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Editorial Office: Academic Division
Rattanakosin International College of Creative Entrepreneurship (RICE)
Rajamangala University of Technology Rattanakosin (RMUTR), Thailand
96 Moo 3, Thanon Phutthamonthon Sai 5, Salaya, Nakhon Pathom 73170
Phone: + 66 2441 6000 ext 2790
Website: https://so12.tci-thaijo.org/index.php/RJCM

RICE Journal of Creative Entrepreneurship and Management (RJCM)
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About Us

RJCM is an international journal for academics and scholars at the higher education level to communicate and share their viewpoints and academic work with fellow professionals in the areas of creative entrepreneurship and management as practiced in their fields of specializations in social sciences. Currently, it is under the supervision of Thai-Journal Citation Index (TCI).

RJCM publishes three numbers per volume annually and welcomes contributors to submit their manuscript in January, May, and September of each year. We accept both academic and research papers in social sciences from contributors. The papers are double-blind reviewed by three independent reviewers in each volume and published online-plus-print thrice a year.

The length of the unformatted manuscript in WORD can be 15-25 pages in length including references. The contents of the manuscript should include (1) a title with the author's name, affiliate, email address and telephone contact, (2) an abstract of 150 words with 3-5 keywords, (3) an introduction, (4) a rationale and background of the study, (5) research objectives, (6) research methodology, (7) data collection procedure, (8) data analysis, (9) results and discussion, (10) research limitation (if any), (11) conclusion, (12) acknowledgement(s) (if any), (13) the author's biography of about 50-80 words, 14) references, and (15) an appendix or appendices (if any).

All interested readers and paper contributors please contact Editor-in-Chief 2: Ruja Pholsward, Ph.D., Associate Professor, Rattanakosin International College of Creative Entrepreneurship (RICE), Rajamangala University of Technology Rattanakosin (RMUTR), <rujajinda@gmail.com>, <ruja.pho@rmutr.ac.th>. Please kindly note that website submission will be advised after the first editorial screening.

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Office of Chief Editors
Academic Division
Rattanakosin International College of Creative Entrepreneurship (RICE)
Rajamangala University of Technology Rattanakosin (RMUTR)

Contact Chief Editors
<nuttapong.jot@rmutr.ac.th>
<ruja.pho@rmutr.ac.th>, <rujajinda@gmail.com>
<rgrunwell777@gmail.com>

RJCM Formatter and Website Support
Pornwipha Singporn
<porwiphaa@gmail.com>
Academic Division
King Mongkut's University of Technology North Bangkok
Nonthaburi, Thailand

RJCM Webmaster
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Note from the Editors of *RJCM* Volume 6 Number 3

Dear *RJCM* Readers,

You are now with our third issue in Year 6 of *RICE Journal of Creative Entrepreneurship and Management* (*RJCM*). This issue contains six articles in the areas of management of customer relationship and product prototype development, cultural tourism, and educational management and applications in digital technology.

In this issue, we have two papers on management of customer relationship and product prototype development: *"Customer Relationship Management Strategies among Fresh Coffee Shop Entrepreneurs in Bangkok Metropolitan Area"* (Article 1), and *"The Development of a Coconut Shell Product Prototype Based on Spiritual Beliefs for Cultural Value Enhancement: A Case of Samut Sakhon Province"* (Article 2). One paper reports a case of cultural tourism: *"Guidelines for Promoting Cultural Tourism: A Case of Thai Buffalo Conservation Village, Si Prachan District, Suphan Buri Province"* (Article 3). Three papers deal with educational management and digital technology: *"Degrees and Promoting Factors of Student Engagement at Bangkok Christian College"* (Article 4), and *"Online Learning Resources Design for Video Content Production"* (Article 5), followed by *"Universal Design Concept with Machine Learning for Developing Special Education"* (Article 6). We also have an essay on sharing professional viewpoints on the issue of *Effective Management of Support Policies for Rural Teachers in China*. These papers report interesting findings and current issues in the areas under study.

Our paper contributors in the third issue of 2025 are researchers from six higher education institutions in the central part of Thailand, plus one from the northern region: (1) Kasetsart University, (2) Srinakharinwirot University, (3) Ramkhamhaeng University, (4) Rajamangala University of Technology Rattanakosin, (5) Bansomdejchaopraya Rajabhat University, (6) Bangkok Christian College, and (7) University of Phayao.

The editors hope that the research findings and current developments reported in these papers will be interesting to both researchers and practitioners in similar fields of study. The *RJCM* editorial team and the authors would appreciate our readers' comments about these articles, if possible. We always welcome contributions from those who may wish to be part of our *RJCM* network.

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Address from RICE Director

Nuttapong Jotikasthira, Ph.D.
Rattanakosin International College of Creative Entrepreneurship (RICE)
Rajamangala University of Technology Rattanakosin (RMUTR), Thailand

Dear *RJCM* Readers,

The current year 2025 has led us to encounter the high capacity of AI in helping students and scholars to think, write and produce academic work at different levels. We are also in need of a new definition of *plagiarism*—originally confined to copying human work. School teachers and university professors have to think urgently how they can convince their students and junior colleagues to use AI as an assistant, not as a master or a torch holder to show an easy path to them—ranging from handling assignments as required in the curriculum to delivering research proposals, final research reports, dissertations, or even the academic-rank qualifying papers. It is certain that scholars, educators, and practitioners rely more on AI as smart assistants to reach their targets in all fields of study and work. However, we cannot deny that professionals who rely on AI to execute their work need to discipline themselves for self-respect in using AI to help them produce documents or professional writing, and without shame claim the product of human counterfeit as their own.

Since the release of ChatGPT-4 in late 2023 and recently DeepSeek in early 2025, we have seen more pervasive effects of AI writing on the finished products of academic work that qualify for specific gains like a pass level, a degree, an award, a publication, and even qualifying work for academic ranking. At this point, we perhaps cannot jump to a conclusion that academic work with AI footprints should be classified as cybercrimes or fraud cases to reach the high level of the academic ladder. Our big concern, in fact, rests upon how we can reason with those who blindly rely on their AI assistant to do the work for them, to halt for self-esteem and particularly conscience in reminding themselves of how they can justify ownership of work that is not their brainchild. This might be too untimely to figure out possible solutions at this moment, simply because scholars, researchers, and educational practitioners would need time to experiment with possible strategies for learning development at the re-paradigm level. We can now only safeguard ourselves and our academic environment not to be too infested with human counterfeit effects as apparent in the finished writing products.

All of the above are my matters of concern for academic well-being of all stakeholders. Let me say again that I feel grateful to all the authors for contributing their work to our academic communities. Your academic/research papers within the framework of professional ethics in different fields of creative entrepreneurship and management certainly support the growth of *RJCM* and you as authors always have our journal team's appreciation along with you.

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Customer Relationship Management Strategies among Fresh Coffee Shop Entrepreneurs in Bangkok Metropolitan Area

Anuchit Khluinak [1]
Duenden Wasunan [2]
Catthaleeya Rerkpichai [3*]

[1-3]Faculty of Management Science
Bansomdejchaopraya Rajabhat University, Bangkok, Thailand
* Corresponding author
[1] Email: anuchit.kn@gmail.com
[3] Email: Catthaleeya.re@gmail.com

Abstract

This research aimed to (1) identify the patterns of customer relationship management (CRM) strategies of fresh coffee shop entrepreneurs in Sathorn District, Bangkok, (2) compare the characteristics of CRM strategies of entrepreneurs by business size, and (3) analyze the correlation between CRM strategies and building customer relationships, referring to the conceptual framework of Lawson-Body & Limayem (2004), which consists of seven components: customer tracking, customer relationship, communication management, understanding customer expectations, empowerment, partnership, and personalization. The research method was qualitative using semi-structured interviews that were validated for content validity by five experts for the consistency of each question item with the definitions in the conceptual framework, with the average IOC index of the entire interview at 0.90. The data were collected from 21 fresh coffee shop entrepreneurs on a voluntary basis in Sathorn District, Bangkok, regarding business size (small, medium, large) using CRM strategies, and seven components on customer relationships building under study. The data were analyzed using content analysis through the ATLAS.ti program to identify main codes and sub-codes and to analyze structural and content linkage. The research found that small coffee shops emphasized closeness and flexibility in customer care, while medium-sized ones emphasized friendliness, the use of historical data, and proactive communication. Large coffee shops used full-scale CRM technology in terms of Big Data, AI, Omni-channel, and employee empowerment, as well as precise personalization, resulting in the ability to meet needs and build sustainable customer relationships. It was concluded that CRM strategies of fresh coffee shops differ according to business size, but all aim to build long-term customer relationships through appropriate strategies in the business context.

Keywords: *Customer relationship management strategy, fresh coffee shop, entrepreneur, customer relationship*

1. Rationale of the Study

The fresh coffee shop business in Bangkok has grown rapidly amid intense competition and continuously changing consumer behavior. Building sustainable relationships with customers has therefore become the heart of success. Customer Relationship Management (CRM) strategy is the main tool that entrepreneurs use to respond to customer needs and retain the customer base (Siripipatthanakul, 2022).

However, the implementation of CRM strategies in each shop clearly differs according to the size of the business in terms of approach, techniques, and level of technology use. This leads to the question of which model is appropriate and truly effective in building customer relationships in each business context (Euromonitor, 2016).

From this challenge, the researchers aimed to investigate the patterns and correlation of CRM strategies with customer relationship building by comparing them by size of fresh coffee shops in Bangkok, in order to propose appropriate and practical CRM management guidelines for each business size.

2. Research Objectives

There were three objectives in this study:

(1) To identify the patterns of customer relationship management strategies of fresh coffee shop entrepreneurs in Sathorn District, Bangkok.

(2) To compare the characteristics of CRM strategies of entrepreneurs in each business size.

(3) To analyze the linkage of CRM strategies with customer relationship building of entrepreneurs in each business size.

3. Research Methodology

This research was conducted in a systematic process, divided into three main steps. It began with studying theories, concepts, and related research to establish the conceptual framework of the study, especially the concept of customer relationship management strategies by Lawson-Body & Limayem (2004), which consists of seven components of customer relationships building: (i) Customer Prospecting, (ii) Relations with Customers, (iii) Interactive Management, (iv) Understanding Customer Expectations, (v) Empowerment, (vi) Partnerships, and (vii) Personalization. The researchers considered these components as currently valid and adaptable for the analytical framework in every step of this research. In the second step, the researcher conducted field data collection from fresh coffee shop entrepreneurs in Bangkok, focusing on the Sathorn area, which is a hub of small, medium, and large coffee shops (Bangkok Bank, 2015; Department of Business Development, Ministry of Commerce, Thailand, 2021). The sample was selected using purposive sampling on a voluntary basis; they were entrepreneurs with proper qualifications, namely being the business owner or a senior executive who plays a role in determining CRM strategies and has operated the business for not less than one year.

The final step involved data collection using a semi-structured interview developed from the CRM framework in all seven aspects to obtain in-depth information from the real experiences of the entrepreneurs. The obtained data were analyzed using content analysis through the ATLAS.ti program to extract key issues regarding the strategies used in managing customer relationships in the context of small, medium, and large fresh coffee shop businesses.

4. Scope of the Research

4.1 Sources of Data

4.1.1 Population

The population includes business owners who operate fresh coffee shop businesses or senior executives, such as managing directors or managers, who are stakeholders in determining customer relationship management strategies. The shops are located in the Sathorn district of Bangkok and consist of three sizes: small, medium, and large. The exact number of the population is unknown (Bangkok Bank, 2015; Central Population Registration Processing Center, 2017; Department of Business Development, Ministry of Commerce, Thailand, 2021).

4.1.2 Sample Group

This research uses a sample group of 21 fresh coffee shop entrepreneurs in Sathorn District, Bangkok. The research criteria follow a qualitative research approach, which emphasizes depth over breadth of data (Marshall et al., 2013; Patton, 2015), by focusing on the strategies, practices, and perspectives of entrepreneurs with real experience in specific contexts. Therefore, purposive sampling was used, and the number of samples was determined based on the principle of data saturation, which is a standard approach for defining sample size in qualitative research. According to Guest, Bunce & Johnson (2006), "Interviewing groups of approximately 6 to 12 participants is usually sufficient to achieve data saturation in each group."

To align with the research objectives, the researchers applied the following criteria:

(1) Fresh coffee shops must have a clear physical location within Bangkok.

(2) The shop must have been operating for not less than one year to ensure that there is a certain level of experience in customer relationship management.

(3) The shop owner must be willing to cooperate in providing in-depth information through interviews.

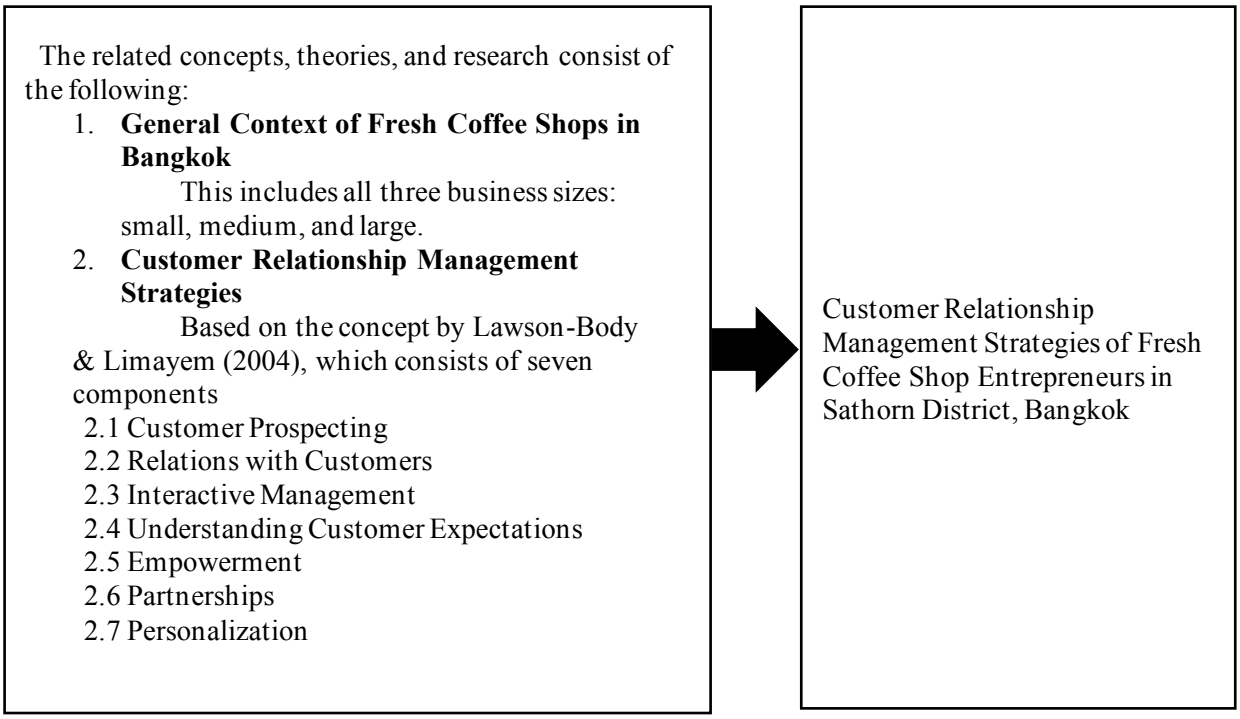
The sample group consisted of 21 fresh coffee shops categorized by business size. The business size classification criteria were adapted from the guidelines of the Office of Small and Medium Enterprises Promotion (OSMEP, 2022) and aligned with the classification criteria of the Department of Business Development, Ministry of Commerce, Thailand (2021).

Table 1: Business Size Classification and Sample Group Details

Business Size	Number of Samples	Data Characteristics
Small	7	Shops with no more than 20 seats and no more than 5 employees.
Medium	7	Shops with 21-50 seats and 6-15 employees.
Large	7	Shops with more than 50 seats and more than 15 employees.

5. Conceptual Framework

Figure 1: Conceptual Framework



6. Data Collection Instrument

The instrument used for data collection was a semi-structured open-ended interview to identify the customer relationship management strategies of fresh coffee shop entrepreneurs in the Sathorn district of Bangkok. The framework for constructing the interview was based on the seven CRM components of Lawson-Body & Limayem (2004), which consist of (i) Customer Prospecting, (ii) Relations with Customers, (iii) Interactive Management, (iv) Understanding Customer Expectations, (v) Empowerment, (vi) Partnerships, and (vii) Personalization.

7. Data Collection Instrument

The instrument used for data collection in this study was a semi-structured open-ended interview. The purpose was to explore the customer relationship management strategies of fresh coffee shop entrepreneurs in Sathorn District, Bangkok based on seven components of CRM proposed by Lawson-Body & Limayem (2004). These components include: Customer Prospecting, Relations with Customers, Interactive Management, Understanding Customer Expectations, Empowerment, Partnerships, and Personalization. The interview was designed to elicit in-depth responses related to these seven aspects from entrepreneurs of varying business sizes.

To ensure the quality of the research instrument, the researcher developed the interview questions based on the conceptual framework of CRM strategies as shown in Figure 1. The purpose was to comprehensively gather qualitative data that accurately reflects the entrepreneurs' perspectives on CRM in their business context. Content validity was evaluated by five experts in marketing, who assessed the consistency of each interview item with the theoretical definitions provided in the framework. The Index of Item-Objective Congruence (IOC) was obtained for this purpose with the IOC scores of individual questions between 0.80 and 1.00, indicating a "highly appropriate" level. The average IOC score for the entire interview instrument was 0.90, confirming that the interview was of good quality and suitable for collecting reliable and meaningful qualitative data within the context of fresh coffee shop businesses.

8. Data Collection Procedure

The researchers prepared an official request letter from the Faculty of Management Science,
Bansomdejchaopraya Rajabhat University, to contact owners or managers of fresh coffee shops in Sathorn District, Bangkok, with the interview form attached. Then, phone calls were made to schedule appointments and confirm the date and time for each interview before proceeding with on-site data collection.

9. Data Analysis

The basic data of small, medium, and large fresh coffee shops in Sathorn District, Bangkok were analyzed using percentage, mean, and standard deviation. The qualitative data obtained from the interviews were analyzed by content analysis. Coding was conducted, and the relationships between codes were analyzed using the ATLAS.ti program. The data were categorized into three groups based on business size, and the linkages between sub-codes and main codes were analyzed through relationships such as "is part of," "is associated with," and "it causes."

10. Research Findings

This section reports Customer Relationship Management Strategies (CRM) regarding patterns and characteristics by business size, followed by Analysis of the Linkage between CRM Strategies and Customer Relationship Building.

Customer Relationship Management Strategies

The findings regarding customer relationship management strategies of fresh coffee shop entrepreneurs in Bangkok were obtained by studying related concepts, theories, and previous research. The conceptual framework of Lawson-Body & Limayem (2004) was used in presenting the findings in three parts as follows:

Part 1 presents the status of entrepreneurs operating fresh coffee shop brands in Bangkok.

Part 2 focuses on the study of CRM strategy patterns of fresh coffee shop entrepreneurs in Sathorn District, Bangkok, categorized by business size.

Part 3 analyzes the linkage between CRM strategies and customer relationship building.

Table 2: Analysis of the Status of Fresh Coffee Shop Brand Entrepreneurs in Bangkok

No.	Coffee Shop Brand	Business Size	Interviewee	Initial Classification Criteria
1	Alphabet Café & Bar	Small	Shop Owner	No registered capital / Small-scale operation
2	The Local Roast	Small	Shop Manager	Private individual shop / Owner-managed
3	Roastology	Small	Head Barista	No network / Single branch
4	Pacamara Boutique Coffee	Small	Entrepreneur	SME business / Specialty coffee
5	Gallery Drip Coffee	Small	Co-owner	Artistic style coffee / Stand-alone shop
6	Factory Coffee	Small	Barista in charge	Small-scale business
7	Coffee & Tree	Small	Owner	Personal business / No branches
8	Café Amazon	Medium	Branch Manager	Semi-franchise network / Capital 10–100 million THB
9	Mezzo Coffee	Medium	Marketing Executive	Medium-level registered capital / Multiple branches
10	Au Bon Pain	Medium	Area Manager	Domestic network expansion business
11	The Coffee Club	Medium	Store Director	Regional chain / Located in department stores

12	Tom N Toms Coffee	Medium	Business Development Officer	Korean chain in Thailand / Medium capital level
13	Café de Golfio	Medium	Co-owner	Medium registered capital / Domestic business
14	D'oro Coffee	Medium	Head of Franchise Development	Medium-sized chain / Owns coffee roasting facilities
15	Starbucks	Large	Regional Manager	Global chain / High registered capital
16	True Coffee	Large	Marketing Manager	TRUE Group affiliate / Nationwide network
17	Dean & Deluca	Large	Store Executive	Foreign investment / Premium chain
18	Black Canyon	Large	Director of Administration	Large Thai chain / International branches
19	Coffee World	Large	Brand Manager	International chain / High capital
20	Tim Hortons	Large	Business Strategy Officer	Canadian chain / Operated in Thailand by large group
21	Gloria Jean's Coffees	Large	Director of Thai Franchise	Australian chain / Global-level business

Customer Relationship Management Strategy Patterns of Fresh Coffee Shop Entrepreneurs in Bangkok by Business Size

CRM Strategies in Small- and Medium-Sized Fresh Coffee Shops

Table 3: CRM Strategy Patterns in Small- and Medium-Sized Fresh Coffee Shops in Bangkok

CRM Strategy	Operational Pattern in Small-Sized Businesses
Customer Prospecting	Remembering from experience or manual recording
Relations with Customers	Owner talks directly and maintains friendly interaction
Interactive Management	Using personal LINE or a small Facebook Page
Understanding Customer Expectations	Observing and directly asking customers
Empowerment	Owner makes all decisions independently
Partnerships	No creation of business alliances

CRM Strategy	Operational Pattern in Medium-Sized Businesses
Customer Prospecting	Using POS systems or recording with Excel
Relations with Customers	Organizing customer relationship activities on certain occasions
Interactive Management	Systematic use of LINE OA, Facebook, and Instagram
Understanding Customer Expectations	Conducting customer feedback surveys periodically
Empowerment	Delegating basic decision-making authority to staff
Partnerships	Having community partners such as food trucks or neighboring shops
Personalization	Using order history to offer personalized promotional menus

CRM Strategies in Large-Sized Fresh Coffee Shops

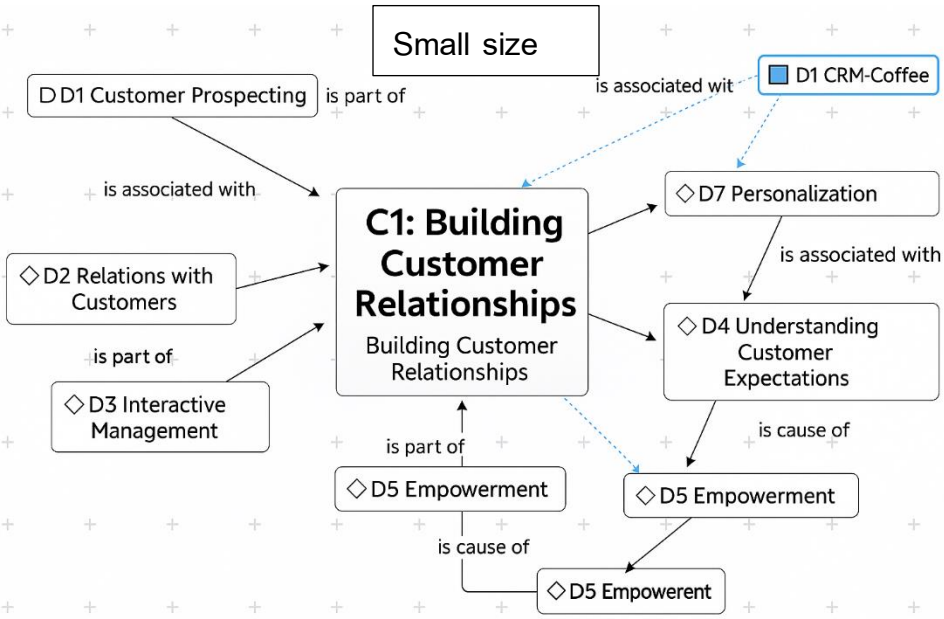
Table 4: CRM Strategy Patterns in Large-Sized Fresh Coffee Shops in Bangkok

CRM Strategy	Operational Pattern in Large-Sized Businesses
Customer Prospecting	Using automated CRM systems to analyze customer data in real time
Relations with Customers	Providing membership systems, point cards, and organizing events
Interactive Management	Communicating through multiple channels (OmniChannel)
Understanding Customer Expectations	Using satisfaction analysis systems
Empowerment	Implementing SOPs and continuous staff training
Partnerships	Partnering with brands for cross-channel promotions
Personalization	Using Big Data and AI to analyze and offer personalized product choices

Analysis of the Linkage between CRM Strategies and Customer Relationship Building

From the diagram, the researchers identified "Building Customer Relationships" (C1) as the main code, which serves as the core element of this analysis. It acts as the dependent variable that the researchers aimed to study, specifically to understand how each aspect of CRM strategies influences the development of relationships between coffee shops and their customers. This main code is positioned at the center of the diagram and is linked to various sub-codes that illustrate different types of relationships. The findings are based on business size as follows:

Figure 2: Customer Relationship Management Strategies of Small-Sized Fresh Coffee Shop Entrepreneurs in Bangkok



As shown in Figure 2, the sub-code D1 Customer Prospecting is linked to the main code with the relationship "is part of," meaning that collecting customer data is an essential component of relationship building, such as remembering customers' favorite menus or using short questionnaires. D2 Relations with Customers is linked to C1 with "is associated with," indicating that personal relationships between the owner and the customer, such as greeting, talking, and friendliness, affect customers' long-term attachment. D3 Interactive Management is linked to D2 with "is part of," showing that communication methods such as using a personal LINE account or a small Facebook Page are a way to build relationships with customers. D4 Understanding Customer Expectations is linked to C1 with "is associated with," meaning that observing behavior and asking customers directly helps understand actual needs and allows products/services to be adjusted accordingly. D5 Empowerment appears in three positions in the figure, linked to C1 with "is part of" and "is cause of," and also internally linked. This shows that when the shop owner has full authority to make decisions in responding to customers, it creates flexibility and quick service, which is a key causal factor of customer relationship in small coffee shops. D7 Personalization is linked to C1 and D4 with "is associated with," reflecting personal service, such as remembering favorite menus or customizing taste according to the customer's preference, which helps customers feel special and promotes long-term relationships. From the relationship figure, the researchers concluded that building customer relationships in small coffee shops has distinct characteristics from

medium or large businesses. The key direct influencing factors are Empowerment, Relations, and Personalization. Small shops often use closeness, memory, and owner-led management as tools in relationship building. Relationships between some codes, such as D3 → D2 → C1, reflect a step-by-step strategy structure, where D3 (communication) is one method of building D2 (relationship), which affects C1 (overall relationship).

Figure 3: Customer Relationship Management Strategies of Medium-Sized Fresh Coffee Shop Entrepreneurs in Bangkok

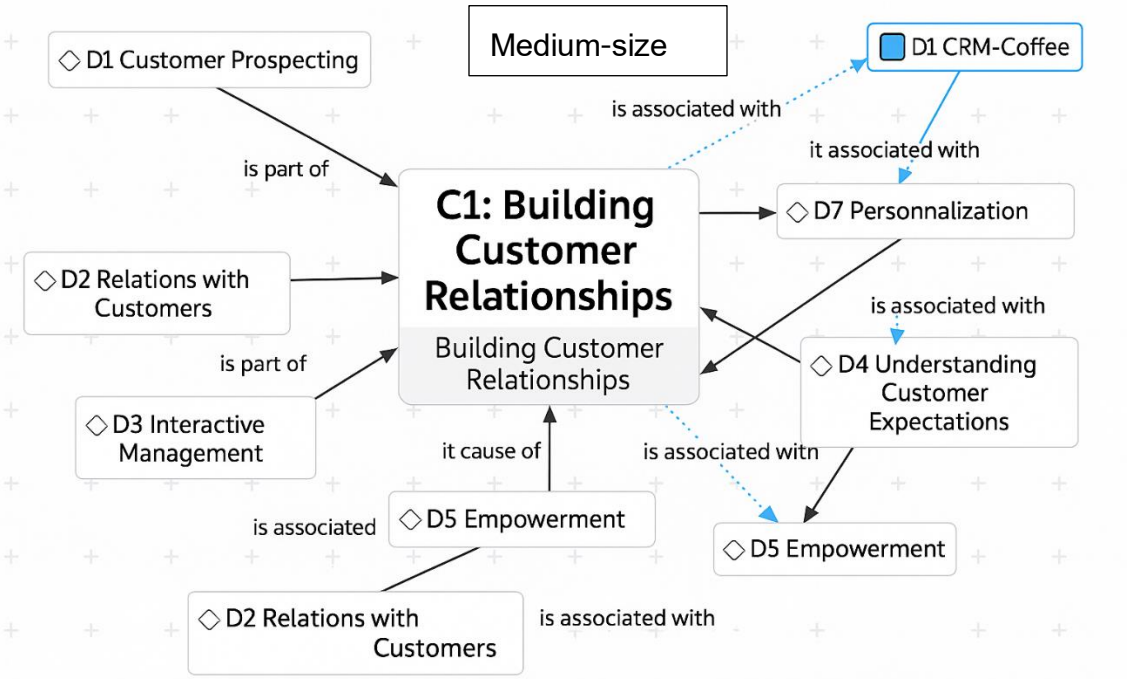


Figure 3 indicates that D1 Customer Prospecting, the entrepreneurs used POS systems or Excel recording systems to store customer data. The researchers found that this code connects to the main code as "is part of," which reflects that having customer database is an essential component in planning CRM strategies. D2 Relations with Customers is a code that has relationships of both "is part of" and "is associated with" the main code. It shows that having customer relations department or organizing activities with customers is an important part in building sustainable relationships, and also relates to D3 (Interactive Management). D3 Interactive Management, using digital channels, such as LINE OA, Facebook, or IG to interact with customers. This code connects to D2 as "is part of" and indirectly to the main code C1. As for D4 Understanding Customer Expectations, businesses used satisfaction surveys to understand customer needs. This code is "associated with" C1 and connects to D5 with "is cause of" relationship, which reflects that understanding customers as the foundation of development and empowerment in services. D5 Empowerment is a dimension that the researchers found to have relationships in many dimensions, both "is part of" (as a part of

relationship building), "is cause of" (as a factor causing strong relationships), and "is associated with" with many codes, especially with D4 and D2. Empowering front-line staff helps provide fast, flexible services and respond to customers in a timely manner. And finally, D7 Personalization is a code that "is associated with" the main code. It reflects that designing promotions or services for each individual customer, such as using historical data to recommend products, plays a psychological support role in building impression and special feeling for customers.

Figure 4: Customer Relationship Management Strategies of Large-Sized Fresh Coffee Shop Entrepreneurs in Bangkok

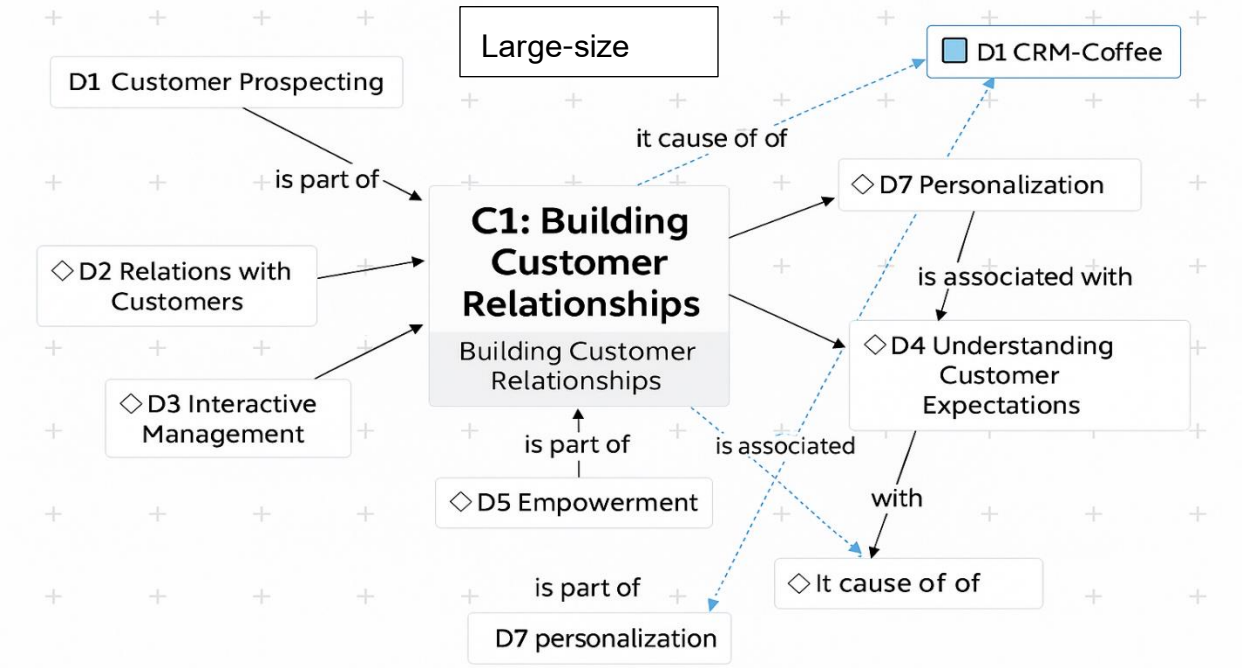


Figure 4 reveals that D1 Customer Prospecting means the strategy of tracking and collecting customer data, which large-sized fresh coffee shop entrepreneurs tend to use CRM systems with automatic functions to collect purchasing behavior, membership data, and customer trend analysis. In the diagram, this code has the relationship "is part of" with C1, meaning it is one component of building good relationships. D2 Relations with Customers represents the implementation of building relationships with customers through membership systems, customer relationship activities, and deep relationship management. This code has both "is part of" relationship with C1 and connects to D3 Interactive Management. D3 Interactive Management means interactive communication, where large-sized entrepreneurs use omnichannel systems, including Call Center, LINE OA, Mobile App, Website, and integrated social media, to ensure continuous and responsive communication. This code is part of D2 and indirectly related to the main code. D4 Understanding Customer Expectations is the

process of understanding customers through surveys such as CSAT (Customer Satisfaction Score), NPS (Net Promoter Score), or text analysis. This code has the "is associated with" relationship with the main code C1 and is directly related to D5. D5 Empowerment is giving authority to employees to make decisions in responding to customers, such as in complaints or requesting additional information, by having Standard Operating Procedures (SOPs) and systematic training. This code has both "is associated with" relationship with C1 and "is cause of" with D4. The researchers interpreted that when employees are empowered to make appropriate decisions, it helps better meet customer expectations and leads to strong relationships. D7 Personalization reflects customized services, where large organizations use Big Data and AI to design customer experiences that match their needs, particularly sending personalized promotions or recommending favorite menu items. This code connects to C1 with the relationships "is part of" and "is cause of," showing that personalized service has a direct effect on building customer relationships.

11. Conclusion and Discussion with Previous Research

The research results on customer relationship building in three business sizes of fresh coffee shops—small, medium, and large—were analyzed through the main code (C1: Customer Relationship) and the related subcodes: D1: Customer Prospecting, D2: Relations with Customers, D3: Interactive Management, D4: Understanding Customer Expectations, D5: Empowerment, and D7: Personalization.

11.1 Results of the Study on Customer Relationship Building in *Small-Sized* Fresh Coffee Shops

It was found that strategies used in small fresh coffee shops had distinctive characteristics that emphasized "closeness" and "flexibility," which resulted from direct management by the shop owner. Customer data tracking (D1), such as remembering favorite menus or using short surveys, was a crucial part of building quality relationships. This is supported by the research of Paiboon & Pongsathornwiwat (2021), which indicated that customer data management in small coffee shops helps determine purchasing behavior and can lead to effective sales increases.

Informal and close relationships (D2) between shop owners and customers—such as greeting and remembering names—played an important role in long-term brand attachment. Badrul (2021) found that interpersonal factors significantly affected customer loyalty in the context of Thai coffee shops.

For communication (D3), using channels like LINE or a Facebook Page to communicate closely with customers was a strategy that enhanced trust and engagement. Digital Marketing for Asia (2021) stated that LINE is a key tool in marketing communications in Thailand, especially at the personal level.

Understanding customer expectations (D4), such as observing behavior and directly asking for opinions, helped improve products and services effectively. The research of Doukoure & Supinit (2015) confirmed that measuring expectations and service quality using

SERVQUAL was related to customer satisfaction in coffee shops.

Regarding empowerment (D5), the research found that when shop owners could make their own decisions—for example, handling urgent problems or adjusting services to individual customers—it led to high flexibility and contributed to sustainable relationship building. This aligns with the work of Siripipatthanakul (2022), who found that empowerment in service processes affected purchase intention and customer satisfaction in online channels.

Lastly, personalization (D7), such as remembering customers' regular menus, adjusting flavors, or offering individualized promotions, had a direct effect on the feeling of attachment and customer loyalty, especially in small shops where customers received personal attention. Panya (2024) supported that using AI to create personalized experiences in beauty services significantly increased customer loyalty, and this concept can be effectively applied in the coffee shop business context.

As reported, the success of CRM strategies in small coffee shops does not lie in advanced technological systems but arises from the behavioral components of the shop owner, namely understanding customers, attentiveness, and responsive service, which are the heart of long-term relationships between customers and the shop.

11.2 Results of the Study on Customer Relationship Building in *Medium-Sized* Fresh Coffee Shops

The research findings on customer relationship building in medium-sized fresh coffee shops revealed unique characteristics that emphasize close and friendly relationships with customers through the use of historical data, proactive communication, and personalized services. The data showed that Customer Prospecting (D1) indicated that most entrepreneurs used POS systems or Excel-based data recording to store customer data. Such information was considered a fundamental structure for planning CRM strategies in areas, such as promotions, marketing campaigns, and further personalization. This corresponds with the research of Paiboon & Pongsathornwiwat (2021), which stated that systematic customer data management allows small businesses to analyze behaviors and maintain effective customer relationships.

As for Relations with Customers (D2) and Interactive Management (D3), both highlighted the importance of having formal and informal communication channels, such as LINE OA, Facebook, or IG, to foster continuous interaction. D2 was linked with the main CRM code both structurally ("is part of") and semantically ("is associated with"), indicating that human relationships remain central to CRM. The study by Multiable (2024) supports this idea by stating that two-way communication and quick responses through digital channels are key drivers of customer loyalty in modern coffee shops.

Regarding Understanding Customer Expectations (D4), entrepreneurs collected satisfaction data via surveys which led to service improvements and innovations that foster a sense of "participation" with the brand. When such data were used to improve services or to empower staff to care for customers with flexibility (D5: Empowerment), it further reinforced the creation of long-term sustainable relationships.

Additionally, Personalization (D7) was found to have a psychological impact in creating a sense of "specialness" for customers. Personalized promotions, product recommendations based on purchase history, and greetings on special occasions, particularly birthdays had significant effects on customer impressions and repeated behavior. The research of Piraintorn & Booranavitayaporn (2023) supports this point by stating that the ability to offer what customers truly want enables medium-sized coffee shops to compete sustainably in the highly competitive urban market.

As seen, the success of CRM strategies in medium-sized fresh coffee shops lies in a customer relationship management style that emphasizes "humanity" over systems. Despite lacking complex CRM platforms, smart use of data, close communication, and a sense of friendliness and personalization all contribute to the development of long-term customer relationships in an efficient and sustainable manner.

11.3 Results of the Study on Customer Relationship Building in *Large-Sized* Fresh Coffee Shops

The research results on customer relationship building in large-sized fresh coffee shops in Sathorn District, Bangkok revealed unique characteristics that emphasized integrated management using technology and CRM strategies systematically and efficiently. It was found that customer tracking and data collection using CRM systems with automated functions—such as purchase behavior analysis, membership registration, and customer trend analysis—are essential foundations for initiating relationships. The study of Mustak, Hallikainen & Laukkanen (2024) supports that the use of machine learning in analyzing user-generated content helps to understand customer needs more deeply and accurately, leading to more effective CRM planning. D2: Relations with Customers involves continuous relationship building with customers through membership activities and CRM systems designed for long-term interaction. D3: Interactive Management refers to integrated communication through various channels (omnichannel), such as call centers, LINE OA, applications, websites, and social media. Data from all these channels are gathered and analyzed together to ensure timely and accurate responses to customer needs. Gerea, Gonzalez-Lopez & Herskovic (2021) stated that an omnichannel strategy that connects customer experiences at every touchpoint is key to sustainable long-term customer management. D4: Understanding Customer Expectations is conducted through satisfaction and expectation measurement tools and customer feedback, serving as a guideline for understanding and continuously improving services. D5: Empowerment involves granting decision-making authority to frontline employees in handling immediate problems and providing customer information. There are standardized operating procedures (SOPs) and systematic training, which aligns with the study of Hancer, Gazzoli & Park (2010) who found that empowering employees to make decisions helps increase customer satisfaction and enhance service quality impressions. D7: Personalization refers to personalized service delivery through the use of big data and AI, by designing offers and experiences that align with the specific needs of each customer. The research of Katikar (2024) shows that AI-driven personalized services can significantly enhance marketing strategy

efficiency and increase customer lifetime value, while also cautioning about the importance of ethical considerations in personal data management.

Overall, the success of CRM strategies in large-sized fresh coffee shops is characterized by comprehensive customer relationship management, emphasizing continuous communication, deep customer data analysis, and personalized service aligned with the expectations of modern consumers.

12. Suggestions and Future Research

Based on the obtained findings, fresh coffee shop entrepreneurs of all business sizes need to pay close attention to customer relationship management (CRM) strategies to both attract and maintain their customers' satisfaction and loyalty. All seven components in building customer relationships should deserve close review from time to time in a service cycle as seen appropriate.

As for future research, it would be interesting to investigate why D 6 Partnerships did not seem to carry weight in the data analysis to affect customer relationship management. The issues on employee empowerment, as well as precise personalization should also deserve in-depth examination as key CRM strategies in support of competitiveness among all business-sized fresh coffee shops for high customer service quality.

13. The Authors

Anuchit Khluinak, Duenden Wasunan, and Catthaleeya Rerkpichai are staff members in the Faculty of Management Science, Bansomdejchaopraya Rajabhat University, Bangkok, Thailand. They share research interest in the areas of digital marketing, customer relationship management strategies, creative entrepreneurship and current issues in trendy enterprises.

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The Development of a Coconut Shell Product Prototype Based on Spiritual Beliefs for Cultural Value Enhancement: A Case of Samut Sakhon Province**

Catthaleeya Rerkpichai[1]*
Singh Singkhajorn [2]
Prapawis Panassupsuk[3]
Sanpach Jiarananon[4]
Worasiri Pholcharoen[5]
Sainil Somboon[6]
Piangthida Serisuthikulchai[7]
Natthakan Kaewkham[8]
Phimporn Phanthong[9]

[1-9] Faculty of Management Science
Bansomdejchaopraya Rajabhat University, Bangkok, Thailand

*Corresponding author
[1]Email: Catthaleeya.re@bsru.ac.th
[2]Email: Sing.si@bsru.ac.th
[3]Email: Prapawis.pn@bsru.ac.th

Abstract

This research aimed to (1) study the spiritual beliefs and associated symbols that can be applied to the design of coconut shell products in the context of Samut Sakhon communities; (2) develop a prototype product set processed from coconut shells that reflect spiritual beliefs; and (3) assess the appropriateness of the prototype in promoting cultural value in the creative economy within the community. The study used research and development (R&D) methodology, comprising (i) a review of relevant theories and literature, (ii) field surveys, and (iii) interviews with community leaders to gather in-depth information on spiritual beliefs associated with coconut shells. Three main research instruments were used: (i) a semi-structured interview form for data collection on spiritual beliefs from community leaders and local wisdom holders; (ii) a design record form to document the development process of the prototype; and (iii) a product evaluation form on the developed prototype's cultural value in the creative economy, using a 5-point Likert scale. All instruments were validated by three product development experts, with Index of Item-Objective Congruence (IOC) scores ranging from 0.67 to 1.00 for the interview form and from 0.80 to 1.00 for the product evaluation form. Reliability testing was conducted with a pilot group of 15 participants, yielding a Cronbach's Alpha coefficient of 0.89, indicating high reliability and suitability for research purposes. The research findings were: (i) grains and natural-material containers play a significant role in spiritual belief rituals and can be meaningfully integrated into product design; (ii) the developed prototype--a *Sacred Grain Worship Set*--featuring coconut shell containers adorned with symbolic spiritual motifs; and (iii) the developed prototype product was evaluated by 55 participants including experts and community members, as aesthetically pleasing, aligned with spiritual beliefs, and strongly reflective of local identity. The evaluation results indicated the prototypes as highly appropriate, and the aspects related to spiritual beliefs and cultural

values as statistically significant at the 0.05 level. The obtained results of this R&D study point to a good potential in local product development based on spiritual beliefs in supporting the creative economy of the communities concerned.

Keywords: *Coconut shell, spiritual beliefs, product design, sacred grains, creative economy, cultural value, Samut Sakhon Province*

[**] The original title of the funded research project reads: "The Development of a Prototype Product Processed from Coconut Shells Based on Spiritual Beliefs to Enhance the Cultural Value and Creative Economy of the Community in Samut Sakhon Province"

1. Background of the Study

In contemporary Thai society, the spiritual belief system also known locally as *Mu-Thelu* has emerged as a prominent cultural trend, particularly popular among young generations and across various age groups. This belief system has apparently stemmed from economic hardships experienced by some groups, particularly new celebrities and those of comparatively low socio-economic status. As known to the public, their main belief lies in their wish for luck or better life by worshipping sacred entities or beings, give offerings in return, and publicize their activities and actions via social media. Such a trend has influenced consumer behavior, lifestyle choices, and purchasing decisions involving new products and services with spiritual or auspicious significance. At the same time, spiritual beliefs can serve as creative inspiration for product design and innovation, seamlessly connecting with the creative economy (Thongpandi et al., 2017; Srihapak & Boonmak, 2022; Krungsri Research. (2023).

Samut Sakhon Province is a major hub for agricultural industries and coconut-based processing. In particular, coconut shells--often considered agricultural waste-- possess significant potential for transformation into artisanal and artistic products. In Thai culture, coconut shells carry symbolic meaning, believed to provide protection and bring good fortune. Traditional practices, such as crafting *Phra Rahu* amulets or other talismans from coconut shells reflect valuable local wisdom with both spiritual and economic relevance. However, current coconut shell processing in local communities lacks integration with contemporary spiritual belief concepts that can convey spiritual energy in a creative and appealing way for modern target audiences.

This research, therefore, focuses on developing a set of prototype products made from processed coconut shells based on spiritual beliefs, aiming to enhance the cultural value and creative economy of communities in Samut Sakhon Province. The study particularly emphasizes the development of a *Sacred Grain Offering Set* that reflects the unique identity of Samut Sakhon, blending faith and functionality. The ultimate goal is to transform these innovations into creative economic products, increasing community income and establishing a renewed cultural identity for Thai coconut shell crafts in the present context.

2. Research Objectives

There were three research objectives:

(1) To study the spiritual beliefs and associated symbols that can be applied to the design of coconut shell products in the context of Samut Sakhon communities;

(2) To develop a prototype product set processed from coconut shells that reflect spiritual beliefs; and

(3) To assess the appropriateness of the prototype in promoting cultural value in the creative economy within the community.

3. Literature Review

This section reports concepts based on previous studies: (i) spiritual beliefs, (ii) coconut shell products, (iii) product design, (iv) creative economy, and (v) the study's research conceptual framework.

3.1 Concepts Related to Spiritual Beliefs

The spiritual belief system is a combination of beliefs in the supernatural, amulets, and rituals, which can be interpreted through various dimensions. From an anthropological perspective, Edward B. Tylor proposed the concept of animism, which holds that natural objects possess spirits--a foundational idea behind modern beliefs in sacred items and charms (Tylor, 1871).

In terms of social psychology, spiritual beliefs function as a coping mechanism for uncertainty in life. Actions that coincidentally result in favorable outcomes are often attributed to lucky charms or talismans, aligning with B.F. Skinner's theory of Superstitious Conditioning (Skinner, 1948). From a sociological viewpoint, Émile Durkheim argued that beliefs and rituals serve as mechanisms for social cohesion (Durkheim, 1912). In Thailand, spiritual beliefs reflect a syncretism of Buddhism, Brahmanism, and indigenous folk beliefs, especially in the postmodern era. In summary, a spiritual belief or Mu-Thelu is not merely superstition but a cultural, psychological, and social construct shaped by changing times.

3.2 Concepts Related to Coconut Shell Products

The transformation of coconut shells into products stems from the principle of resource efficiency, which aligns with the sufficiency economy philosophy first introduced by King Bhumibol of Thailand in 1974. This philosophy emphasizes self-reliance and the optimal use of local materials, especially in agricultural contexts with abundant organic waste (Office of the National Economic and Social Development Board, 2004). This philosophy has evolved globally into the circular economy, which has gained attention since the 1990s. It focuses on waste reduction, resource reuse, and minimizing environmental impact (United Nations Environmental Programme, 1999). Simultaneously, sustainable design emerged, advocating for long-lasting, eco-friendly, and energy-efficient products. One influential idea in environmental product design is *Cradle to Cradle*, proposed by McDonough & Braungart (2002), which promotes designing products that emulate natural cycles, allowing them to be continuously recycled without generating waste. Moreover, the use of coconut shells in design is consistent with *Cultural-Based Design*, which emphasizes incorporating local identity,

traditional wisdom, and indigenous culture into product design to enhance uniqueness and cultural value.

3.3 Concepts in Product Design

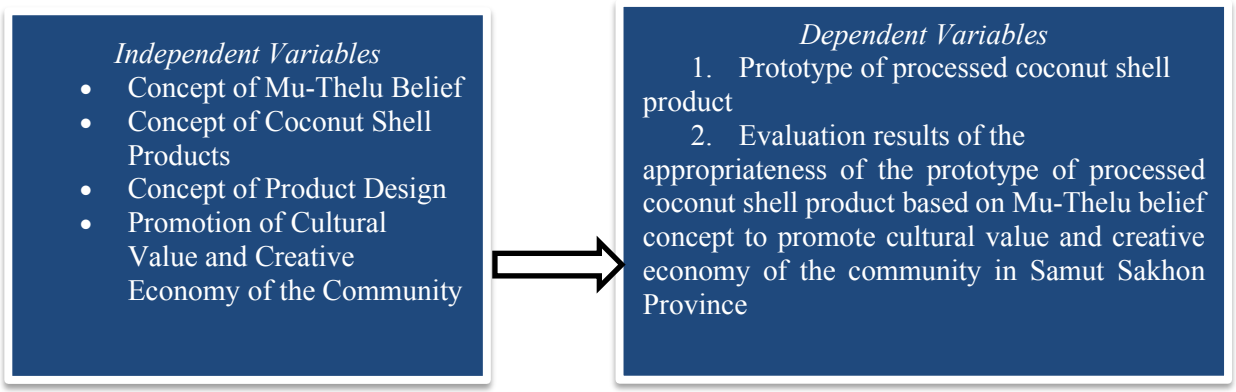
The field of product design began in the early 20th century, with German designer Peter Behrens, regarded as the first industrial designer. In 1907, he designed products for AEG, marking the beginning of integrating functionality, aesthetics, and brand identity. A foundational principle is "Form Follows Function," introduced by Louis Sullivan in 1896, advocating that a product's shape should reflect its purpose (Sullivan, 1896). This concept underpins modernist design, especially within the Bauhaus movement, which emphasized simplicity and mass production. In 1988, Donald Norman introduced the idea of *Human-Centered Design* through his book *The Design of Everyday Things*, stressing the importance of user experience and clear communication in design (Norman, 1988). Today, design thinking emphasizes sustainability, long-term usability, user identity expression, and sensitivity to both social and environmental contexts.

3.4 Concept of the Creative Economy

The concept of the creative economy emerged from the recognition of creativity as a driving force in economic development. Its foundation was clearly articulated by British economist John Howkins, who introduced the idea in his 2001 book *The Creative Economy: How People Make Money from Ideas*. Howkins defined the creative economy as a system that generates economic value from creativity, knowledge, and innovation, rather than from physical resources (Howkins, 2001). According to Howkins, the creative industries encompass sectors, such as arts, design, media, entertainment, architecture, fashion, and software, all of which share the common characteristic of being based on intellectual property. This concept has since been expanded and supported by global organizations by United Nations Conference on Trade and Development (UNCTAD). In its *Creative Economy Report 2008*, UNCTAD emphasized that the creative economy serves as a vital mechanism for sustainable development, contributing to job creation, income generation, and the promotion of cultural identity (UNCTAD, 2008).

3.5 Research Conceptual Framework

Figure 1: Research Conceptual Framework

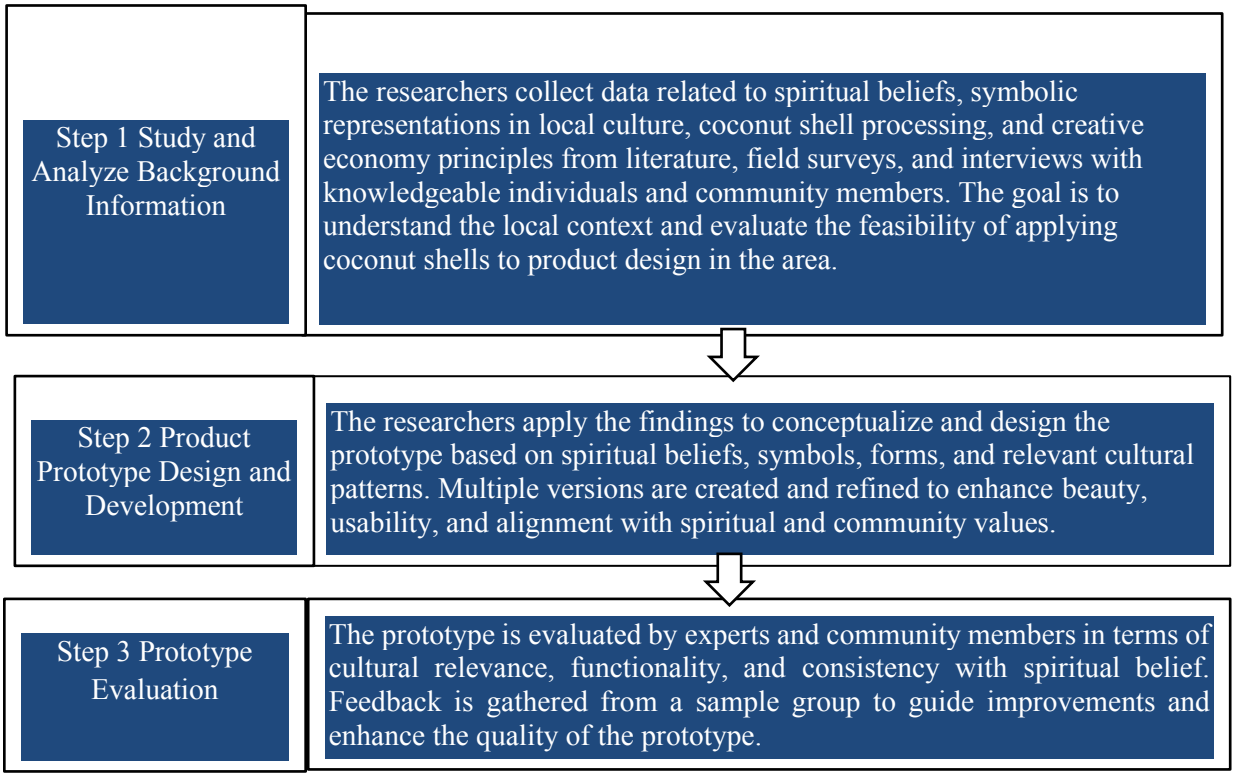


4. Research Methodology

4.1 Research Design

This research and development (R&D) aimed to develop a prototype of processed coconut shell products that integrates spiritual beliefs and local wisdom, followed by its evaluation for the appropriateness of the developed prototype.

Figure 2: Research Implementation Process



4.2 Sample Groups

This research used two sample groups as follows:

Expert Group

By purposive sampling, the researchers selected three experts based on specific qualifications relevant to product development and evaluation, regarding local wisdom, creative product design, and symbolic aspects of spiritual beliefs and sacred objects.

Community Members in Samut Sakhon Province

A total of 50 individuals were selected on a voluntary basis. They were part of small to medium-sized enterprises for prototype or conceptual evaluations requiring in-depth insights and quality analysis from target groups with specific characteristics.

4.3 Research Instruments and Instrument Quality Assessment

In this study, the researchers prepared instruments appropriate for research and development to cover both qualitative and quantitative data collection. The instruments correspond to all three research objectives as follows:

Instrument for Research Objective 1 on Preliminary Study and Data Analysis

The researchers used a semi-structured interview form to collect data from community leaders and local wisdom holders in Samut Sakhon Province. The interview content covered issues related to spiritual beliefs, symbols and their cultural meanings, the use of coconut shells in the local context, and concepts of the creative economy. The interview form content was validated for accuracy by three experts in product development, and the Index of Item-Objective Congruence (IOC) ranged from 0.67 to 1.00, indicating an acceptable level for practical use.

Instrument for Research Objective 2 on Prototype Product Development

The researchers used a design recording form to document the analysis process, design concepts, and prototype development of coconut shells. The spiritual belief elements, such as auspicious colors, sacred forms, and symbolic representations were integrated with local wisdom. The tools and materials used in prototype development included coconut shells, polishing and decorating tools, grains, UV dome coating tools, UV resin, and gold leaf sheets.

Instrument for Research Objective 3 on Evaluation of the Prototype Product

The researchers developed a prototype product evaluation form, designed as a 5-point Likert scale questionnaire, from 1 low to 5 high in respondents' opinions. This evaluation form content was validated by three experts in product development, obtaining IOC values ranging from 0.80 to 1.00. To ensure usability and reliability, the evaluation form was pilot tested with 15 relevant participants. The reliability coefficient (Cronbach's Alpha) was 0.89, indicating a high level of reliability and suitability for data collection from both experts and community target groups.

5. Research Findings

This section reports research findings in the sequence of three research objectives: (i) the spiritual beliefs and associated symbols that can be applied to the design of coconut shell products in the context of Samut Sakhon communities; (ii) a prototype product set processed from coconut shells that reflect spiritual beliefs; and (iii) the appropriateness of the prototype in promoting cultural value in the creative economy within the community.

5.1 The Spiritual Beliefs and Associated Symbols that Can Be Applied to the Design of Coconut Shell Products in the Context of Samut Sakhon Communities

Table 1: Interview Findings on Spiritual Beliefs and Associated Symbols that Can Be Applied to the Design of Coconut Shell Products in the Context of Communities in Samut Sakhon Province

Informant	Provided Information	Key Issues
Local community elder	When preparing offerings for monks or performing rituals, it is necessary to use auspicious grains placed in symbolic coconut shell containers. If broken or cracked, they must not be used, as it is believed to bring bad luck.	Auspiciousness= sacred power, protection, spiritual balance
Belief practitioner	Clients often request sets made from natural materials or sacred items. These must not be made from plastic or synthetic materials. Wood, coconut shell, or local plants from Thailand are more appropriate for spiritual symbolism.	Natural materials= reflect purity and spiritual power
Entrepreneur	Rituals require containers that are both spiritually significant and appropriate in appearance. Cracked coconut shells or those without symbolic patterns should not be used because they lack "spiritual integrity" and are unsuitable for rituals.	Producers must consider both spiritual and design aspects to make products usable in rituals

From interviews with community leaders, local wisdom holders, and individuals knowledgeable in spiritual beliefs in Samut Sakhon Province, the researchers found that the sacred grain offering set is considered a key component in rituals and spiritual beliefs practiced within the community. It is believed that grains, such as unmilled rice, mung beans, corn, glutinous rice, sesame seeds, and Job's tears represent life force, abundance, prosperity, and wealth attraction. The containers used for offerings are made from natural materials, particularly coconut shells, which symbolize purity and a connection to natural energy. Therefore, product design should emphasize both aesthetic appeal and symbolic meaning to fulfill both spiritual and market demands. Additionally, the product should be reusable.

5.2 Development of Prototype Product Set Processed from Coconut Shells that Reflect Spiritual Beliefs

The researchers utilized field data to develop a prototype product in the category of *Mu-Thelu Sacred Grain Offering Sets*. The design of containers and decorative elements was systematically created to reflect spiritual beliefs, including packaging and marketing media design as follows:

Process of Developing Prototype Products Processed from Coconut Shells Reflecting Spiritual Beliefs

Figure 3: Material Preparation Selection and Cleaning of Coconut Shells

Figure 4: Design and Prototype Production Process Based on Expert Recommendations through Community Participation in Samut Sakhon Province

Figure 5: Packaging Enhancing Spiritual Value and Aesthetic Appeal

From Figure 3, material preparation is considered the first and very important step in developing processed coconut shell products. The research team therefore placed importance on carefully selecting each coconut shell, considering the material, strength, and suitability for designing as an amulet or sacred object. The research team selected coconut shells that were complete, hard-shelled, without cracks or damage, and with shapes suitable for processing, such as semi-circular, round, or oval. The next step was cleaning. The research team began by washing them with clean water to remove soil or surface dirt. Then, the shells were soaked in hot water to reduce the natural odor of the coconut shell and eliminate bacteria that may remain on the surface. Next, a wire brush or fine sandpaper was used to scrub the shell surface for smoothness. The final step was drying, which is necessary to prevent moisture accumulation that may cause mold later. The research team sun-dried the shells or used an oven at appropriate temperatures to ensure the shells were completely dry, enhancing durability for product life.

As shown in Figure 4, the research team studied expert recommendations on beliefs and design in selecting appropriate grains for the prototype product set, such as rice and corn (abundance), mung beans (growth), black sesame (stability and wealth), and Job's tears (life energy). In the prototype design process, the research team and the community placed the grains into carefully processed coconut shell containers, decorated with auspicious symbols to be used as ready-to-offer worship sets.

From Figure 5, it can be seen that a strong rectangular box was designed with a clear window to clearly show the product inside. The use of dark purple contrasted with gold reflects power, wealth, and sacredness according to spiritual beliefs. There are also images of deities, such as Phaya Naga (Serpent King), Thao Wessuwan (Demon), and Ganesha (God of Success), which help create an atmosphere of faith and stimulate confidence in the positive energy of the product. The research team designed the communication of belief value alongside the packaging by attaching documents or brochures explaining the meanings of the patterns and symbols appearing on the box, such as the meaning of each type of grain, proper worship

methods, and usage guidelines for sacred items, so that consumers understand the intention and can use the product properly.

5.3 Evaluation of the Appropriateness of the Prototype in Promoting Cultural Value in the Creative Economy within the Community

Table 2: Demographic Variables of Respondents Evaluating Prototype Products Processed from Coconut Shells

Category	Details
Group	1) Experts: 5 persons (9.1%) 2) Community members in Samut Sakhon Province: 50 persons (90.9%)
Gender	1) Male: 22 persons (40.0%) 2) Female: 33 persons (60.0%)
Age	1) Under 30 years old: 8 persons (14.5%) 2) 31-45 years old: 26 persons (47.3%) 3) Over 46 years old: 21 persons (38.2%)
Occupation	1) General workers: 16 persons (29.1%) 2) Farmers: 8 persons (14.5%) 3) Government employees (teachers/officers/local designers): 5 persons (9.1%) 4) Merchants/Handicraft entrepreneurs: 10 persons (18.2%) 5) Company employees: 10 persons (18.2%) 6) Others: 6 persons (10.9%)
Experience Using Spiritual Products	1) No experience: 6 persons (10.9%) 2) 1-3 years (22 persons) (40%) 3) 4-6 years (27 persons) (49.1%)

As shown in Table 2, out of a total of 55 respondents, the largest group was community members in Samut Sakhon Province, totaling 50 people (90.9%), and the expert group consisted of 5 people (9.1%), who played a role in providing in-depth information and evaluating the appropriateness of the product.

Most respondents were female (60%) and aged between 31-45 years (47.3%), which is a working-age group likely to be interested in spiritual products to enhance luck in life and business.

The most common occupation among respondents was *traders* (29.1%), followed by *entrepreneurs* and *craftspeople*, reflecting that the respondents were related to the production or distribution of community products and may further develop the prototype. In addition, it was found that most respondents had *experience using spiritual products for 1–6 years*, accounting for a total of 89.1%, indicating that this type of beliefs influences lifestyle and can effectively guide product development to meet target group needs.

Table 3: Evaluation Results of the Appropriateness of the Prototype Product Set Processed from Coconut Shells Based on Spiritual Beliefs

Belief in Spiritual Aspect Item	$\bar{x}$	S.D.	Chi-square	df	p-value	Interpretation
The product enhances good fortune and marketability.	4.38	0.64	33.102	16	0.005	Significant
Can be used as a sacred item in the home.	4.25	0.70	26.332	16	0.049	Significant
Color/form conveys auspiciousness.	4.42	0.59	34.612	16	0.004	Significant
Has spiritual power in real life.	3.90	0.84	19.901	16	0.027	Not significant
Suitable for spiritual-minded consumers.	4.31	0.66	28.90	16	0.021	Significant
Summary: The overall appropriateness in the aspect of spiritual beliefs had a mean score $\bar{x}$ of 4.252, standard deviation (S.D.) = 0.207, Chi-square = 142.847, Chi-square = 28.569, Sig = 0.05, P-value < 0.05						

From Table 3, the analysis of the spiritual belief aspect revealed that, based on the respondents' opinions, the belief aspect was considered highly appropriate, with an overall mean score ($\bar{x}$) of 4.252 and a standard deviation (S.D.) of 0.207. The total Chi-square value was 142.847, indicating that the spiritual belief aspect showed a statistically significant difference (p-value < 0.05). When considering the three lowest p-values, which indicate the most statistically significant beliefs, color/form conveyed auspicious power with a mean score ($\bar{x}$) of 4.42, S.D. = 0.59, Chi-square = 34.612, p-value = 0.004, showing that the respondents believed the color or form of the product clearly conveyed auspicious power. Next, products for enhancing fortune had a mean score ($\bar{x}$) of 4.38, S.D. = 0.64, Chi-square = 33.102, p-value = 0.005, indicating that the respondents believed products used for offerings or enhancing fortune would bring good things into their lives. The suitability for the spiritual target market, with a mean score ($\bar{x}$) of 4.31, S.D. = 0.66, Chi-square = 28.90, p-value = 0.021, indicated that respondents found the product suitable for the target group.

Table 4: Evaluation Results of the Appropriateness of the Prototype Product Set Regarding the Coconut Shell Material

Coconut Shell Product Material Aspect	$\bar{x}$	S.D.	Chi-square	df	p-value	Interpretation
The material reflects the value of nature.	4.28	0.68	30.114	16	0.016	Significant
The container can be used in real life.	3.85	0.88	17.600	16	0.355	Not significant
The appearance is suitable for modern users.	4.18	0.70	27.902	16	0.033	Significant
The container is durable and strong.	4.22	0.65	29.431	16	0.024	Significant
The material is environmentally friendly.	4.20	0.66	28.900	16	0.021	Significant

Summary:
The overall appropriateness in the use of the coconut shell material had a mean score ($\bar{x}$) = 4.146, standard deviation (S.D.) = 0.170, Chi-square = 133.947, Sig = 0.05, p-value < 0.05

As shown in Table 4, the respondents' opinions regarding the coconut shell material, was at a relatively high level, with an overall mean score ($\bar{x}$) of 4.146 and a standard deviation (S.D.) of 0.170. The total Chi-square value was 133.947, indicating that the opinions showed a statistically significant difference (p-value < 0.05).

The three lowest p-values, which indicate the most statistically significant levels of coconut shell material appropriateness in natural value, had a mean score ($\bar{x}$) of 4.28, standard deviation = 0.68, Chi-square = 30.114, p-value = 0.016, indicating that the respondents accepted that coconut shell material as a valuable raw material. Next, the material reflects sustainability at a mean score ($\bar{x}$) of 4.20, S.D. = 0.66, Chi-square = 28.900, p-value = 0.021, reflecting that the sample group believed coconut shell material can convey the concept of sustainability in terms of both the environment and the valuable use of natural resources. The third aspect was coconut shell reflecting sufficiency way of life, with a mean score ($\bar{x}$) of 4.22, S.D. = 0.65, Chi-square = 29.431, p-value = 0.024, indicating that the respondents viewed coconut shell as conveying the principle of sufficiency economy and a simple lifestyle.

Table 5: Evaluation Results of the Appropriateness of the Prototype Product Set Regarding Product Design Concept

Product Design Aspect Item	$\bar{x}$	**S.D.**	**Chi-square**	**df**	**p-value**	**Interpretation**
The design communicates beliefs clearly.	4.30	0.64	32.775	16	0.006	Significant
The symbols are consistent with auspicious meanings.	4.05	0.79	25.004	16	0.048	Significant
The shape is beautiful and modern.	4.10	0.75	26.332	16	0.039	Significant
Suitable for practical use.	4.22	0.68	29.003	16	0.026	Significant
The design is unique and attractive.	4.29	0.63	30.984	16	0.015	Significant
Summary: The overall appropriateness of product design had a mean score ($\bar{x}$) = 4.192, standard deviation (S.D.) = 0.113, Chi-square = 144.098, Sig = 0.05, p-value < 0.05						

Table 5 reveals that the respondents had opinions of the product design aspect at a relatively high level, with an overall mean score ($\bar{x}$) of 4.192 and a standard deviation (S.D.) of 0.113. The total Chi-square value was 144.098, indicating that the product design aspect showed a statistically significant difference (p-value < 0.05). The three lowest p-values, indicating the most statistically significant opinions, showed that the design communicates spiritual beliefs clearly, with a mean score ($\bar{x}$) of 4.30, standard deviation = 0.64, Chi-square = 32.775, and p-value = 0.006. The design is eye-catching, outstanding, and interesting, with a mean score ($\bar{x}$) of 4.29, S.D. = 0.63, Chi-square = 30.984, and p-value = 0.015, indicating

the importance of a design in attracting consumer attention through uniqueness and appeal. Suitability for practical use had a mean score ($\bar{x}$) of 4.22, S.D. = 0.68, Chi-square = 29.003, and p-value = 0.026, showing that product design suits real-life use in the target group.

Table 6: Evaluation Results of the Appropriateness of the Prototype Product Set Regarding the Community Cultural Value and Creative Economy Concept

Community Cultural Value and Creative Economy Aspect Item	$\bar{x}$	S.D.	Chi-square	df	p-value	Interpretation
Transmits local spiritual identity.	4.40	0.59	35.604	16	0.003	Significant
Promotes community pride.	4.35	0.60	31.223	16	0.009	Significant
Represents cultural value and spiritual identity.	4.25	0.64	26.501	16	0.041	Significant
Encourages local handicrafts and employment.	4.18	0.71	27.842	16	0.031	Significant
Develops creative economy in the community.	4.32	0.62	30.118	16	0.017	Significant
Summary: The overall appropriateness in the community cultural value and creative economy aspect had a mean score ($\bar{x}$) = 4.300, standard deviation (S.D.)= 0.086, Chi-square =151.288, Sig = 0.05, p-value < 0.05						

Table 6 reveals that the respondents had opinions on the community cultural value and creative economy aspect at a high level, with an overall mean score ($\bar{x}$) of 4.300 and a standard deviation (S.D.) of 0.086. The total Chi-square value was 151.288, indicating that overall, the opinions showed a statistically significant difference (p-value < 0.05). As for the three lowest p-values to identify the issues that the respondents most strongly agreed upon at a statistically significant level, *transmitting local wisdom* had a mean score ($\bar{x}$) of 4.40, standard deviation = 0.59, Chi-square = 35.604, and p-value = 0.003, indicating that the respondents emphasized the importance of products that can transmit local wisdom passed down from generation to generation. Next, *promoting income in the community* had a mean score ($\bar{x}$) of 4.35, S.D. = 0.60, Chi-square = 31.223, and p-value = 0.009, reflecting that community products can truly promote grassroot economy and increase income opportunities for local people. The aspect on *developing further into the creative economy* had a mean score ($\bar{x}$) of 4.32, S.D. = 0.62, Chi-square = 30.118, and p-value = 0.017, showing that the respondents considered community products can support creative economy as a path toward sustainable development.

6. Discussion

The research had three objectives on: (i) spiritual beliefs and related symbols that can be applied to the design of coconut shell products, (ii) prototype product development processed from coconut shells based on spiritual beliefs to promote the cultural value and creative economy of the community, and (iii) evaluation of the appropriateness of the developed prototype product set processed from coconut shells based on spiritual beliefs. The

study context was Samut Sakhon which is a province in the east of Thailand. This section discusses the major findings with reference to previous studies.

Spiritual Beliefs and Related Symbols Applied to the Design of Coconut Shell Products

From interview data analysis, it was found that such grains as unmilled rice, mung beans, and corn play an important role in spiritual rituals as symbols of abundance and fortune, especially in the context of local traders. At the same time, the containers used to hold the grains are equally important as the offering itself. Believers and entrepreneurs agreed that the containers should be made from natural materials, such as coconut shells, wood, or traditional Thai gold-plated metal, rather than common ceramic containers, due to the belief that natural materials can draw in natural energy and enhance positive power (Thongpandi et al., 2017; Srihapak & Boonmak, 2022). They also reflect Thainess and are connected to the local cultural context. In addition, entrepreneurs emphasized that the containers should be reusable to ensure sustainability and align with the belief in purity and avoidance of negative energy (Alumni Association of Nakhon Sawan Rajabhat Institute, 2020). It can be concluded that beliefs regarding sacred grains and auspicious containers made from natural materials are core elements that should be applied in the design of spiritual coconut shell products.

Development of the Prototype Product Set Processed from Coconut Shells to Promote Cultural Value and the Creative Economy of the Community

The research team emphasized high-quality coconut shells in terms of strength, shape, and cleanliness to ensure suitability for processing into sacred objects within the spiritual beliefs. The meticulous cleaning process was not only for physical hygiene but also to reflect purity, which aligns with the power of faith. Once the materials were ready, the process moved to design and prototype production. Three experts in product development emphasized auspicious grains, such as rice, sesame, mung beans, and Job's tears to be placed in finely crafted coconut shell containers. Each container, therefore, is not just an ordinary object but part of a ready-to-offer sacred worship set that reflects beliefs, meanings, and cultural refinement. As for packaging design, it tangibly connects the product to consumers through the window-box and symbolic communication via auspicious colors, deity images, and an explanatory leaflet. Such design was meant to fully convey its spiritual value and the producer's profound intention (Alumni Association of Nakhon Sawan Rajabhat Institute, 2020). All three steps are systematically connected--from material selection, belief-based design, to communication through packaging--together elevating the product from a local material to a sacred object of cultural, spiritual, and creative economic value (Srihapak & Boonmak, 2022).

Evaluation of the Appropriateness of the Prototype Product Set

The overall opinion level of the respondents' evaluation was high, divided into four aspects:

Spiritual Belief.

The respondents under study appeared to accept spiritual beliefs in a contemporary cultural context. To them, color and shape was not statistically significant, indicating differences in personal belief or interpretation, which should be considered in future product designs to meet the diversity of consumer needs. This finding is consistent with the concept of

spiritual beliefs in the supernatural, talismans, and rituals, rooted in the animism theory of Edward B. Tylor (1871), who believed that natural objects possess spirits. In psychology, B.F. Skinner (1948) explained that belief in talismans arises from associating coincidental positive outcomes with objects or rituals. Emile Durkheim (1912), in sociology, viewed beliefs and rituals as tools for social cohesion. Spiritual beliefs in Thailand reflect a blend of Brahmanism and folk traditions.

Overall, this belief system results from cultural, psychological, and social components evolving with the times and is consistent with the research of the Alumni Association of Nakhon Sawan Rajabhat Institute (2020), which focused on the main target group—handicraft community members in Hua Khao Taklee, who are producers and play roles in coconut shell processing. The secondary target groups may include nearby communities, supporting organizations, and consumers interested in local products that can be developed into income-generating careers. The study developed coconut shell accessories reflecting local identity, emphasizing beautiful, outstanding design with clear concepts to enhance value and market demand. This analysis aligns with the research of Srihapak & Boonmak (2022), who developed processed coconut shell products with a focus on beauty and uniqueness to increase value and consumer demand. The target group's response to the prototypes demonstrated the influence of spiritual beliefs on behavior in choosing sacred objects for rituals.

Coconut Shell Product

The respondents' opinions toward coconut shells as natural materials that reflect spiritual beliefs in abundance and positive energy. In the current Thai social context, consumers tend to value products that represent both resource sustainability and "spiritual beliefs. Such a trend aligns with the concept of utilizing coconut shells as efficient in the use of natural resources as part of the sufficiency economy initiated by King Bhumibol in 1974, emphasizing local materials and self-reliance (Office of the National Economic and Social Development Council, 2004). This idea has led to the circular economy, which focuses on resource reuse and waste reduction (United Nations Environmental Programme, 1999), alongside the sustainable design concept, which promotes long-lasting and environmentally friendly products. The Cradle-to-Cradle concept by McDonough & Braungart (2002) also proposed the importance of mimicking nature and reducing waste. It should be noted that the design of coconut shell products uniquely incorporates local wisdom and culture to enhance product value, as earlier emphasized by Sakda & Kruerat (2018), on the use of natural materials in product creation to add value and generate income for communities.

Product Design

The respondents evaluated the design of coconut shell products at a high level, as clearly conveying spiritual beliefs and reflecting consumer demand for culturally meaningful products beyond external beauty. As seen in their responses, material shape, color, or symbolism influences user perception and psychological value. This point aligns with the research of Puangkumdaeng (2025), who studied *Lanna yantra* as spiritual art, and pointed out that yantras in the Lanna context do not only symbolize faith but also show patterns, shapes,

and elements with specific meanings for empowerment, protection, and mental balance for the holder. Coconut shells can be engraved with yantra patterns, using auspicious colors, or sacred shapes to psychologically empower the created item to meet belief-related needs. As shown in this research, the prototype product set demonstrated the user-centered design in a true sense regarding the arrangement of ritual elements, comfortable grip, or ease of worship.

Cultural Value and Community Economy

As for the transmission of local wisdom, the promotion of community participation, and spiritual-value products, the respondents evaluated these aspects at a high level overall. This reflects that coconut shell products have the potential to create multidimensional value at the community level. Consumers perceive value beyond beauty or functionality, with connections to local identity, community pride, and grassroot economic development. This is consistent with the concept proposed by Howkins (2001**)**, which views the creative economy as a system that creates value from *ideas, knowledge, and innovation* rather than physical resources. It covers industries, such as art, design, media, entertainment, fashion, and software, all based on intellectual property. This concept is also supported by UNCTAD (2008), which focuses on the creative economy as a driver of sustainable employment, income, and cultural promotion.

In addition, the research findings are consistent with the study by Thongpandi et al. (2017), which examined the coconut shell product processing of a handicraft group in Phatthalung Province in the south of Thailand. It was found that coconut shell production has been continuously developed by applying knowledge to suit the modern market, particularly designing for contemporariness or adding functional use. Coconut shells are not merely waste materials but are *living cultural resources* that can be developed into creative products that increase value, pride, and income for the community. In this regard, Krungsri Research (2023) asserted that generations of Thai consumers tend to consume products with symbolic or spiritual meanings, especially when presented in the form of aesthetically pleasing and meaningful items. Such consumer perception points to the potential growth of the spiritual product market to continue in the digital economy and online platforms, suggesting a good opportunity for the prototype products as developed in this R&D research.

7. Implications of the Study

Based on the obtained findings, this R&D research found that spiritual beliefs applied to the design of coconut shell products can truly enhance the cultural and creative economic value of the community. Consumers place importance on spiritual meaning, beliefs in fortune, and design with sacred symbols. It means that products made from natural materials can practically meet the trend of sustainability, while community participation in the design process and production development can lead to opportunities for spiritual product enterprises, career development, cultural market expansion, and growth in the digital economy era.

8. Recommendations and Future Research

The researchers would like to support the development of coconut shell products in local communities, and recommend accessories of sacred items for higher market value and market segmentation. It is important that developed products require online platforms and branding linked to local culture.

Workshops on product development should be organized for community artisans to enhance product design with belief-based meanings and to update their knowledge of modern marketing skills. Collaboration with government agencies or academic institutions should be promoted to support production, sales channels, and income sustainability.

Future research should be expanded into various dimensions of the process and tool enhancement of product development. Assessment of cultural value to be embedded in developed products must be carried out from time to time to ensure product quality and consumer satisfaction. Training programs for designers and artisans also require research to provide relevant and effective follow-ups to guide communities into the right direction of spiritual product trend for now and beyond.

9. The Authors

Nine authors--Catthaleeya Rerkpichai, Singh Kingkhajorn, Prapawis Panassupsuk, Sanpach Jiarananon, Worasiri Pholcharoen, Sainil Somboon, Piangthida Serisuthikulchai, Natthakan Kaewkham, and Phimporn Phanthong—are staff members at the Faculty of Management Science, Bansomdejchaopraya Rajabhat University, Bangkok, Thailand. They share research interest in the areas of digital marketing, product prototype development, marketing strategies for community-based tourism, and current issues and forefront developments in creative economy.

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Guidelines for Promoting Cultural Tourism: A Case of Thai Buffalo Conservation Village, Si Prachan District, Suphan Buri Province

Atchara Chanlin[1]
Chutikan Petthong[2]
Pattarawadee Punyasan[3]
Sirikanya Kaewsriprasert[4]
Khewika Sukiam[5*]

[1-5]Faculty of Hospitality Industry, Kasetsart University
Kampangsean Campus, Nakhon Pathom, Thailand
[*]Corresponding author
[5]Email: khewikasukiam@gmail.com

Abstract

In the current trend of cultural tourism, this case study was on Thai Buffalo Conservation Village, Si Prachan District, Suphan Buri Province. This research aimed to: (1) investigate the current promotion of cultural tourism on Thai Buffalo Conservation Village, and (2) examine the economic, social, cultural, and environmental benefits from the current promotion of cultural tourism on Thai Buffalo Conservation Village. Qualitative data were obtained from interviewing 21 voluntary participants as key informants--shop owners, officials, villagers, and tourists. Qualitative data were analyzed using triangulation tools. The research found that (1) the promotion of cultural tourism in the Thai Buffalo Conservation Village area is at a moderate level due to insufficient financial support for advertising and public relations, resulting in a lack of awareness among tourists. (2) The economic, social, cultural, and environmental benefits from the promotion of cultural tourism in the Thai Buffalo Conservation Village support the economy in generating income for entrepreneurs or workers on the tourist site with cultural uniqueness. In the aspect of *society and culture*, the Thai Buffalo Conservation Village attracts tourists with activities that provide knowledge about the way of life of Thai farmers. In the environmental aspect, buffaloes help reduce agricultural production costs in plowing fields instead of machinery, and using buffalo dung as organic fertilizer. It is evident from the obtained findings that the merits of natural resources can empower cultural tourism and sustain tourists' interest in the long run.

Keywords: *Cultural tourism, Thai buffalo conservation village, cultural promotion, tourism guidelines*

1. Introduction

Tourism in contemporary Thai society has become a new way of life for people seeking pleasant recreation and relaxation. Tourism has evolved into diverse forms to better meet the unique needs and purposes of tourists. A new form of tourism that has gained acclaim and support in Thailand is tourism in support of local lifestyles and the tourist's goals. This form of tourism is known as "cultural tourism." Among cultural tourism sites in Thailand, Suphan Buri Province stands out for its history and culture, offering a wide variety of tourism options. Suphan Buri offers diverse attractions,

including historical, cultural, creative, and other natural attractions. The province is popular among locals and those from nearby provinces (Promoting Tourism in Thailand, 2020). As part of the Central Region, Suphan Buri has a rich history of rice cultivation, formerly known as "City of Dvaravati Sri Suphanbhumi," with ancient sites, royal monasteries, the National Museum, Thai farmers and buffaloes. Local culture includes visits to buffalo villages and demonstrations of local life, showcasing the traditional life of rural Thai farmers. In addition, these tourist attractions are easily accessible and within short distances from Bangkok. This has led to the development of accommodations, hotels, and homestays, generating income and employment for the community (Therawat et al., 2023).

Cultural tourism at the Thai Buffalo Conservation Village in Si Prachan District, in Suphan Buri shows farmers using buffaloes as vehicles and plowing tools. The current use of machinery over buffaloes are apparent for convenience and speed. Recognizing the significant decline in buffalo numbers, the Thai Buffalo Conservation Village initiated and established a Thai Buffalo Conservation Center, showcasing the community's traditional lifestyle and farmers' simple farming methods with buffaloes. The center also houses a community market to generate income for the community. The center has been able to attract tourists since its opening (Danprasert, 2017).

Given the above background and significance, the research team was interested in investigating the current promotion of cultural tourism at the Thai Buffalo Conservation Village as well as its economic, social, cultural, and environmental benefits. The investigation was meant to assess the existing conditions of this cultural tourism site so that appropriate actions can be taken into the suitable direction. This will also contribute to sustainable tourism development and its benefits for the community concerned.

2. Research Objectives

There were two research objectives:

(1) To investigate the current promotion of cultural tourism on Thai Buffalo Conservation Village, and

(2) To examine the economic, social, cultural, and environmental benefits from the current promotion of cultural tourism on Thai Buffalo Conservation Village.

3. Scope of Research

(1) Population: Thai tourists, participating villagers and officials of the Thai Buffalo Conservation Village involved in promoting cultural tourism within the Thai Buffalo Conservation Village area.

(2) Content: Guidelines for promoting and evaluating social, environmental, and economic benefits, including activities that generate income in the area of the Thai Buffalo Conservation Village, Si Prachan District, Suphan Buri Province. The focus was on evaluating tourist attractions and benefits that create economic value.

(3) Area: The area under study was the Thai Buffalo Conservation Village, Si Prachan District, Suphan Buri Province.

(4) Time: The total period of this research was 10 months, starting from June 2024 to March 2025.

4. Cultural Tourism

Trend of Cultural Tourism

Cultural tourism is a growing and increasingly popular form of tourism worldwide. Cultural heritage has been passed down from the past to the present, along with changing social and economic trends. Due to rapid social and economic changes in Thailand, most people are increasingly concerned with the potential in traditional culture. Therefore, the government has intervened with various policies to preserve and conserve culture-related traditions. Particularly, the Fine Arts Department has developed historical sites into historical parks—conserving traditional ways of life and emphasizing rice planting and harvesting methods (Sukkorn , 2019).

Definition of Cultural Tourism

The definition of cultural tourism is broad, but the accepted definition is as follows:

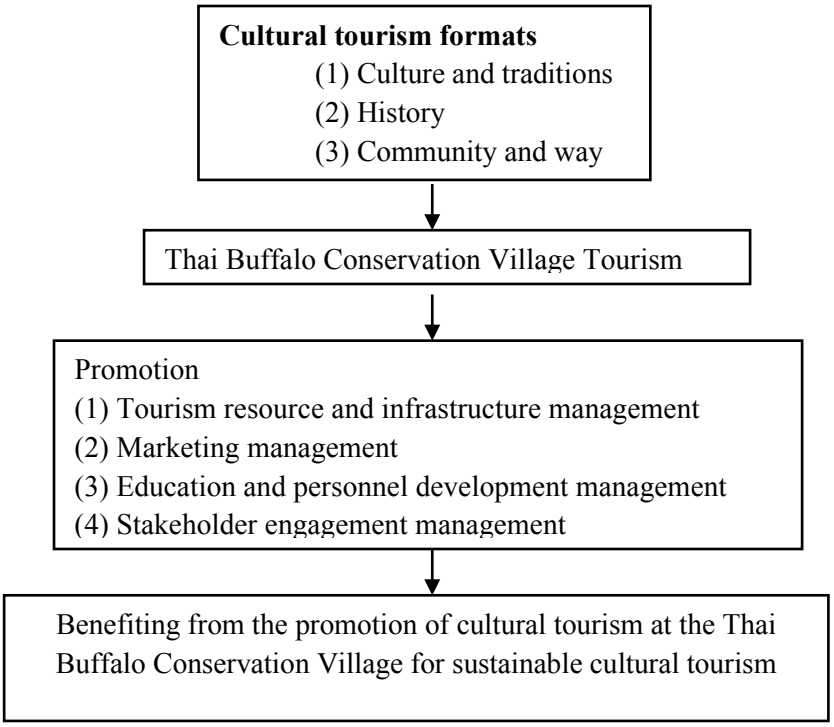
Phongtharathik et al. (2021) stated that cultural tourism is the movement of people to engage in cultural attractions available in a place, bringing new experiences to those with cultural needs.

Sukkorn (2019) defined cultural tourism as the visit of individuals to a local community, where the host community has a history, art, science, way of life or heritage that serves as an incentive for visitors.

In this case study, cultural tourism in the Thai Buffalo Conservation Village provides experiences and the way of life of the people in the community for tourists to learn about the culture and traditions of local farmers in the community, such as rice planting, the use of buffaloes to plow the fields, the Thai buffalo breed, preserved rice-farming ceremonies, and folklores for heritage preservation.

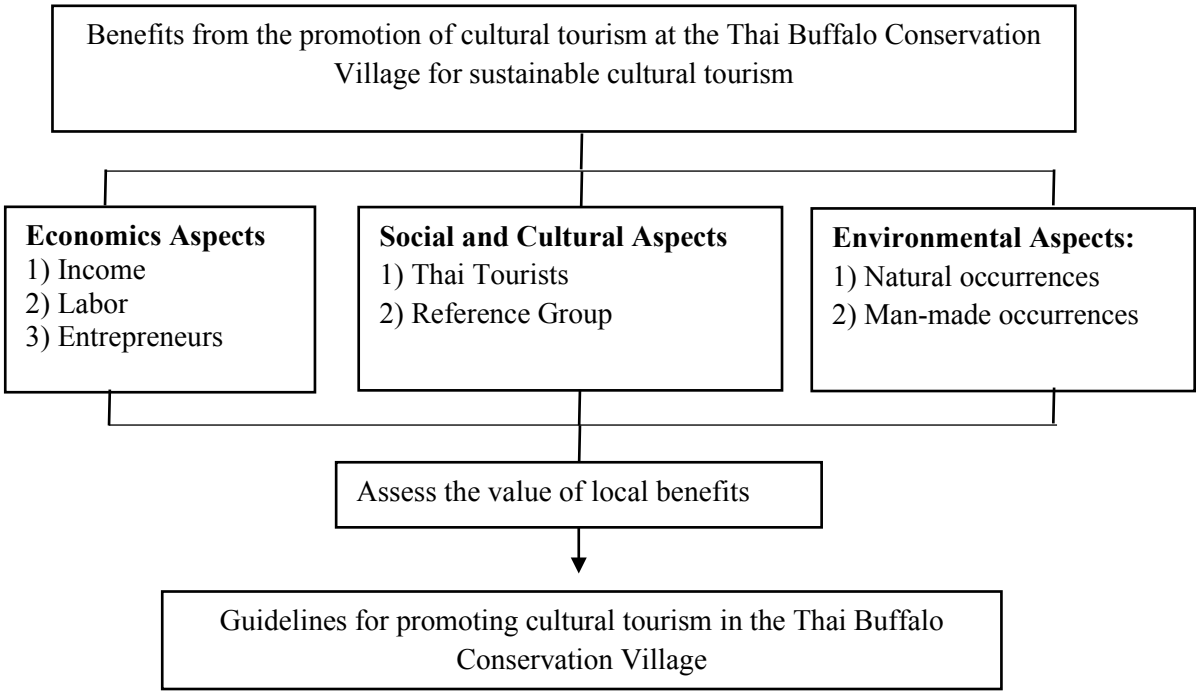
5. Conceptual Framework

Figure 1: Conceptual Framework



6. Research Process

Figure 2: Research Process



7. Research Methodology

Qualitative research methods were used, including in-depth interviews with a set of four questions for semi-structured interviews. These questions were open-ended.

In-depth interviews are structured interviews conducted with 21 voluntary participants who understand or live in the Thai Buffalo Conservation Village. They were 5 shop owners, 5 officials, 5 villagers, and 6 tourists. The interviews focused on exploring in-depth opinions and personal feelings toward cultural tourism at the conservation site. The obtained information was expected to promote benefits to the Thai Buffalo Conservation Village under study. The interview form consists of the following questions:

(1) How did you get to participate in [developing] the Thai Buffalo Conservation Village?

(2) Have you participated in the activities organized by the community in developing the Thai Buffalo Conservation Village? If so, how?

(3) What plans do you have for developing the Thai Buffalo Conservation Village?

(4) What are your [suggested] guidelines for developing the Thai Buffalo Conservation Village to maximize benefits?

Data triangulation in this qualitative research was to check the power to confirm the reliability and validity of the obtained data for the following purposes:

(1) To verify whether the data obtained by the researchers is correct or not, and examine three sources: time, place and person.

(2) To check how differently researchers might observe particular sets of data and to ensure accuracy in data analysis and interpretation.

(3) To examine consistency in the concept of cultural tourism promotion and benefits as perceived by the participants.

8. Data Collection

Data collection in this case study was by in-depth interviews as follows:

Step 1. The researchers selected voluntary participants for in-depth interviews by primarily considering those who live in the area of the Thai Buffalo Conservation Village and are involved in receiving benefits from the Thai Buffalo Conservation Village.

Step 2: The interviews were conducted in a location where the participants felt comfortable and relaxed, as in the resting area in the Thai Buffalo Conservation Village.

Step 3: The researchers used a set of planned questions for the interview, and were flexible in modifying the questions for the interviewees to obtain in-depth and diverse data.

Step 4: Data from the interviews were recorded with permission from the interviewees and transcribed for use in content analysis.

The researchers maintained confidentiality in the participants' personal information. The data collection period lasted 10 months from June 2024 to March 2025.

9. Data Analysis

The researchers used triangulation to examine and analyze the data obtained from the in-depth interviews to ensure accuracy and completeness as responsive to the research objectives. The obtained data were categorized into the content types as the current promotion of cultural tourism in the Thai Buffalo Conservation Village area, followed by the economic, social, cultural, and environmental benefits from the current promotion of cultural tourism at the conservation site.

10. Research Results

This section reports obtained results based on the two research objectives. The content analysis of categorized interview data generated eleven dimensions: (i) Management, (ii) Marketing (iii) Access, (iv) Benefits, (v) Keywords reflecting local lifestyle and beliefs, (vi) Education and Personnel Development, (vii) Involvement, and Participation, (viii) Environment, (ix) Guidelines, (x) Evaluation of the Value of Benefits and Community Participation, and (xi) Sustainability.

Management

The Thai Buffalo Conservation Village's cultural tourism promotion approach encompasses four management areas: (i) tourism resource and infrastructure management, (ii) marketing management, (iii) education and personnel development management, and (iv) stakeholder participation management. However, the most deficient aspect is the Thai Buffalo Conservation Village's marketing management. As a private company, the village is unable to conduct substantial marketing due to excessive taxes and advertising costs. Most marketing comes from word-of-mouth from tourists and through public relations on its Facebook fan page .

Marketing

The Thai Buffalo Conservation Village requires modern and online marketing. Since the village is privately owned and operated by PP Transport, public relations and marketing channels are limited due to high marketing costs. Instead, the focus is on visiting tourists or those who promote the village via social media, such as YouTubers and TikTokers. The Thai Buffalo Conservation Village itself has established a Facebook page to promote and market the conservation village. The content of the marketing campaign is based on the village's core product or buffaloes as a key selling point to attract tourists seeking the cultural experience. In addition, the village has collaborated with the Tourism Authority of Thailand (TAT) Suphan Buri Office to promote activities and tourist attractions.

Access

Since its establishment in 2002, the Thai Buffalo Conservation Village has remained rather unknown and lacked easy access. Transportation and amenities were limited. Currently, income generation has contributed to community development and accessibility, including the use of tap water and groundwater. Residents have also gained access to communications, resulting in stable mobile phone signals from multiple providers. Furthermore, transportation and safety facilities have been improved, particularly the installation of additional light poles to increase visibility. Furthermore,

convenience stores and community markets are available in support of tourists and local residents.

Benefits

Benefits lie in economic, social and cultural, and environmental aspects. All three aspects are complete and operational. Since the establishment of the conservation village, there has been simultaneous development in the economic, social, cultural, and environmental dimensions. This has led to sustainable tourism for both tourists and the local community.

The researchers considered the results consistent with the previous study on the development of innovative tourism communities in the Ban Nong Kratuk Nuea, Nong Nom Wua Subdistrict, Lat Yao District, Nakhon Sawan Province (Daoruang, 2021). This qualitative research also found the Thai Buffalo Conservation Village operationally consistent with the 7Ps marketing mix strategy.

Keywords Reflecting Local Lifestyle and Beliefs

Table 1 reveals that the cultural tourism model of the Thai Buffalo Conservation Village incorporates the local lifestyle and beliefs to create experiences for tourists. Examples include buffalo performances and the worship of the buffalo god, which is believed to bring prosperity. It should be noted that cultural transmission is a challenge for international tourists, particularly the lack of local guides or instructors who can communicate with tourists in English or other foreign languages. However, an organized tour can arrange for such activities as making Thai desserts and planting rice.

Table 1: Keywords Extracted from Interview Content Analysis

Category	Keywords	Details
Cultural tourism formats	Cultural traditions	- Do not buy, kill, or sell any buffalo in the village.
	History	- Plowing the field - Buffalo King
	Community and way of life	- Living life
Structure	Electricity Tap water Telephone Internet	- Add more electric poles - Groundwater - The signal is normal. - True, DTAC, AIS
Marketing	Distribution chancels	- Facebook page
Providing education and human resource development	Lecturer	- Local guide
Participation	Key informants Tourist Officer Entrepreneur Villagers	- Bring buffalo to organize activities - Participate in activities - Take care of every buffalo. - Take care of the restaurant - Not participating

Category	Keywords	Details
Benefits	**Economy Aspect** - income - Labor - Entrepreneurs **Society and Culture Aspect** - Thai tourists - Reference group **Environnement Aspect** - Things that happen naturally - Man-made things	 - Increased income - Employment is created - Local villagers - Increased number of tourists - Natural materials processed into products - Transportation routes
Assess the value of benefits	Think together Join the fun Co-create Join the benefits	- Participate in giving opinions on development. - Participate in organized activities - Jointly develop plans - Development guidelines
Promotion guides	7 Ps Product Price Promotion Place Physical evidence People Process	**Product** - Products from the community **Price** - Admission fee **Place** - Thai Buffalo Conservation Village Physical evidence - Showcasing a smiling buffalo and a buffalo raising its leg. People - Local people have income. **Promotion** - Admission fee is 30 baht, including one free set of grass. **Process** - Promote through online channels - Buffalo souvenirs **People** - Local people have income. **Process** - Promote through online channels - Buffalo souvenirs
Sustainable tourism	Coexistence with the local community	- Using natural materials to add value to their uniqueness

Education and Personnel Development

In providing education and developing personnel, the village still lacks local resources and English-speaking guides to take tourists to various tourist attractions. There has also been a lack of foreign-language guides to impart knowledge on the conservation of Thai buffaloes. Some tourists need to get basic information by themselves. However, on the conservation site, knowledgeable buffalo caretakers are ready to provide information on buffalo care, and give further explanations.

Involvement and Participation

The highlight of this place is that the buffaloes are cared for by the private sector. Caretakers bring buffaloes to perform various shows and activities. Fundraising has taken place onsite, but the community has had little involvement in the operations. Local villagers have been allowed to sell their products or provide services to increase their income. It should be noted that there has not yet been a clear-cut development plan regarding participation or involvement from the local community. On the point of community involvement, some participants under study expressed their concern and would like to see such involvement in the promotion development plan for the Thai Buffalo Conservation Village. Some participants suggested joint creation of relationships between the community and external tourism agencies, or environmental organizations for a stable support. It can lead to new products and service developments in the community, such as soap from buffalo milk, fertilizer from buffalo dung, and organization of lifestyle demonstrations or handicraft learning activities for tourists.

Environment

Environmentally, buffaloes are important animals that help reduce agricultural costs. For example, using buffaloes to plow fields instead of machinery reduces oil consumption and allows buffalo dung to be used as organic fertilizer, which lowers agricultural production costs. Natural materials can be used to make products that attract tourists' interest.

Guidelines

Guidelines for current cultural tourism in the Thai Buffalo Conservation Village can follow the 7Ps (Marketing Mix) principle to meet the needs of tourists and entrepreneurs (Strategy and Development Information Group, 2021). The marketing mix consists of (i) Product: Products from the community and villagers in the Thai Buffalo Conservation Village, particularly buffalo-shaped pen holders made from natural materials as souvenirs. (ii) Price: Admission fee for Thais: 20 baht for children and 30 baht for adults. Admission fee for shows: 10 baht for Thais: 20 baht for children and 70 baht for adults. Admission fee for foreigners: 70 baht for children and 150 baht for adults. Admission fee for shows: 100 baht for foreigners. (iii) Promotion: When purchasing an admission ticket, each person will receive a free bundle of grass to feed the buffaloes inside. (iv) 4) Place: The Thai Buffalo Conservation Village. (v) 5) Physical Evidence: A show on Saturdays, Sundays, and public holidays, featuring smiling buffaloes and leg-lifting buffaloes. (vi) 6) People: The income generated by local villagers and employment opportunities within the village. Volunteers are hired to work in the village. (vii) Process: The creation of promotional media through online channels. Both photos and videos are

used to attract tourists to witness the uniqueness of natural materials transformed into souvenirs.

Evaluation of the Value of Benefits and Community Participation

The participants' evaluation of the value of benefits and community participation in promoting the conservation site suggest ways to develop the village, including buffalo displays, tourism promotion, and income management. These offered opinions reveal a variety of development opportunities. The benefits of improving quality of life and increased income will lead to educational opportunities, more public utilities, and village funding—all creating pride among community members.

Sustainability

Sustainable tourism at the Thai Buffalo Conservation Village requires coexistence between the community and private companies. This includes providing jobs, generating income for local residents, and fostering local employment. Space is available for rent for businesses, including souvenir shops, photo booths, costume rentals, restaurants, and accommodations--further fueling the community's economic growth in the long run.

11. Discussion and Conclusion of Major Findings

Based on Research Objective 1 on the current promotion of cultural tourism in the Thai Buffalo Conservation Village area, the researchers found that the *management* of tourist resources (Aneksuk, 2020) and infrastructure, marketing, education and personnel development (Sukiam & Likitsarun, 2021), and stakeholder participation are consistent with the study by Sukkorn (2019), who emphasized cultural tourism as a growing and increasingly popular form of tourism. Cultural heritage has been passed down from the past to the present, leading to periods of crisis in development. However, current social and economic trends are changing due to rapid changes in Thai society and the economy that affect traditional cultures (Thawornwisit & Wongmontha, 2021). In this regard, the government has intervened in the creation of various policies to help maintain and preserve society and culture (Nimphanich & Yenyuek, 2020; Strategy and Development Information Group, 2021; Del Soldato, 2024).

According to Research Objective 2, the current promotion of cultural tourism in the Thai Buffalo Conservation Village area is based on economic, social, cultural, and environmental benefits. Economically, the Thai Buffalo Conservation Village generates income for entrepreneurs and workers who maintain the area, allowing tourists to visit and observe Thai buffaloes. This unique identity also attracts visitors, generating income for local villagers (Samarak et al., 2022). Socially and culturally, the Thai Buffalo Conservation Village is a cultural tourism destination, attracting both Thai and international tourists with activities that provide knowledge about buffalo raising and the way of life of Thai farmers, showcasing local culture (Santajitto et al., 2023). Environmentally, buffaloes are important animals that help reduce agricultural costs. For example, using buffaloes to plow fields instead of machinery with oil consumption, and buffalo dung as organic fertilizer, further reducing agricultural production costs. Evidently, natural materials can be used to process products to create tourist attractions (Cabral, 2023). This aligns with the study by Danprasert's (2017) in that tourism creates businesses to meet tourist needs and foster friendly relationships with visitors.

Furthermore, creativity contributes to social development; and creativity, with cultural and environmental restoration can embody the value of arts and culture, preserving Thailand's unique identity (Puangphet & Supasakdamrong, 2022; Chanthima et al., 2022). This fosters the creation of new products and services within society and communities (Nanta, 2020). This also allows people to earn income from work and make productive use of their free time (Daoruang, 2021). Each tourist attraction has its own unique identity, particularly the "Khao Kwan" ceremony, which promotes local wisdom and encourages visitor travel, creating a positive impression and encouraging word of mouth, further enhancing the identity of community and Thai rural lifestyles.

12. Suggestions and Future Research

Suggestions

Based on the obtained findings, the researchers would like to suggest the following:

(i) Entrepreneurs need to use digital technology comprehensively for public relations so that potential tourists can access cultural tourism information quickly.

(ii) The government should provide training programs for local tour guides for efficiency in communiation as well as competencies in imparting accurate local knowledge and local wisdom to tourists for high quality in touring support and services.

(iii) The community in the Thai Buffalo Conservation Village area should be encouraged for participation in the site promotion development, restoration, and overall conservation to strengthen the community in moving toward sustainable tourism.

Future Research

As for future research, the scope of population should be broadened for better comparison of results and relationships among variables under study. There should be a study of soft power strategies generated by cultural tourism, which disseminates culture with its new creations for wider acceptance in tourist' attitudes toward new products and services provided by the host. This can help the community of cultural tourism to move sustainability forward as its ultimate goal.

13. The Authors

Atchara Chanlin, Chutikan Petthong, Pattarawadee Punyasan, Sirikanya Kaewsriprasert, and Khewika Sukiam are academic staff members at the Faculty of Hospitality Industry, Kasetsart University, Kampangsean Campus, Nakhon Pathom, Thailand. They share research interest in the areas of cultural tourism, human resource management, and current issues in marketing management and innovation.

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Degrees and Promoting Factors of Student Engagement at Bangkok Christian College

Wichai Srisud [1]
Shunnawat Pungbangkradee [2*]

[1] Bangkok Christian College, Bangkok, Thailand
[2] Department of Educational Administration, College of Management
University of Phayao, Phayao, Thailand
[*]Corresponding author
[2] Email: Shunnawat.pu@up.ac.th

Abstract

This research aimed to (1) examine the degrees of student engagement in school operations at Bangkok Christian College in Academic Year 2024, and (2) investigate the promoting factors of student engagement in school operations under study. A multistage quantitative-qualitative methods (Explanatory Design) was used, with a constructed questionnaire on student engagement, followed by a semi-structured interview tool. The participants consisted of 246 Grade 12 students and five school administrators, totaling 251 individuals. The results revealed that the participating students exhibited a high degrees of student engagement, with emotional engagement rated the highest ($\bar{x}$ = 4.04, SD = 0.694), followed by behavioral ($\bar{x}$ = 3.71, SD = 0.667), and cognitive engagement ($\bar{x}$= 3.67, SD = 0.766), respectively. The promoting factors were categorized into three domains. (i) In the aspect of *personnel*, teachers played a vital role in providing reasoning to guide student behavior rather than give directive commands. (ii) Positive *teacher-student relationships* and individual follow-up were key strengths, and peer influence was found to positively affect learning behaviors. (iii) In terms of *management*, the school provided meaningful and challenging activities that encouraged participation, gave students opportunities to express their opinions, and helped them feel involved in the classroom process. Clear and transparent assessment criteria enabled students to set goals and monitor their academic progress. In addition, *learning resources* support classroom climate; and well-paced learning activities contributed to students' concentration and engagement. Although physical learning tools were not explicitly emphasized, their value was embedded in the meaningful activities designed to foster authentic learning experiences. The obtained findings were expected to generate practical implications for secondary school management in similar contexts in support of students' responsive engagement strategies, positive attitudes, and learning experiences.

Keywords: *Student engagement, promoting factors, secondary education*

1. Rationale of the Study

Student engagement in school operations has emerged as a pivotal construct in educational research, recognized for its profound influence on students' academic success, psychosocial development, and long-term educational trajectories (Christenson et al., 2012; Reschly & Christenson, 2012). This is particularly critical during the upper secondary level, a transitional stage marked by increased academic demands and identity formation. Engagement is widely understood as a multidimensional phenomenon encompassing cognitive, emotional, and behavioral components, each interwoven and

mutually reinforcing (Fredricks et al., 2004; Fredricks et al., 2011). These dimensions collectively reflect the extent to which students invest intellectually, connect affectively, and participate actively in the learning process. The level of student engagement is not merely an individual trait but a dynamic outcome shaped by various contextual and interpersonal factors, including the quality of teacher-student relationships, peer interactions, school leadership, management practices, and the broader learning environment (Aminpoor & Zare 2025).

According to the Programme for International Student Assessment (PISA) conducted by the Organization for Economic Co-operation and Development (OECD) (OECD, 2024), Thai students demonstrated a lower degree of engagement compared to international averages. The average scores for the sense of belonging and classroom participation among Thai students were 469 and 489 respectively which are below the OECD average of 500. Overall, the proportion of Thai students with a low degree of engagement was significantly higher than the OECD average (Willms, 2003). This phenomenon reflects an urgent need for empirical investigation into the conditions that influence student engagement in Thai schools.

Empirical evidence suggests that a high degree of school engagement among students contributes to positive academic and psychosocial outcomes (Wang et al., 2016). At the institutional level, it reinforces school identity and alumni relationships. At the student level, it reduces the risk of dropout, academic burnout, and passive learning while promoting resilience and adaptability (Hazel et al., 2014; Henrie et al., 2015; Virtanen et al., 2016). Thai studies also highlight that teacher influence directly and indirectly affects both student engagement and learning achievement. Teaching practices play a partial mediating role between teacher engagement and student outcomes (Klincumhom & Ruengtrakul, 2014; Aeamtussana et al., 2017).

Bangkok Christian College (BCC) is a prominent private institution with a diverse student population making it a relevant context for examining the degree of student engagement in school operations and its promoting factors. This study focused on two objectives. First, it aimed to explore the degree of school engagement among students at Bangkok Christian College in Academic Year 2024. Second, it was to investigate the promoting factors that enhance student engagement in this context. The obtained results were expected to generate practical implications for secondary school management in similar contexts in support of students' responsive engagement strategies, positive attitudes, and learning experiences.

2. Research Objectives

This study was conducted with two objectives:

(1) To examine the degree of student engagement in school operations at Bangkok Christian College in Academic Year 2024

(2) To investigate the promoting factors of student engagement in school operations under study.

3. Research Methodology

This study adopted an explanatory mixed-methods design to investigate both the degree of student engagement in school operations and the promoting factors that influence it. The research was in two phases. The first phase used a quantitative approach to measure key variables, while the second phase used qualitative interviews to deepen the understanding of the findings and identify contributing factors from a real-world perspective.

3.1 Population and Sample

For the first phase, the population consisted of all Grade 12 students enrolled at Bangkok Christian College in Academic Year 2024, totaling 408 students. A simple random sampling method was to select participants, resulting in 246 providing complete responses for data analysis. For the second phase, five key informants were purposively selected based on their administrative roles related to student engagement. These included the Head of Secondary Academic Affairs, Head of the English Immersion Program (EIP), Head of Co-curricular and Student Development Activities, Head of Discipline Affairs for Secondary School, and Head of Educational Innovation. These individuals were chosen on a voluntary basis for their direct involvement in strategies promoting student engagement in the school.

3.2 Research Tools

Two research tools were utilized in accordance with the data types and research objectives. The first tool was the "Student School Engagement Scale," which was a constructed questionnaire containing both checklist items and a 5-point rating scale. This instrument was developed based on theoretical frameworks that cover behavioral, emotional, and cognitive engagement dimensions. The development process began with drafting items aligned with operational definitions, followed by content validity verification by three experts in educational management. The index of item-objective congruence (IOC) was used to determine the relevance of each item, with the acceptable threshold set at 0.50 or above. Revisions were made based on expert feedback. A pilot test was then conducted with 30 students who had similar characteristics to the target population. Reliability was assessed using Cronbach's Alpha Coefficient. The final version of the questionnaire was distributed through the online survey platform for actual data collection.

The second tool was a set of semi-structured interview questions to gather qualitative insights from five school administrators. The interview guide was developed using preliminary quantitative findings and further refined in consultation with three experts in educational management to ensure clarity and alignment with the research objectives. It aimed to explore multi-dimensional factors influencing student engagement based on the 4Ms concept, which includes Man (personnel), Management, Material, and Money (budgeting resources).

3.3 Data Collection

Data collection was carried out in two phases--quantitative and qualitative. In the quantitative phase, the questionnaire was distributed online to 246 Grade 12 students at Bangkok Christian College. In the qualitative phase, semi-structured interviews were conducted with five school administrators who played strategic roles in engaging students

in school operations. Each interview was conducted individually in an hour and audio-recorded for transcription and subsequent content analysis.

3.4 Data Analysis

Quantitative data from the questionnaire were analyzed using descriptive statistics, including frequency, mean, and standard deviation, to identify the overall degree of student engagement and breakdowns across various dimensions. Qualitative data from the interviews were analyzed using content analysis. The transcribed responses were coded and categorized into key themes corresponding to four main dimensions of 4Ms. The frequency of recurring themes was also considered to ensure data patterns and in-depth interpretation.

4. Results and Discussion

4.1 Research Results

The results of this study are presented as responsive to the two identified research objectives. The first section reports the degree of student engagement at Bangkok Christian College in Academic Year 2024, as perceived by Grade 12 students under study. The second section reveals the key factors that promote student engagement based on insights gathered from school administrators. Together, these findings offer both quantitative and qualitative perspectives, contributing to a comprehensive understanding of the conditions and elements that support student-school connection in this context.

4.1.1 The Degree of Student Engagement at Bangkok Christian College in Academic Year 2024

The respondents--246 Grade 12 students at Bangkok Christian College in Academic Year 2024, perceived student engagement *overall* at a high level ($\bar{x}$ = 3.81, SD = 0.709). Of all engagement dimensions, the highest average was on *emotional engagement* ($\bar{x}$ = 4.04, SD = 0.694), followed by *behavioral engagement* ($\bar{x}$ = 3.71, SD = 0.667) and *cognitive engagement* ($\bar{x}$ = 3.67, SD = 0.766), respectively, as shown in Table 1.

Table 1: The Degree of Student Engagement at Bangkok Christian College in Academic Year 2024

Student Engagement	Level		
	$\bar{x}$	SD	Meaning
1. Cognitive Engagement	**3.67**	**0.766**	**High**
1.1 I prepare myself before learning new lessons.	3.63	1.146	High
1.2 I study the content in advance to better understand the lesson.	3.08	1.307	Moderate
1.3 I pay close attention while learning.	3.71	1.020	High
1.4 I dedicate my time to learning.	3.69	1.070	High
1.5 I plan my study sessions before exams.	3.52	1.208	High
1.6 I set my own learning procedures.	3.76	1.007	High
1.7 I am always eager to learn.	3.76	1.100	High
1.8 I constantly strive to improve the quality of my learning.	3.82	0.998	High
1.9 I enjoy solving difficult and challenging problems.	3.37	1.241	Moderate
1.10 I feel good when working on challenging tasks.	3.66	1.105	High
1.11 I seek new methods to solve problems.	3.60	1.204	High
1.12 I am able to invent new solutions to problems.	3.67	1.104	High
1.13 I do not dwell on failures when my academic performance	3.94	1.094	High

Student Engagement	Level		
	$\bar{x}$	SD	Meaning
falls short of expectations.			
1.14) I am ready to solve problems when I make mistakes.	4.24	0.858	High
2. Emotional Engagement	**4.04**	**0.694**	**High**
2.1 I feel a sense of belonging when I come to school.	4.24	0.870	High
2.2 I feel emotionally connected to my school	4.33	0.793	High
2.3 I always put my full effort into assigned tasks.	3.99	0.852	High
2.4 I am determined to complete tasks successfully.	4.40	0.845	High
2.5 I am committed to succeeding in my studies.	4.24	0.858	High
2.6 I consistently pay attention to my learning.	3.85	0.970	High
2.7 I enjoy learning new lessons.	3.74	1.045	High
2.8 I feel happy when studying.	3.57	1.115	High
3. Behavioral Engagement	**3.71**	**0.667**	**High**
3.1 I willingly follow the school's rules and regulations.	3.97	0.981	High
3.2 I believe that following school rules is the right thing to do.	4.07	0.923	High
3.3 I willingly comply with classroom rules.	4.04	0.951	High
3.4 I think I don't necessarily have to follow classroom rules.*	3.32	1.311	Moderate
3.5 I stay focused on the lessons taught by the teacher.	3.67	1.103	High
3.6 I am not easily distracted while studying.	3.50	1.124	High
3.7 I ask the teacher when I don't understand a lesson.	3.27	1.185	Moderate
3.8 I exchange ideas with my peers about the lesson.	3.82	1.121	High
Overall	**3.81**	**0.709**	**High**

* Negative item

Item-level analysis revealed that in the *cognitive engagement* dimension, the participating students demonstrated strong adaptability and problem-solving skills, particularly in recovering from mistakes and maintaining resilience when faced with academic setbacks. This reflects their cognitive flexibility and commitment to continuous learning. Regarding *emotional engagement,* the students exhibited a high degree of intrinsic motivation, academic determination, and a strong sense of belonging within the school community, especially in their confidence in achieving success and feeling connected to their peers and institution. In the *behavioral engagement* dimension, the participating students reported a strong willingness to comply with school regulations and participate in classroom activities. However, the frequency of student-initiated questioning or expression of curiosity during lessons was found to be relatively lower than other behavioral indicators.

Overall, the findings indicate that the participating students at Bangkok Christian College exhibited a high degree of student engagement across all three dimensions. *Emotional engagement* emerged as the strongest dimension, reflecting students' pride and deep connection with their school. Meanwhile, both *behavioral and cognitive* dimensions showed areas for further development, particularly in fostering student motivation to inquire and engage in advanced planning related to their learning process.

4.1.2 The Promoting Factors of Students' Degree of Engagement at Bangkok Christian College

The analysis of the promoting factors of students' degree of engagement at Bangkok Christian College was based on the interview results obtained from five key informants. They were school administrators whose responsibilities were directly related

to student engagement promotion, including: (i) the Head of Secondary Academic Affairs, (ii) the Head of the English Immersion Program (EIP), (iii) the Head of Co-curricular and Student Development Activities, (iv) the Head of Discipline Affairs for Secondary School, and (v) the Head of Educational Innovation.

The results were synthesized and categorized into four key dimensions based on the 4Ms framework: Man (personnel), Management, Material (resources), and Money (budget). The summarized findings are presented in Table 2.

Table 2: The Promoting Factors of Students' Degree of Engagement at Bangkok Christian College Based on Interview Findings

4M Factors	**Promoting Factors**		
	Cognitive Engagement	Emotional Engagement	Behavioral Engagement
Man	Frequency of Data Occurrence: 5 Key Themes from the Interviews: - Teachers, parents, and caregivers play a crucial role, particularly when they adopt a growth mindset that encourages students not to fear making mistakes. - Internal motivation (intrinsic motivation) and metacognitive skills are emphasized as essential traits to be cultivated in students. - Providing students with autonomy in their thinking and decision-making, fosters internal drive and personal initiative.	Frequency of Data Occurrence: 4 Key Themes from the Interviews: - Promoting the value of empathy is central to fostering emotional engagement. - Teachers' ability to inspire and provide psychological support plays a critical role. - A positive attitude toward teachers, peers, and the school serves as the foundation of emotional engagement.	Frequency of Data Occurrence: 5 Key Themes from the Interviews: - Teachers play a key role by explaining the reasons behind behavioral guidance, helping students understand rather than merely comply. - Strong teacher-student relationships and individualized follow-ups are critical strengths. - Peer influence has a positive impact on students' learning behavior.
Management	Frequency of Data Occurrence: 3 Key Themes from the Interviews: - Teachers should design activities or instructional formats that emphasize student participation, encouraging them to ask questions, reflect on their thinking, and engage in self-correction. - Providing opportunities for students to learn from their mistakes is regarded by informants as a highly effective approach.	Frequency of Data Occurrence: 4 Key Themes from the Interviews: - Designing meaningful activities and real-life learning experiences helps create a sense of connection. - Classroom and school management that emphasizes safety, warmth, and emotional security effectively fosters trust.	Frequency of Data Occurrence: 4 Key Themes from the Interviews: - Designing challenging and meaningful activities encourages students to participate actively. - Allowing students to express their opinions helps them feel a sense of agency in the classroom. - Clear assessment criteria give students a sense of direction and allow them to recognize their own progress.

4M Factors	Promoting Factors		
	Cognitive Engagement	Emotional Engagement	Behavioral Engagement
Material	Frequency of Data Occurrence: 2 Key Themes from the Interviews: - A learning environment that fosters opportunities for thinking, analyzing, and exchanging ideas is essential. - Educational media and tools that support the development of thinking skills play a significant role in enhancing engagement.	Frequency of Data Occurrence: 2 Key Themes from the Interviews: - A friendly and safe classroom or school environment contributes to emotional participation and connection.	Frequency of Data Occurrence: 2 Key Themes from the Interviews: - Classroom climate and the pacing of activities influence students' participation and concentration. - Equipment or resources in the classroom were rarely mentioned, but they may be implicitly included under the concept of meaningful activities.
Money	Frequency of Data Occurrence: 0 Key Themes from the Interviews: - No respondents directly mentioned budget or financial resources. - This suggests that the development of cognitive engagement may not require significant funding if effective management strategies and qualified personnel are in place.	Frequency of Data Occurrence: 0 Key Themes from the Interviews: - Budget or financial support was not explicitly mentioned in relation to emotional engagement. - This suggests that emotional engagement relies more on interpersonal relationships and effective management than on financial resources.	Frequency of Data Occurrence: 0 Key Themes from the Interviews: - None of the interviewees mentioned budget-related issues. - This reflects that behavioral engagement depends more on structured processes and interpersonal interaction than on financial resources.

Table 2 presents the promoting factors of student engagement across three dimensions: cognitive, emotional, and behavioral. It was found that Man (personnel) and Management are the most influential contributors to students' engagement within the school. These two elements were repeatedly emphasized and demonstrated as a systematic connection across all engagement dimensions.

In the *Man* category, the roles of teachers, parents, peers, and caregivers were highlighted as vital in shaping students' attitudes and behaviors. Key aspects included the development of a growth mindset, the fostering of intrinsic motivation, and the establishment of trusting and empathetic relationships. Such interpersonal dynamics were essential in cultivating a sense of belonging, which lies at the heart of emotional engagement.

In terms of Management, the findings highlighted the importance of learning environments that encourage student participation, critical thinking, and open expression. Classroom strategies that support reflection, autonomy, and learning from failure were seen

as effective. Clear assessment criteria and defined goals also enhanced students' awareness of their progress and strengthened behavioral engagement.

Although the *Material* factor was mentioned less frequently, it played a supportive role in creating an engaging atmosphere. These included environments that encouraged discussion and interaction, the use of practical learning tools, and settings that provided students with a sense of safety and freedom to express themselves.

Notably, the *Money* factor was not mentioned by any informant. This suggests that effective engagement promotion relies less on financial resources and more on meaningful relationships, effective pedagogy, and school culture.

4.2 Discussion of Major Findings

The findings of this study reveal insights into both the degree of *student engagement* and the key *promoting factors* that influence engagement in school operations among students at Bangkok Christian College. The discussion presented in this section synthesizes these findings in light of previous studies and theoretical concepts, offering interpretations and implications that reflect the academic and practical significance of the results. The discussion is structured according to the two research objectives: first, the degrees of engagement across cognitive, emotional, and behavioral dimensions; and second, the supporting factors categorized under the 4Ms concept.

To the participants under study, *the overall degree of student engagement* at Bangkok Christian College in Academic Year 2024 was high, with emotional engagement as the highest, followed by behavioral and cognitive engagement, respectively. This pattern indicates a strong sense of school belonging and emotional loyalty among students. The top-rated items, such as "I am committed to succeeding in my work," "I feel a sense of attachment to the school," and "I feel like I belong when I come to school", illustrate deep student identify with the learning environment.

These outcomes reflect a *value-based management approach* consistently promoted by the school, as seen in its guiding vision of a "School of Happiness" and the integration of meaningful experiences, such as religious activities, service clubs, and school history education. This aligns with the theoretical concepts proposed by Fredricks et al. (2004) and Skinner & Pitzer (2012), which emphasize that a sense of belonging is central to emotional engagement. At Bangkok Christian College, such belonging is reinforced by strong teacher-student relationships, under the leadership of the Deputy Director for Student Affairs. Wang et al. (2016) supported such belonging further with the use of Fredricks' original model of the multidimensional nature of student engagement in measuring cognitive, emotional, and behavioral components across academic contexts. The findings are also consistent with the study by Aeamtussana et al. (2017), which highlights the importance of positive self-concept and perceived membership in predicting student engagement.

In terms of *behavioral engagement*, the participating students demonstrated high degrees of adherence to school rules and classroom expectations. This suggests the presence of a clearly communicated school culture and the effective implementation of positive discipline strategies. Initiatives as in constructive discipline programs and structured student activities with clear evaluation criteria contribute to this behavioral commitment.

These findings correspond with Finn's model (1989), which identifies active behavioral participation, such as focus during lessons, rule compliance, and peer collaboration, as key indicators of engagement. Similarly, Reschly & Christenson (2012) supported behavioral engagement as entailing observable participation in academic, social, and extracurricular activities in accordance with institutional expectations and student perceptions of belonging.

Behavioral engagement was found to be influenced by factors, such as positive role models among teachers, peer influence, goal clarity, and a classroom climate that encourages participation. Teachers who clearly explain the rationale behind school rules help foster internal discipline rather than relying on external enforcement. Furthermore, activities designed with explicit learning outcomes reflect the principles of Outcome-Based Activity Design, which align with Deming's PDCA cycle in education management. These observations are supported by Finn's (1989) in that behavioral engagement is grounded in active participation and visible achievement. This is validated by the quantitative findings, especially the item "I believe that following school rules is the right thing to do," which received the highest behavioral engagement score, highlighting the strength of the school's culture and behavioral systems.

Cognitive engagement, while still rated at a high degree, showed comparatively lower average scores, particularly in the areas involving strategic and long-term academic planning. Statements, such as "I study in advance to better understand the lesson" and "I plan my reading before exams" received relatively lower agreement. This implies a gap in students' capacity for self-regulated learning, despite their positive mindset and resilience. These results are consistent with the conceptual framework of Zepke & Leach (2010), arguing that cognitive engagement requires the development of learning awareness and metacognitive skills. Henrie et al. (2015) also highlighted that cognitive engagement encompasses not only persistence and effort but also the use of metacognitive strategies, such as planning, reflection, and goal-setting. Supporting this dimension may involve providing students with more opportunities to plan their learning, set personal goals, and engage in reflective practices.

The results on cognitive engagement indicate that key promoting factors include fostering a growth mindset, encouraging autonomy in thinking and decision-making, and creating opportunities for students to learn from mistakes. These factors are closely linked with the development of self-regulated learning behaviors, which are significantly influenced by an open learning environment. The presence of instructional designs that promote active participation, formative assessment, and reflective practices align with behavioral management theory (Jones & George, 2015) and are supported by Fredricks et al. (2004) and Zepke & Leach (2010), who emphasized the necessity of learner autonomy and metacognitive awareness in developing cognitive engagement. These findings are also consistent with the highest-rated cognitive indicators from the quantitative phase of this study, such as "I am ready to solve problems when I make mistakes" and "I do not dwell on problems when my academic performance does not meet expectations."

For *emotional engagement*, the study identified warm and secure environments, meaningful learning experiences, and positive relationships with teachers and peers as central contributing factors. The cultivation of empathy, a core value promoted at Bangkok

Christian College, was shown to play a critical role in fostering a sustainable emotional bond between students and the school. The practice of psychological leadership through teacher-student bonding is deeply embedded in the school's activities and classroom management. These findings are congruent with the psychological engagement model proposed by Appleton et al. (2008), which highlights sense of belonging and affective commitment as foundational elements of emotional engagement. Christenson et al. (2012) also asserted that belonging, positive affect, and supportive interpersonal relationships form the foundation of emotional engagement. The obtained data evidently support such viewpoints, particularly for the items "I am determined to succeed in my work" and "I feel a strong connection with the school."

As discussed so far, the *promoting factors* of student engagement at Bangkok Christian College reveal that support mechanisms for enhancing engagement, across cognitive, emotional, and behavioral dimensions, can be comprehensively categorized using the 4Ms framework: Man, Management, Material, and Money. These elements reflect the critical roles played by human capital and strategic organizational practices in cultivating meaningful student involvement. Their recurring presence across data sources suggests that student engagement is fundamentally anchored in relational dynamics and pedagogical leadership rather than material resources or financial inputs alone.

5. Conclusion, Implications, and Future Research

This study explored two key dimensions of student engagement at Bangkok Christian College: the degree to which students demonstrated engagement in cognitive, emotional, and behavioral domains, and the underlying factors that promote such engagement. The findings revealed that students exhibited a high overall degree of engagement, particularly in emotional aspects, reflecting a strong sense of belonging and commitment to the school. In particular, the study identified that the most influential promoting factors were rooted in the quality of school personnel (Man) and strategic management (Management), supported by conducive learning environments (Material), rather than financial resources (Money). These results affirm that the school's value-driven culture, pedagogical strategies, and relationship-centered leadership play a vital role in shaping students' meaningful connections with their learning journey and school operations as a whole.

The case of Bangkok Christian College in fostering student engagement can evidently generate technical or procedural implications for educational management regarding student engagement promotion. In particular, enhancing students' intellectual involvement can challenge educators and student affairs leaders by integrating instructional approaches in support of autonomy and metacognitive growth, such as project-based learning, inquiry-based strategies, and opportunities for self-reflection. Providing formative feedback and scaffolding long-term learning goals can further strengthen students' strategic thinking and resilience.

As for future research, interested scholars may consider pursuing a specific or deliberate design for an integrated system that cultivates a school culture conducive to meaningful intellectual, emotional, and behavioral growth. This is to help identify more relevant integral factors in support of student learning autonomy and positive personality development at the secondary school level. Future studies can explore the long-term impact

of identity, value-based school activities on students' emotional engagement, or even qualitative or longitudinal designs to uncover how students internalize school values over time. These suggested issues are meant to provide insights into sustaining student engagement in secondary education contexts nationwide.

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7. The Authors

Wichai Srisud, Ph.D. is the Deputy Director of Bangkok Christian College, Bangkok, Thailand. He earned a doctorate in Educational Administration from the Faculty of Education, Chulalongkorn University. His academic interest centers on educational innovation and global education, particularly through the development of diverse and inclusive curricula that prepare students for the challenges of the 21st century.

Shunnawat Pungbangkradee, Ph.D. is a lecturer at the Department of Educational Administration, College of Management, University of Phayao, Thailand. He holds a Ph.D. in Educational Administration from the Faculty of Education, Chulalongkorn University. His scholarly interests lie in innovative school leadership and qualitative educational research. His work emphasizes reflective leadership practices and sustainable development in educational institutions.

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Online Learning Resources Design for Video Content Production

Jaruwat Noothong[1]
Weerawat Pengchuay[2*]

[1] College of Social Communication Innovation, Srinakharinwirot University
Bangkok, Thailand
[2] Rajamangala University of Technology Rattanakosin
Nakhon Pathom, Thailand
[*] Corresponding author
[1] Email: dr.jaruwat@gmail.com
[2] Email: weerawat.pen@rmutr.ac.th

Abstract

The objectives of this research were to (1) develop an online learning resource on video content production, (2) assess the learning achievement of students using the online learning resource on video content production, and (3) evaluate their satisfaction with the online learning resource on video content production. The quasi-experimental research design with one group pre-test post-test was used with 30 undergraduate students in the field of photography and film technology, Department of Communication and Industrial Technology, Faculty of Science and Technology, Rajamangala University of Technology Krungthep. Three research instruments secured data on (i) content and design of the developed online learning resource on video content production, (ii) learning achievement of students using the online learning resource on video content production, and (iii) evaluating their satisfaction with the online learning resource. The obtained data was analyzed by percentage, mean, standard deviation and t-test for dependent variables. The findings revealed the online learning resource on video content production at the high level *overall* ($\bar{x}$= 4.33, S.D. = 0.05), its *content* at the high level ($\bar{x}$= 4.33, S.D. = 0.12), and its *design* at the high level ($\bar{x}$= 4.36, S.D. = 0.18). As for students' learning *achievement*, the post-test score was significantly higher than the pre-test score, followed by their high satisfaction with the online learning resource ($\bar{x}$= 4.38, S.D. = 0.19). It was expected that the research results can generate practical implications for the design and use of online learning resource on video content production at the higher education level.

Keywords: *Online learning resources, online lesson design, video content, learning achievement*

1. Introduction

The development of the global economy and industry is constantly changing. The world has become increasingly interconnected in a borderless environment. Technological development trends are evolving rapidly, especially digital technology, which has advanced dramatically. It is no longer just a tool to support work as in the past, but has now become integrated into everyday life. According to the National Policy and Plan for Digital Development for the Economy and Society (2018-2040) the emphasis is placed on developing the country through digital technology to drive the economy and society, and to fully leverage

digital innovation (Office of the National Economic and Social Development Council (2017). Global transformation and changing consumer behavior are crucial factors in shaping the national vision and strategic direction to align with evolving contexts. The 20-Year National Strategy Framework (2017-2036) and the 13th National Economic and Social Development Plan (2023-2027) define the primary goal of development as equipping Thai people with the skills and attributes appropriate to the times (Office of the National Economic and Social Development Council, 2020). This includes accelerating the preparation of a quality workforce in alignment with labor market demands, facilitating the restructuring of the economy toward higher-potential production and service sectors, and promoting science, technology, research, and innovation as key drivers of development across all sectors to enhance Thailand's competitiveness. This is accompanied by efforts to upgrade the skill sets of those about to enter the labor market as well as those currently employed.

Education serves as a mechanism for developing knowledge and skills that enable individuals to keep up with the fast-paced and diverse changes of the world. Education plays a crucial role in enhancing the country's human capabilities. The development of education aims to elevate the potential of human resources to align with the shifting economic and social systems at national, regional, and global levels. The National Education Plan (2017-2036) requires modern education to adapt in line with the direction of 21st-century skills development, which are essential for living, working, and driving the country's economic and social progress (Office of the Education Council, 2017, 2024; Ministry of Digital Economy and Society, 2018). Modern educational approaches have incorporated technological and internet advancements into teaching and learning on a wide scale. Learners can study, review lessons, do exercises, and participate in group activities through technological tools. This aligns with educational development under the Thailand 4.0 framework, enabling learners to independently seek knowledge from all forms of instructional media (Office of the National Education Commission, 1999). This helps foster learners' self-reliance, enhances intrinsic motivation, stimulates the desire to learn, and supports purposeful learning. As a result, learners learn better, remember more for longer periods, and can apply knowledge more effectively. The enhancement of content knowledge**,** specific skills**,** specialized expertise**,** and literacy competencies is therefore a key factor that learners must acquire to learn effectively in this transformative 21st-century society (Phothinakhon, 2017).

Research and development of learning resources to support workforce development in the digital content industry has resulted in the creation of knowledge bases for both formal and non-formal education. This serves as a vital mechanism for enhancing the competencies of the country's workforce, helping them attain higher occupational skills. This advancement will lead to increased national competitiveness, expand opportunities, generate income, reduce social inequality, and ultimately transform Thailand toward "Thailand 4.0," with its core principle being "Thai People 4.0" (Thailand Professional Qualifications Institute, 2021).

In this regard, the rapid growth of online learning platforms has transformed the educational landscape. Video content has become a powerful medium for delivering knowledge, facilitating knowledge preservation, and aligning with modern learner behaviors.

The researchers therefore felt an urgent need to investigate the context of online education management, online learning platforms, the development of online learning resources, design, and content related to video content production. This is closely linked to the development of knowledge and skills in modern video content production. The findings can be extended to teaching at the higher education level, particularly in fields related to digital content and creative media, in ways that are appropriate to current conditions and real-world contexts. This is meant to support and enhance teaching and learning, as well as promote the development of individual skills — especially for emerging professions and areas experiencing workforce shortages in the country. This, in turn, can help foster progress that aligns with the needs of the digital content industry, which serves as an economic value-creating medium and a source of national revenue in the future.

2. Research Objectives

The study aimed at three objectives:

(1) To develop an online learning resource on video content production,

(2) To assess the learning achievement of students using online learning resource on video content production, and

(3) To evaluate their satisfaction with online learning resource on video content production.

3. Concepts and Related Theories

In this paper, the researchers briefly reviewed concepts on Learning resources, Digital learning resources, Self-directed learning, followed by related theories on Constructivist theory, the ADDIE Model, and the CIPPA Model.

Learning resources are essential bodies of knowledge that learners can easily access, whether they occur naturally or are man-made. A learning resource is defined as a person, place, natural element, or technology that provides knowledge, facilitates, promotes, and supports learning, as well as offers experiential opportunities (Royal Thai Institute, 2012).

Digital learning resources refer to learning resources available via the Internet. They serve as media to support and enhance learning, characterized by the storage of information that allows users to search various data. These are increasingly important in educational management due to the advancement of information technology. Malithong (2005) asserted that the use of ICT enables flexible learning that can take place anytime, anywhere. Educational institutions are thus no longer limited to schools and formal establishments; they can exist anywhere, supporting lifelong learning. Learners can access knowledge through both physical and virtual learning sources on the Internet.

In addition, virtual field trips are vital tools that allow learners to experience the world beyond the classroom by virtually accessing important global locations through digital technology. This enhances learners' knowledge and understanding of the subject matter (Phelps, 2022). These learning resources not only promote the education of gifted students but also enable instructors to design and manage online teaching more effectively.

Self-directed learning refers to a process where learners take responsibility for planning, executing, and evaluating their own learning progress. Learners can transfer knowledge and skills acquired from one situation to another. It involves analyzing personal learning needs, setting learning goals, seeking support, identifying knowledge sources and educational media, and evaluating one's own learning outcomes. Learners may or may not receive help from others. Self-directed learning is a way of seeking knowledge that enables individuals to live productively in society. It nurtures curiosity and a desire for knowledge, allowing individuals to learn a variety of topics and continue studying without external direction. Learners become initiators who plan and carry out their learning process from start to finish. Therefore, self-directed learning is a vital tool for lifelong education, driven by the learner's own voluntary engagement rather than external enforcement (Isarawat, 1998).

Constructivist theory aligns with the philosophy of constructivism. It is a learning theory based on psychology, philosophy, and anthropology—especially cognitive psychology. It posits that knowledge is not discovered externally or derived from the environment, but rather constructed internally in the mind. This knowledge arises from interpreting events, experiences, or information by drawing upon one's prior knowledge, beliefs, theories, and expectations. Learners do not merely receive and store knowledge, but instead interpret it through personal experiences, expand upon it, and test their own interpretations (Ratsamiphrom, 1999).

The ADDIE Model is an instructional design framework used to design and develop educational systems based on a systems approach. It is highly effective for educational development. The name ADDIE is an acronym representing the five stages: Analysis, Design, Development, Implementation, and Evaluation. The ADDIE Model is a valuable tool for instructional design, encompassing the entire process from planning to assessment. When applied appropriately, it can greatly enhance the effectiveness of the teaching and learning process (McGriff, 2000).

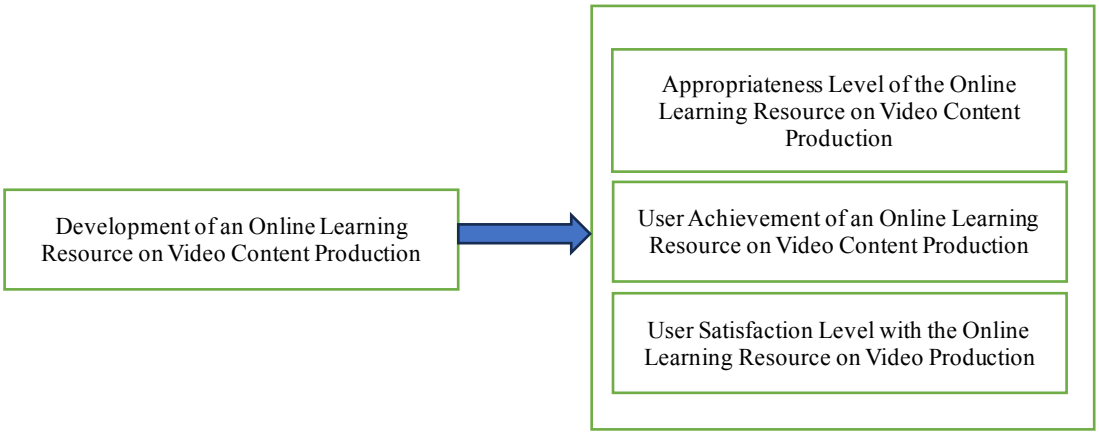
The CIPPA Model is an instructional approach developed by Tisana Khammani. It emphasizes learner-centered education by integrating five key concepts: Constructionism, Inquiry, Participation, Process, and Application. Implementing the CIPPA model enhances various aspects of student development. It helps learners achieve better academic performance, improves retention, and promotes analytical and creative thinking as well as problem-solving skills. It also strengthens teamwork, communication, and social participation. Students show increased interest and satisfaction in learning. Applying the CIPPA model involves designing activities that promote knowledge construction, inquiry, and participation, such as project-based learning, experiments, and group discussions. It also stresses the importance of applying

knowledge to real-world situations, supporting the development of knowledge, skills, and attitudes. This model fosters meaningful and sustainable learning and can also be effectively adapted for online education (Khammani, 1999).

These concepts and related theories serve as a background of the study so that the researchers used them as a platform to (i) develop an online learning resource on video content production for the participating learners under study, and (ii) identify their learning achievement and satisfaction with online learning resource on video content production, as specified in the three identified research objectives.

4. Research Conceptual Framework

Figure 1: Research Conceptual Framework



5. Research Methodology

This research used a quasi-experimental design with a one-group pretest-posttest. The researchers conducted the study as follows:

Phase 1: Development of an Online Learning Resource on Video Content Production. Five educational technology experts were selected via purposive sampling to validate the developed online learning resource on video content production. These experts were individuals with a Ph.D. in Educational Technology with at least 3 years of teaching experience in public higher education institutions, or with a Master's degree in Educational Technology or Communication Arts with at least 5 years of teaching experience in higher education. These five experts assessed the appropriateness of the content and the quality of the developed online learning resource on video content production.

Phase 2: Experimental Study

Population and Sample Group

Population: 300 undergraduate students majoring in Photography and Film Technology, Department of Communication and Industrial Technology, Faculty of Science and Technology, Rajamangala University of Technology Krungthep.

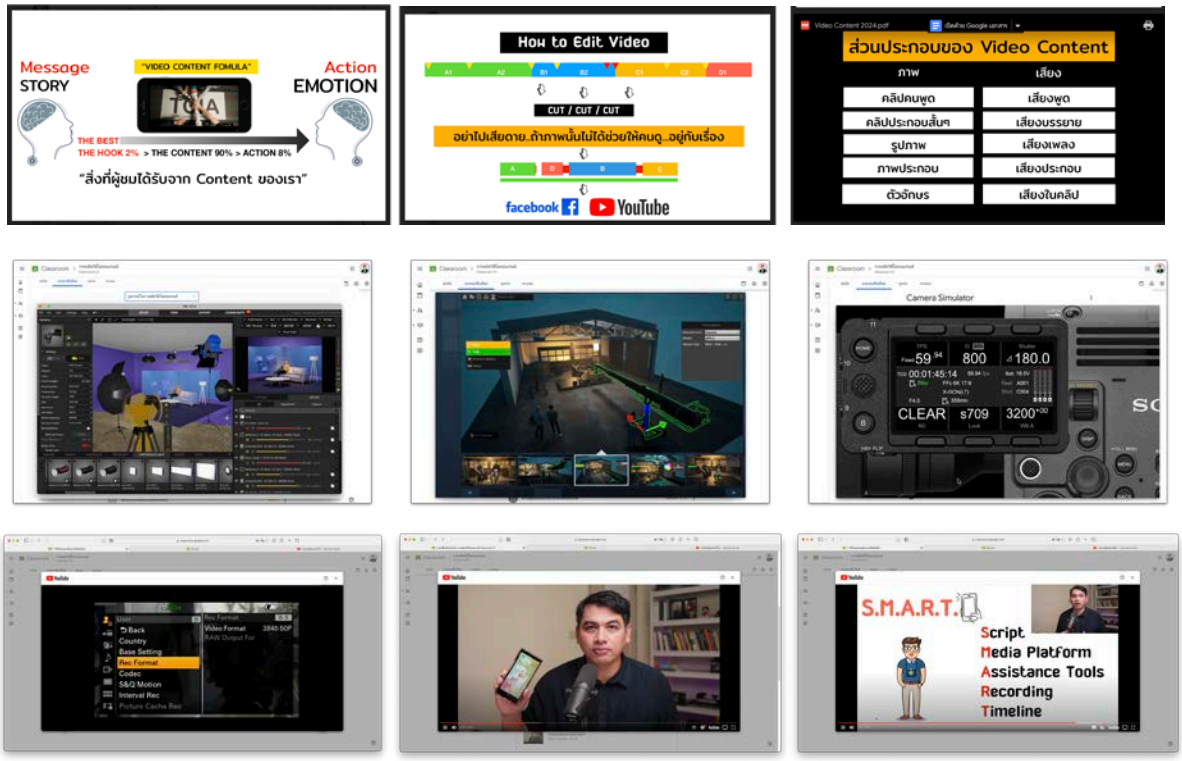
Sample Group: 30 undergraduate students from the same major and department, enrolled in the first semester of the academic year 2024, aged 18 or older. These participants were selected using purposive sampling on a voluntary basis. They participated in learning through the developed online learning resource on video content production, took a learning achievement test, and completed a satisfaction questionnaire.

Research Instruments

The online learning resource on "Video Content Production" was developed based on the ADDIE Model instructional design and the CIPPA Model (a learner-centered instructional model). The online learning resource was implemented using the Google Classroom platform. It was divided into 6 learning units as follows:

Unit 1: Introduction to Video Content
Unit 2: Content Design for Video Production
Unit 3: Preparation for Video Content
Unit 4: Equipment for Video Production
Unit 5: Video Content Production
Unit 6: Publishing Video Content, Evaluation, and Assessment

Figure 2: Learning Resource on "Video Content Production" on the Google Classroom System



The Online Learning Resource Quality Assessment Form

The online learning resource quality assessment form for the topic "Video Content Production" was structured as a 5-point rating scale questionnaire. The questions cover aspects related to content and the design of the online learning resource. The tool's quality was verified using the Index of Item-Objective Congruence (IOC) method, evaluated by five experts. Only items with an IOC index of 0.50 or higher were selected for use in the final version.

Learning Achievement Test on Video Content Production

A 30-question test was constructed to assess learning outcomes related to video content production. The questions were reviewed by five experts to ensure alignment between the test items and learning objectives using the Index of Item Objective Congruence (IOC). Only questions with an IOC index of 0.50 or higher were selected for use with the sample group.

Satisfaction Evaluation Form for the Online Learning Resource on Video Content Production

A satisfaction questionnaire consisted of 12 questions regarding the use of the online learning resource on video content production. It used a 5-point rating scale, ranging from least satisfied to most satisfied. The quality of the instrument was verified by evaluating the alignment between the questions and the objectives using the Index of Item Objective Congruence (IOC). Five qualified experts reviewed the satisfaction questionnaire, and only items with an IOC index of 0.50 or higher were selected for use in assessing learner satisfaction.

In response to three research objectives, all obtained data were analyzed by percentage, mean, standard deviation and t-test for dependent variables.

6. Research Results

Based on Research Objective 1, the overall appropriateness of the online learning resource on video content production was rated by five experts at a high level. The content aspect was considered highly appropriate, and the design of the online learning resource was also rated highly appropriate, as shown in Table 1.

Table 1: Mean Scores of the Appropriateness of the Online Learning Resource on Video Content Production

Assessment Items	Average Appropriateness Score		
	$\overline{X}$	S.D.	Interpretation
1. Content Aspect	**4.33**	**0.12**	High
1.1 Structure of the content covering learning objectives	5.00	0.00	Very High
1.2 Amount of content per lesson page	4.20	0.45	High
1.3 Content accuracy based on academic principles	4.00	0.00	High
1.4 Content appropriateness for learners' knowledge level	4.00	0.00	High
1.5 Clarity of content explanation	4.60	0.55	Very High
1.6 Suitability of content for self-study	4.20	0.45	High

2. Online Learning Resource Design Aspect	**4.36**	**0.18**	High
2.1 Ease of access to the online learning resource	4.20	0.45	High
2.2 Design of the main interface screen	4.60	0.55	Very High
2.3 Accessibility of content and activities	4.80	0.45	Very High
2.4 Important lesson information easily visible	4.00	0.00	High
2.5 Quality of still and animated media	4.00	0.00	High
2.6 Speed of content presentation	4.20	0.55	High
2.7 Navigation within the online learning resource	4.60	0.55	Very High
2.8 Linking to external learning resources	4.00	0.00	High
2.9 Smooth and seamless usage experience	4.60	0.55	Very High
Average	**4.33**	**0.05**	High

As seen in Table 1, five experts considered that the online learning resource on *Video Content Production* is, overall, highly appropriate.

Based on Research Objective 2, the average post-learning score using the online learning resource on Video Content Production was significantly higher than the pre-learning score at the 0.05 statistical significance level, as shown in Table 2.

Table 2: Comparison of the Average Pre-Learning and Post-Learning Scores of a Sample Group of 30 Participants Using the Online Learning Resource on Video Content Production

Score Type	n	$\overline{X}$	S.D.	t	p
Pre-learning score	30	18.03	2.89	21.10**	.000
Post-learning score	30	24.97	2.41		

* Statistically significant at the .05 level

Table 2 shows that learning through the online learning resource on Video Content Production resulted in a statistically significant increase in the post-learning average score compared to the pre-learning score at the 0.05 level.

Based on Research Objective 3, the results of the student satisfaction evaluation toward the online learning resource on Video Content Production, using a 5-level rating scale, revealed that the learners under study had an overall high level of satisfaction. The analysis results are presented in Table 3.

Table 3: Mean and Standard Deviation of the Analysis Results on Satisfaction toward Learning through the Online Learning Resource on Video Content Production

Evaluation Items	Satisfaction Level Rating		
	$\overline{X}$	S.D.	Interpretation
1. I like the online learning resource on video content production	4.03	0.81	High
2. I feel that I have benefited from the online learning resource on video content production	4.47	0.51	High
3. Convenience of accessing the online learning resource	4.50	0.51	High
4. Clarity of usage instructions for the online learning resource	3.03	0.81	High
5. The content organization in the online learning resource is clearly categorized and sequenced	4.37	0.49	High
6. Content within the learning resource is easily accessible	4.40	0.56	High
7. Content presentation aligns with the stated objectives	4.43	0.50	High
8. Quality of images, sound, graphics, and text in the online lesson	4.67	0.48	Very High
9. Speed of content presentation within the lesson	4.33	0.61	High
10 Overall satisfaction with the online learning resource on video content production	4.53	0.57	Very High
Average	**4.38**	**0.19**	**High**

Table 3 shows that the online learning resource on video content production resulted in an overall high level of learner satisfaction.

7. Discussion and Conclusion of Major Findings

The Development of the Online Learning Resource on Video Content Production

The findings revealed that the average rating of expert opinions regarding its consistency and appropriateness was at a satisfactory level. The evaluation was divided into *conten*t and *design* aspects of the learning platform. The online learning resource developed by the researcher, assessed by five experts, was found to be appropriate. Online learning has become a crucial topic in education, especially during the COVID-19 pandemic, which made technology an essential tool in teaching and learning. The study "Successful Online Learning with Gifted Students" by Phelps (2022) offers comprehensive guidance on designing online instruction for gifted students, focusing on enhancing learning quality in the digital age. It emphasizes using technology to support learning activities with clear objectives such as using Google Forms to build learning modules or Google Sites for long-term educational games. The design must consider meaningful and engaging activities to foster analytical thinking and deep learning. Instructional design should also account for students' diversity--cultural, linguistic, or economic to ensure equitable access to learning. This helps reduce educational disparities in the digital era.

Quality online learning is not just about technology use; it requires thoughtful design, clear goals, appropriate tools, and understanding of student needs. The research aligns with the study by Wongchai (2019), who studied the development of higher-order thinking skills a key

competency for 21st-century learners. His research proposed using resource-based learning to develop essential skills and promote a learner-centered approach, encouraging learners' active participation and connection with diverse knowledge sources, both in classrooms and communities. Alammary et al. (2014) also examined blended learning a mix of face-to-face and online methods to enhance students' learning experience. They found that blended learning boosts flexibility and teaching effectiveness, builds a sense of learning community, and increases engagement, aligning with Bouilheres et al. (2020), who emphasized the benefits of combining digital access with in-person interaction. Similarly, Nilsook et al. (2021) explored the needs and issues regarding modern digital learning resources for working-age learners. Using a survey of 600 individuals in the formal labor system and 300 in the informal sector, they discovered the most desired resources were: (i) free learning platforms, (ii) video-based content, and (iii) website-based resources. Most respondents preferred smartphones as their primary learning device. This corresponds with the study by Noothong (2016), who developed a lesson on Color Grading for undergraduates at the College of Social Communication Innovation, Srinakharinwirot University, on the iOS platform. The lesson test with 30 participants showed high satisfaction with this mini-course.

As seen, the design of online learning resources should be based on instructional design principles. The design must have clear objectives and prioritize learners' needs. Content presented online should be clearly viewable on smartphones, and videos should be the primary format of delivery, with learner-centered considerations being paramount.

Learning Achievement

The results from comparing the average scores before and after using the online learning resource on Video Content Production using the t-test statistical method showed that post-learning achievement was significantly higher than pre-learning, with statistical significance at the .05 level. This aligns with the study by Kanchanapiboon (2023), which explored the use of learning resources to measure academic achievement in Sufficiency Economy among 32 social studies students from the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University. Their findings showed that students' achievement after using the learning resources was significantly higher than before, with a significance level of .01. Similarly, Klaithong, P. (2017). conducted research on the Virtual Learning Resource of Wat Ratchapraditsathan (Wat Phako) in Sathing Phra District, Songkhla Province. They found that volunteers' learning outcomes significantly improved after visiting the virtual learning resource, with a statistical significance level of .01, and the group expressed the highest level of satisfaction with the virtual learning resource ($X = 4.60$, S.D. = 0.49).

The obtained results indicate that using online learning resources designed through structured processes based on instructional principles and theories—such as learner-centered instruction, self-directed learning, and step-by-step development of learning resources—encourages students to engage and be motivated to learn. The diversity in teaching methods fosters learning motivation, which leads to improved academic achievement.

Students' Satisfaction

The results on the participating students' satisfaction with learning through the online learning resource "Video Content Production" was found to be at a high level overall ($\bar{x}$ = 4.38, SD = 0.19). According to a study by Ubell (2019), before the pandemic, only one-third of students participated in online learning. However, during the COVID crisis, educational institutions had to rapidly adapt, transitioning nearly all teaching to online formats. This transition was made possible by two key technologies: Learning Management Systems (LMS) and video conferencing systems.

This aligns with a study by Polkowski et al. (2023), which found that institutions are adapting to improve systems for greater efficiency and intelligence to support new forms of learning. Similarly, Fredericksen (2019) found that in well-designed online courses, 94% of learners felt they learned as much or more than in traditional classroom settings. In the same vein, Amornrit & Bootchuy (2024) studied the development of a teaching model called "PLEARN", using podcasts in a distance education system. The sample consisted of 34 students in course 16455 "Creative Content and Streaming" at Sukhothai Thammathirat Open University. The model consisted of six core components and emphasized five learning activities: podcast-based learning, learning stimulation, active learning, summarizing, and knowledge exchange. The research found that learners' post-learning achievement was significantly higher than pre-learning, with a statistical significance level of .05. The students under study also showed very high satisfaction with the instructional model, with an average score of 4.53 and a standard deviation of 0.51.

Overall, the development of online learning resources that are designed based on sound learning principles and supported by appropriate technology can effectively enhance students' academic achievement and satisfaction. It also responds well to the diverse needs of learners in the digital age.

8. Implications of the Study

Based on the research findings, the researchers considered implications for online learning resource development in the aspects of design, content, and delivery for developers' consideration. First, developers need to gear instructional design toward students' diversity--cultural, linguistic, or economic to ensure learning equity. Secondly, it is vitally important to identify clear objectives when prioritizing learners' needs for online lesson content. Thirdly, the primary format of delivery requires content visibility on smartphones, and video quality in support of learner-centered modes. Importantly, the use of online learning resources design based on instructional principles and theories need to encourage and engage students to learn effectively. Such expected learning outcomes can be realized by eclectic teaching methods to improve learners' overall academic achievement.

9. Suggestions for Future Research

The researchers would like to suggest future research into online learning resources in the issues of: (i) online learning resource development related to professional skills, with more diverse content provided by entrepreneurs, (ii) the content needs, knowledge, and specific professional skills that align with occupational qualification standards, and (iii) content presentation formats that align with the learning behaviors of Generation Z students. Interested researchers may also consider the current issues in digital platform selection, learners' personalization, and data privacy and security.

10. The Authors

Jaruwat Noothong is an Assistant Professor and a lecturer in the College of Social Communication Innovation, Srinakharinwirot University, Bangkok, Thailand.

Weerawat Pengchuay is a lecturer in the Faculty of Industry and Technology, Rajamangala University of Technology Rattanakosin, Hua Hin Campus, Prachuab Khiri Khan, Thailand.

Both authors have their research interest in autonomous learning, digital learning model development, online learning resources design, and video content production.

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Academic Paper

Universal Design Concept with Machine Learning for Developing Special Education

Thanarak Santhuenkaew

Faculty of Education, Ramkhamhaeng University
Bangkok, Thailand
Email: thanarak.s@rumail.ru.ac.th

Abstract

Universal Design for Learning (UDL) is an approach that creates learning environments that respond to the diverse needs of learners. This particularly includes students with special needs. In the digital age, technology and Machine Learning (ML) are used to help design and improve teaching and learning to make education efficient and appropriate. Machine learning-based systems can support universal instructional design for special education teachers in using data and algorithms to analyze and recommend appropriate teaching methods to suit individual students. This paper shows how machine learning can serve as a prototype system for special education teachers to analyze data and implement it in a real teaching environment. Its accessibility systems can help teachers design effective instruction based on information obtained from students with special needs. It is expected that the developed prototype of machine learning can help create educational equity in serving learners in special education for the betterment for all citizens.

Keywords: *Universal design for learning, machine learning, special education*

1. Introduction

Digital education is a foundation for human resource development, which takes into account the diversity and specific needs of all learners, especially students with special educational needs (SEN) who need additional support to fully access learning. Universal Design for Learning (UDL) focuses on creating a learning environment that can meet the diverse needs of learners comprehensively (Piticari, 2023). Digital education management, including new technologies and innovations for Machine Learning (ML), has played an important role in changing teaching methods. ML can help analyze learner data and suggest teaching methods that are appropriate for each learner, making teaching more effective and appropriate (Hilbert et al., 2021).

The focus of machine learning is to explore and present its use in universal instructional design for professional development of special education teachers. The main purpose is to enhance teachers' abilities to create learning environments that respond to individual students with special needs by using data and algorithms to analyze and suggest appropriate teaching methods. Teachers can adjust their teaching to the needs and problems in students with special

needs. It is therefore important for teachers to begin with a prototype system that uses machines to learn and test it in a real teaching environment (Molnar, 2021).

In providing special education for those learners in need, it is important for users or teachers to pay attention to (i) the classroom that creates intelligent and interactive learning environments, with cautions toward users' security and privacy (Santhuenkaew, 2024); (ii) analytical thinking for systematic step-by-step problem solving skills required in real life situations (Santhuenkaew, 2023); (iii) a variety of major digital tools that integrate computer assisted instruction, electronic books, video conference, and online learning, as seen appropriate (Santhuenkaew et al., 2024); (iv) personalization in learning experience and engagement via various tasks that can generate predictive insights as well (Rerkpichai & Santhuenkaew, 2024); and (v) the importance of communication and collaboration, particularly via a new messages design tools for communication (Santhuenkaew & Athikiat, 2025).

2. Universal Design for Learning

Universal Design for Learning (UDL) is a framework for designing instruction that provides equal access to learning for all, regardless of the diversity of learners in abilities, learning levels, or cultural backgrounds. Such a framework emphasizes flexibility and adaptability of instruction to meet the needs of each learner. UDL can be applied to all levels of education, from primary to higher education, to create an open and equitable learning environment for all (Thongphanit, 2024).

Key Principles of Universal Instructional Design

The key principles of universal instructional design are as follows:

(1) Multiple Means of Engagement

(i) Stimulate learners' interest and motivation to learn.

(ii) Create a learning environment that allows learners to fully participate.

(iii) Adjust assessment methods to meet the needs of diverse learners.

(2) Multiple Means of Digital Tool

(i) Present teaching content in a variety of media formats, such as text, audio, images, or videos.

(ii) Present content that is not complicated and easy to understand.

(iii) Give learners options to receive information in a way that is appropriate for them.

(3) Multiple Means of Action and Expression

(i) Give learners opportunities to demonstrate their knowledge and skills in a variety of formats, such as writing, speaking, or using technology.

(ii) Help learners develop creative problem-solving and management skills.

(iii) Support the use of different learning tools and resources according to learners' needs.

3. Machine Learning

Machine Learning (ML) is a branch of Artificial Intelligence (AI) that focuses on developing algorithms and statistical models that allow computers to "learn" from data without having to be explicitly programmed to perform a particular task. This means that computers can improve their performance in certain tasks by analyzing existing data and generating new knowledge from it (Mandala Team, 2023).

The Working Principle of Machine Learning

The working principle of machine learning can be seen in several steps as follows:
(1) Data Collection. A large amount of diverse and diverse data is collected to be used to train the algorithm. This data can come from various sources, such as online databases, sensors, images, text, and others.
(2) Data Preparation. The collected data may need to be examined, filtered, and transformed into a form suitable for use in training the algorithm.
(3) Model Selection and Training. This step involves selecting the appropriate algorithm for the task to be performed and using the prepared data to train the algorithm. The machine analyzes the data and improves it to increase its efficiency in predicting or classifying the data.
(4) Testing and Optimization. The trained model is tested on a new set of data that has never been used for training before to assess its efficiency and accuracy. The model is then improved if necessary.
(5) Deployment. Once the model has achieved adequate efficiency and accuracy, it is put to use in real-world applications, such as analyzing text on social media, classifying images, or assisting with special education in the form of mixed media or multimedia.

Types of Machine Learning

Machine learning can be divided into several types based on the learning method and main applications (Molnar, 2021), as follows:
(1) Supervised Learning. The model is trained with labeled data, such as predicting house prices from historical price data.
(2) Unsupervised Learning. The model is trained with unlabeled data, such as segmenting customers based on their purchasing behavior.
(3) Reinforcement Learning. The model learns through experimentation and improves its actions based on the feedback received, such as training a robot to walk.

Therefore, machine learning is a potential tool to improve the efficiency of processes in many fields, including medicine, finance, education, and marketing.

4. Principles of Special Education Development

Special education plays an important role in supporting the learning and development of students with specific needs. In order to have equal and full access to education, the development of special education teachers is the core of creating an appropriate learning environment for such students. This paper discusses the key principles in the development of special education teachers, which include appropriate

education and *training*, strengthening *communication* skills and the use of technology, promoting *collaboration*, and providing *emotional and professional support* (Ketmak et al., 2022). Details are as follows:

(1) Appropriate Education and Training

The development of special education teachers must begin with providing the basic knowledge and skills necessary to teach students with special needs, including understanding the characteristics and specific needs of each group of students, such as students with learning disabilities, students with communication disabilities, and students with physical disabilities. In addition, continuous training and further education to develop new knowledge and modern teaching methods are also important so that teachers can adapt and apply new methods to teaching effectively.

(2) Strengthening Communication Skills and the Use of Technology

Special education teachers need to have good communication skills in order to communicate effectively with students with special needs, including using clear language and using appropriate teaching aids. In addition, the use of technology in teaching can help increase efficiency and interest in learning, such as the use of learning software that is adapted to individual students' abilities as their technological tools to communicate.

(3) Promoting Collaboration

Collaboration between teachers, parents and other professionals is important for developing the learning of students with special needs. Special education teachers should have teamwork skills and network with various stakeholders to exchange information and teaching experiences. Collaboration also helps to develop lesson plans that are appropriate for each student.

(4) Emotional and Professional Support

Special education teachers face high challenges and stress in teaching students with special needs. Therefore, emotional and professional support is very important. Having an emotional support system, such as counseling and support from administrators, can help reduce stress and increase confidence in working. In addition, professional support through continuous training and knowledge development can help teachers have up-to-date skills and knowledge in teaching.

Therefore, the development of special education teachers is a process that requires effort and support from many parties. The goal is for teachers to create appropriate and effective learning environments for students with special needs. The main principles in the development of special education teachers include appropriate education and training, strengthening communication skills and the use of technology, promoting collaboration, and emotional and professional support. Applying these principles will help increase teaching efficiency and develop the quality of education for students with special needs.

5. Benefits of Using Machine Learning in the Development of Special Education

The use of a machine learning prototype in special education for teachers' development can yield the following benefits:

(1) Analyzing Learner Data: Machine learning can quickly and accurately analyze learner data, such as learning behavior, learning outcomes, and special needs, which allows teachers to design a teaching prototype that meets the needs of individual learners.
(2) Improving Teaching Content and Methods: By using ML, teachers can continuously test and improve teaching content and methods to make them suitable for each group of learners, which can be adjusted based on the data obtained from the analysis.
(3) Creating Learning Media Responsive to Learners: Using ML to create learning media that is adaptable and responsive to learners' behaviors and needs, such as creating exercises with different levels of difficulty or presenting different content according to the age range and aptitude of the learner.
(4) Supporting Teacher Professional Development: ML can help teachers' training and develop new skills that respond to changes in teaching and learning conditions by presenting training content pertinent to the problems that teachers have encountered.

Cautions

Cautions in the use of ML include the following:
(1) Data Privacy and Security: The use of ML requires the collection and analysis of student data, which requires attention to privacy and data security.
(2) Integration of Technology into Education Systems: The introduction of ML into education systems may require changes in infrastructure and operating methods, which can be challenging to adapt to.
(3) Development of Teacher Skills and Knowledge: Teachers need to have the knowledge and skills to use new technologies, which may require additional training and support.

Considerations for machine learning technology in developing special education are summarized in Table 1 as shown below.

Table 1: Machine Learning Technology in Developing Special Education

Technology/Tools	Strengths	Limitations	Application in Special Education
Supervised Machine Learning	- Able to learn from labeled data - High accuracy when there is enough data	- Requires a large amount of labeled data - Modeling takes a long time	Used to screen students with learning problems.
Unsupervised Machine Learning	- No need for labeled data - New patterns can be discovered	- May not be as accurate as expected - Results may be difficult to interpret	Used in analyzing student groups
Deep Learning	- High data processing efficiency in large data sets - Used in image and audio processing	- Requires high computing resources	Used to develop software to assist in intelligent teaching.

Technology/Tools	Strengths	Limitations	Application in Special Education
Natural Language Processing (NLP)	- Able to understand and create natural language - Used in chatbots to help students	- Need quality information - Sometimes there may be misunderstandings in the use of language in communication	Used to answer questions and introduce learning content.
Reinforcement Learning	- Can improve performance through trial and error - Used in contextually changing environments	- Training takes a long time - High complexity	Used to create a learning system that adapts to students.

6. Conclusion and Recommendation

As reported in Sections 4-5 and demonstrated in Table 1, this paper emphasizes Universal Design for Learning (UDL) as a concept that focuses on creating inclusive and flexible learning that responds to the diverse needs of learners, especially those with special needs. In particular, Machine Learning (ML) can be used to increase efficiency and adaptability to learners' unique characteristics and varied learning modes. Evidently, the use of machine learning in universal design of learning can increase the efficiency and flexibility of teaching, especially in the development of special education teachers in helping learners with special needs to access appropriate education and reach their full learning potential. It should be noted that the challenges and risks that may occur must be carefully managed to maximize the use of machine learning technology for the betterment of educational provision in terms of safety and equity for learners in special education.

7. The Author

Thanarak Santhuenkaew is a staff member of the Faculty of Education, Ramkhamhaeng University, Bangkok, Thailand. His research interest lies in the areas of digital technology in communication arts and educational management, communication message design, and current issues in digital technology innovation and management.

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Sharing Professional Viewpoint:

Effective Management of Support Policies for Rural Teachers in China

Yanzhu Wei
Rattanakosin International College of Creative Entrepreneurship
Nakhon Pathom, Thailand
Email: 447298701@qq.com

1. Opening

At present, there exists a significant mismatch between the quantity and quality of rural teachers and the educational demands of underdeveloped areas in China (Shi, 2022; Kong & Feng, 2024). As regional development disparities widen, the upgrading of rural education standards has become an urgent challenge requiring continuous exploration. The management of supportive policies for rural teachers serves as a crucial mechanism to bridge the gap between educational equity and resource allocation inefficiency, thereby promoting balanced social development. This approach has received increasing attention from policymakers, educational administrators, and academic researchers. Strengthening the rural teacher workforce is not only a fundamental task for compulsory education but also plays a vital role in rural revitalization efforts. However, the Chinese government's current policy implementations often exhibit systematic flaws, particularly (i) inadequate incentive mechanisms, (ii) uneven distribution of resources, and (iii) insufficient professional development opportunities (Shi & Tian, 2018; Kong & Feng, 2024). Consequently, it becomes imperative to reassess the policy's value in addressing these challenges. To the author of this paper, the governments could apply human capital theory to enhance efficiency in the management of policy implementation in three dimensions: (i) refining performance evaluation systems, (ii) establishing differential compensation standards across regions, and (iii) creating specialized supervisory agencies for rural education development (Shi, 2022; Fan, 2023; Liu & Huang, 2024).

2. Rural Teacher Support

Currently, the implementation status of rural teacher support for teachers in China has required strong coordination in resource allocation, of incentive mechanisms, and clear-cut career development paths. According to Southwest Ethnic Education and Psychology Research Center (2018), the policy synergy evaluation system can help enhance the professional attractiveness of rural teachers through institutional innovation, promote educational equity with balanced professional development of urban and rural education, and create educational equity for rural teachers. It is important that the current policy implementation difficulties should be diagnosed and evaluated for its effectiveness of policy periodically from time to time.

China's Rural Teacher Support Plans in Various Regions (2016-2018) covers rural teachers in 31 provinces by the types of policy tools and collaborative actions. Typical regions with policy innovations can be seen in *the county management and school recruitment reform* in Sichuan Province (Nong, 2021) and the differentiated subsidy system in Zhejiang Province as a replicable experience (Liu & Huang, 2024).

3. Policy Evolution and System Innovation

The support policies for rural teachers in China have gone through an evolutionary logic from "relief-based poverty alleviation" to "precision support," forming a supplementary mechanism centered on the "special post plan" and "public funded normal students," as well as a retention mechanism centered on "title tilt" and "salary promotion" (Fan, 2023). Research has pointed out that the policy system is gradually transitioning from singularity to comprehensiveness, emphasizing the three-dimensional goals of "being able to leave, being able to stay, and being taught well," and optimizing resource allocation through systems, as practiced in unified urban-rural staffing and job rotation and exchange (Hu, 2023). However, the fragmentation and implementation deviation of policy tools still constrain the effectiveness of the management system, such as the mismatch between standard setting and actual needs, and the contradiction between incentive policies and teacher self-development (Yang, 2024).

In terms of policy implementation effectiveness and practical difficulties, the treatment of rural teachers has significantly improved, with an average monthly subsidy of 1,000 yuan for rural teachers in Changde City and an optimized educational structure (with a bachelor's degree rate of 85.93%). In addition, hardware facilities have been improved, and the coverage rate of multimedia classrooms has exceeded 90% (Southwest Ethnic Education and Psychology Research Center, 2018).

As for structural difficulties, Shi (2022) reported the imbalance of resource supply: the proportion of rural teachers teaching across disciplines reached 44.88%, with 70.23% of them teaching more than 13 classes per week, and their professional development time was squeezed. Kong & Feng (2024) investigated the lack of occupational attractiveness: some teachers lack endogenous development motivation due to weak identity recognition and high occupational burnout. This issue was dealt with in the study by Liu & Huang (2024) who examined the lack of policy coordination: the lack of dynamic connection between policies, such as financial security, professional title evaluation and employment, and training support, resulting in *increased benefits but still high turnover rates*.

4. Teacher Professional Development System

China's teacher professional development system primarily supports *knowledge and ability enhancement*. Teaching skills have been improved through specialized training programs, as guided by the "National Training Program." There are identified problems,

particularly training content being disconnected from local realities and low utilization of digital resources (Nong, 2024). Secondly, innovative incentive mechanisms appear in the form of differentiated subsidies, as shown in a township work subsidy of 200 yuan and a district subsidy of 300 yuan in Hunan Province, and tilted professional title evaluation and appointment--eliminating paper requirements. However, there has been a tension between external incentives and teachers' willingness for self-development, and some teachers still face the dilemma of being "developed" (Kang, Lv & Tian, 2024). In addition, cultural identity reconstruction emphasizes the cultivation of local sentiment and enhances teachers' sense of belonging through participation in rural governance and the development of school-based curriculum, but the practical path is still unclear (Shi & Tian, 2018).

5. Closing on Possible Solutions

As for career path optimization, institutions need to adjust staffing standards and practically promote the national reform of *county management and school recruitment* for teacher mobility (Xiao, 2024). Technological empowerment is of vital importance in building a digital learning platform for rural teachers to achieve cross regional sharing of high-quality resources (Yang & Li, 2024). The localization of career paths can be geared toward integration of teachers' knowledge structure with-local culture, as demonstrated in the library of local education (Zhao, Yao & Zhang, 2023). Optimistically and realistically, all these possible solutions are expected to help execute and accelerate effective management for China’s support plans for rural teachers in various regions in the years to come.

6. The Author

Yanzhu Wei is a Ph.D. candidate in Management at Rattanakosin International College of Creative Entrepreneurship, Salaya, Nakhon Pathom, Thailand. Her research interest lies in digital technology in management, government policies for rural teachers, and current issues and innovations in educational management.

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(1) Exemption Review is for the research project that uses unidentifiable data that impose *nil or very low risks* to the human subjects under study. Researchers can request an exemption review approval from the Board.

(2) Expedited Review is for the research project that uses data that impose *low risks* to the human subjects under study. Researchers can obtain an expedited review approval from the Board via the consideration and recommendation of two Board members and an endorsement from the Board Chairperson.

(3) Full Board Review is for the research project that uses data that impose *higher than low risks* to the human subjects under study. Researchers can obtain a full review approval from the Board via the consideration and recommendation of two Board members (specialists in the area under study) and a representative from the public or community concerned, followed by an endorsement from the full Board.

RJCM Call for Papers

RICE Journal of Creative Entrepreneurship and Management (RJCM) is an international journal for academics and scholars at the higher education level to communicate and share their viewpoints and academic work with fellow professionals in the areas of creative entrepreneurship and management as practiced in their fields of specializations in social sciences. Currently, it is under the supervision of Thai-Journal Citation Index (TCI).

RJCM publishes three numbers per volume annually and welcomes contributors to submit their manuscripts in January, May, and September of each year. We accept both academic and research papers in social sciences from contributors. The papers are double-blind reviewed by three independent reviewers in each volume and published online-plus-print three times a year.

The length of the unformatted manuscript in WORD can be 15-25 pages in length including references. The contents of the manuscript should include (1) a title with the author's name, affiliate, email address and telephone contact, (2) an abstract of 150 words with 3-5 keywords, (3) an introduction, (4) a rationale and background of the study, (5) research objectives, (6) research methodology, (7) data collection procedure, (8) data analysis, (9) results and discussion, (10) research limitation (if any), (11) conclusion, (12) acknowledgement(s) (if any), (13) the author's biography of about 50-80 words, (14) references, and (15) an appendix or appendices (if any).

All interested readers and paper contributors please contact Editor-in-Chief: Ruja Pholsward, Ph.D., Associate Professor, Rattanakosin International College of Creative Entrepreneurship (RICE), Rajamangala University of Technology Rattanakosin (RMUTR) <rujajinda@gmail.com>, <ruja.pho@rmutr.ac.th>. Please check *RJCM* Publication Policy as guidelines to paper submission.

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