expert reviewers. Authors' names, affiliations, email addresses, and acknowledgments are anonymized by the editor before inviting reviewers. Invited reviewers should be affiliated with institutions distinct from the corresponding author. This step generally takes 6-12 weeks.

Step 5. Final Decision by Editor-in-Chief (2-4 Weeks)
The Editor-in-Chief, along with the Associate Editors, reviews the evaluation reports, comments, and recommendations provided by the reviewers. A final decision is made, which may be one of the following: Accept Submission, Revisions Required, Resubmit for Review, or Decline Submission. The final decision is communicated to the author via the ThaiJO system. If the decision is "Revisions Required" or "Resubmit for Review," the author has 2-4 weeks to submit the revised manuscript.

Step 6. Author Proofreading and English Editing (2 Weeks)
The author(s) engage in proofreading and ensure language accuracy through a professional editor. They must respond to queries from the language editor and improve any low-quality figures. The corresponding author signs the copyright transfer form on behalf of all co-authors to ensure completion within approximately 2 weeks.

Step 7. Final Corrections and Publication (2 Weeks)
After the final manuscript is submitted, it is sent to the Assistant Editor for formatting and article design in accordance with the journal's guidelines. A CrossRef DOI is assigned, and the article is published on the journal's website. This final stage typically takes 2 weeks.