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Objective

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

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EDITORIAL

Dear Valued Readers:

As we step into the promising horizon of 2025, it is my great pleasure to extend my warmest greetings to each of you. May this new year bring you abundant joy, good health, unwavering resilience, and continued success in all your endeavors—both academic and personal.

Time flows swiftly, and though a year may seem long, it often passes before we fully grasp its moments. Reflecting on the journey through 2024, we take pride in our unwavering commitment to our readers, contributors, and the broader academic community. Our mission has remained clear: to publish quality academic work that fosters critical thinking, advances knowledge, and contributes meaningfully to scholarly discourse.

With the release of Vol. 5 No. 1 (January–April 2025) of the UBRU International Journal, we reaffirm our dedication to supporting scholars and researchers through the dissemination of original research and academic insights. We sincerely invite authors to submit their manuscripts via the ThaiJo platform at: <https://so04.tci-thaijo.org/index.php/ubruij>

We are committed to ensuring that our journal continues to be a dynamic, relevant, and enriching source of academic inspiration. Your readership, submissions, and continued engagement are the foundation of our progress. Together, we can further elevate the impact of research and scholarship.

Thank you for being part of our journey. Let us embrace 2025 with optimism, collaboration, and a shared vision for academic excellence.

Wishing you a year filled with purpose and discovery.



Asst. Prof. Dr. Pimook Somchob

Editor

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Accounting System Development through Production Process of Ban Chiang Kruea Pottery Group Mueang District, Sakon Nakhon Province

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Abstract

This research aimed to develop an accounting system using Excel for the Ban Chiang Kruea Pottery Group, located in Mueang District, Sakon Nakhon Province. The target group consisted of members of the pottery group. Data collection involved semi-structured interviews and purposive sampling, using a qualitative research approach supported by quantitative data obtained from questionnaires. The data were analyzed using descriptive statistics, including percentage, mean, and standard deviation.

The results of the study found that the development of the accounting system was jointly operated to suit the group to receive documents: 1) receipts, 2) an income-expense cash book, and 3) profit and loss statement. A try out found that most expenses were labor wages, followed by raw materials, electricity and water bills, but the incomes came from sales of the products priced between 30 to 150 baht based on the cost of production of the products compared to the similar products available on the market.

Upon an estimation using Excel Program, it was found that satisfaction toward the development was at a high level which enabled the group to truly understand the operation, the cost and the profit.

Keywords: Development, Pottery, Accounting System, Accounting Process

Introduction

The pottery at Chiang Kruea village, Sakon Nakhon province has reputation for its uniqueness for having more strength and durability than the pottery from other places because the pottery at Chiang Kruea village was “handmade” on every step which was passed over from their ancestors. What made hem unique and different from other areas was ‘the clay’ (Anuratana Phuwankham, 2020) available in the rice fields in the community. The clay has special quality in absorbing water and becomes sticky when mixing with water

and be able to make a three-dimension form which will be more durable and stronger after burning (at least approximately 800 degree Celsius).

Seeing this special quality, the villagers, therefore, set up a group to do pottery and carry on this wisdom until now. This is consistent with a study of Chiratatsana Dao Sombun (2020) on Creating Product Value from Local Wisdom at Ban Mon Pottery, Ban Kaeng sub-district, Nakhon Sawan province under a creative economy concept. Currently, the pottery group has been supported by the local government of Chiang Khrua Sub-district Municipality to conserve and continue the pottery wisdom seeing its significance of restoring these skills for the sake of keeping the wisdom and making household incomes. However, the goal of this project was not only for restoring the art and local wisdom but also creating a career for members of the Chiang Khrua pottery group.

The accounting process serves as a critical mechanism in promoting sustainability within the group. Effective accounting requires individuals with appropriate knowledge and understanding of accounting principles to be responsible for record-keeping and preparing financial reports. This ensures that the accounting information adheres to standardized practices and can be utilized for operational planning, control, and decision-making (Supawadee Somsri, 2021).

Members of the Ban Chiang Khrua Pottery Group have recognized the importance of recording income and expenses to promote transparency in collaborative operations. Consequently, there is a desire to develop an accounting process that is tailored to the group's specific needs and operational context. The accounting system was therefore developed based on member input, including the creation of a chart of accounts and the analysis of actual income and expense data. This approach ensures that accounting forms, ledgers, and financial reports are practical and suitable for the group's accounting practices.

Previously, the group did not have a formal accounting system in place; only basic income and expense entries were recorded manually. This limited the usefulness of accounting data and often resulted in incomplete records. Therefore, the development of an accounting system aligned with the group's production processes integrates the use of modern technology to reflect actual operational performance. In order to improve the efficiency and timeliness of financial reporting, manual recording was replaced with computerized data entry. This transition provides the pottery group with accurate financial information for operations, planning, control, and decision-making, and establishes a framework for ongoing community-based product accounting.

Therefore, the development of the accounting system through the production system of the pottery group would include technology content used at present so that the operation data could be seen and the financial report would be done faster. As a result, the manual system for data recording was changed to use computer in operation of the pottery, planning, controlling, decision making, and creating guidelines in making an account for the community products.

Objective

To develop an accounting system using Excel Program appropriate for the pottery group at Ban Chiang Khrua, Mueang district, Sakon Nakorn province.

Literature Review

Concepts on the factors should be taken into consideration in choosing a package program on accounting.

Each package program on accounting has different good points and weak points. Choosing an appropriate program align with working objective will bring about maximum benefits for the user. The factors that should be taken into account are: (1) internal control, (2) ability in presenting evidences of accounting, (3) prices of the products, (4) ability and flexibility in corrections, (5) ability and flexibility in presenting accounting reports, (6) technological base of the package accounting program, (7) ability to transact business on the website and e-commerce such as ability to support monetary currencies or ability to response to rules or standards issued by accounting organizations, (8) reliability of agencies or product companies, (9) ability of expansion to support organization growth, and (10) being easy to use and install (Preethanit Prajakjit, 2020).

The program chosen should be appropriate, able to automatically process the data, and immediately print the report and the result could be known rapidly. The program could work on different operation programs such as Window: Windows XP, Windows 10 for LAN and can be used without limited sub-programs, support business ranging from small to large ones, supporting business such as buying-selling, services, contractor-construction, import, production and others, having both Thai version, Thai-English version, consisting 12 major systems, namely: (1) purchasing and receiving of products, (2) creditor control and other expenses, (3) booking of products and sales, (4) debtor control and other incomes, (5) inventory control, (6) check control and deposits, (7) VAT system and withholding tax, (8) ledger system, (9) fixed assets system, (10) sales analysis, (11) purchase analysis, and (12) security system.

Concepts on Quality of the System of Accounting Information Technology

The system of accounting information technology refers to a system that collects and processes the financial data or that is an economic situation which can be put in the form of accounting information being finance reports and other relevant reports such as statement of financial status, statement of profit and loss, statement of cash flows, and statement of change of shareholders, for those interested in economic data of businesses to use for business decision making in the future, for example customers' information collected from the past till present could be used to predict trends on customers' consumption in the future and for production planning as well (Preethanit Prajakjit, 2020). The concepts include: (1) If the report of the results frequently sent to the organization administrators, they can make use of it for good decision making, (2) flexibility in use and improvement refers to the system which is easy to improve or change because of its internal system or the outside situations beyond the organization's control which eventually help decrease the total capital (Wattanapong Yodrat, 2015). The benefits of the system of accounting information technology are: (1) Increasing the quality and decreasing the capital for instance the system is an instrument to test the production process of each machine when facing a problem so that the administrator can solve the problem right away, (2) Increasing work efficiency since the system of accounting information technology is an instrument to examine the inventory system just in time, (3) The system can help improving communication system such as when there is a change in taxation law, the company can keep the customer informed immediately using internet network, and (4) The system of accounting information technology helps users of the financial statement to make decision correctly.

Concepts on Management and Administration

The word Management in English means the same as Administration. Management has several meanings but here it refers to a process the manager uses arts and strategies operates his business in steps by cooperation from organization members with realization of their abilities, aptitude, needs and wants as well as their hope for progress in the organization at the same time as to achieve their set goals (Somnuek Winothai, 2019). Nowadays, management emphasizes effectiveness and efficiency. As such, resources have to be coordinated effectively and efficiently in order to achieve the goals of the organization. On business management perspective, it can be said that business management consists of five steps for administrators to follow in order to make every sector of the organization to succeed efficiently.

The purposes of the management steps are: (1) Planning, (2) Organizing, (3) Leading, and (4) Controlling from which there are three key terms: resources process, management, and purposes which could be written as a chart showing the management process.

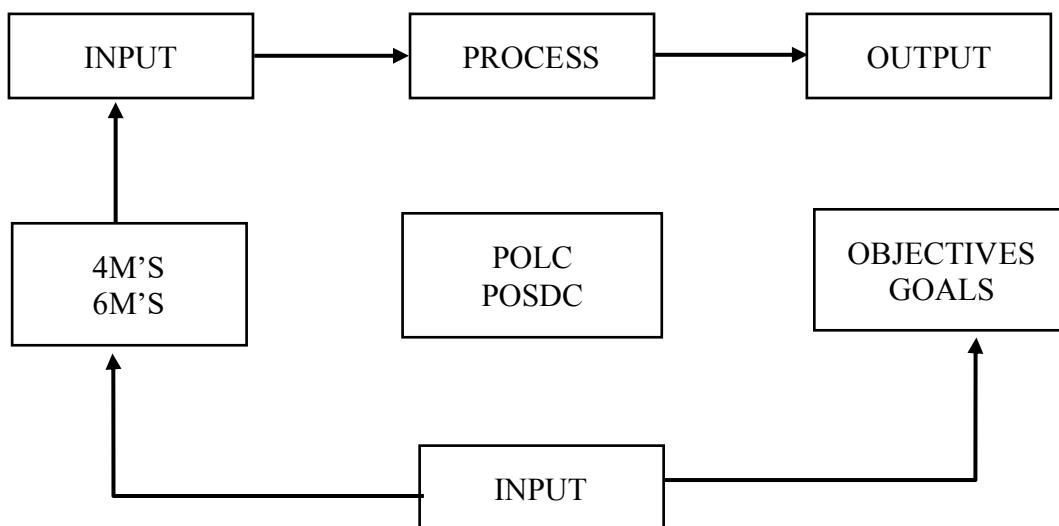


Figure 1: Process of Management

Theoretical Concept of Cost

Production cost refers to the expenses incurred by a business in exchange for goods or services, which are then utilized to generate returns or income for the organization. These costs can be used to analyze operational performance and inform investment decisions.

According to Benjamas Apisitpinyoyo (2016) and Thanandon Preedakanyarattana (2017), the production of goods involves not only direct materials and direct labor but also includes indirect materials, indirect labor, and other indirect manufacturing expenses such as water bills, electricity bills, rent, depreciation, insurance, and taxes. However, these expenses must be directly related to the production process itself and should not include expenses arising from other business operations, such as administrative salaries, office rent, electricity, or depreciation related to non-production functions.

In some contexts, these production-related costs are referred to by other terms, such as factory overhead, manufacturing burden, or indirect costs. Such costs may yield benefits in either the present or future, depending on their nature and the business's operational context.

Research Methodology

Conceptual Frame Work

The development of accounting system through the production process of the pottery group at Ban Chiang Khrua, Mueang district, Sakon Nakhon province aimed at studying and developing the standardized form of the accounting system for the pottery group. The researcher has studied the related documents and books to be the conceptual framework.

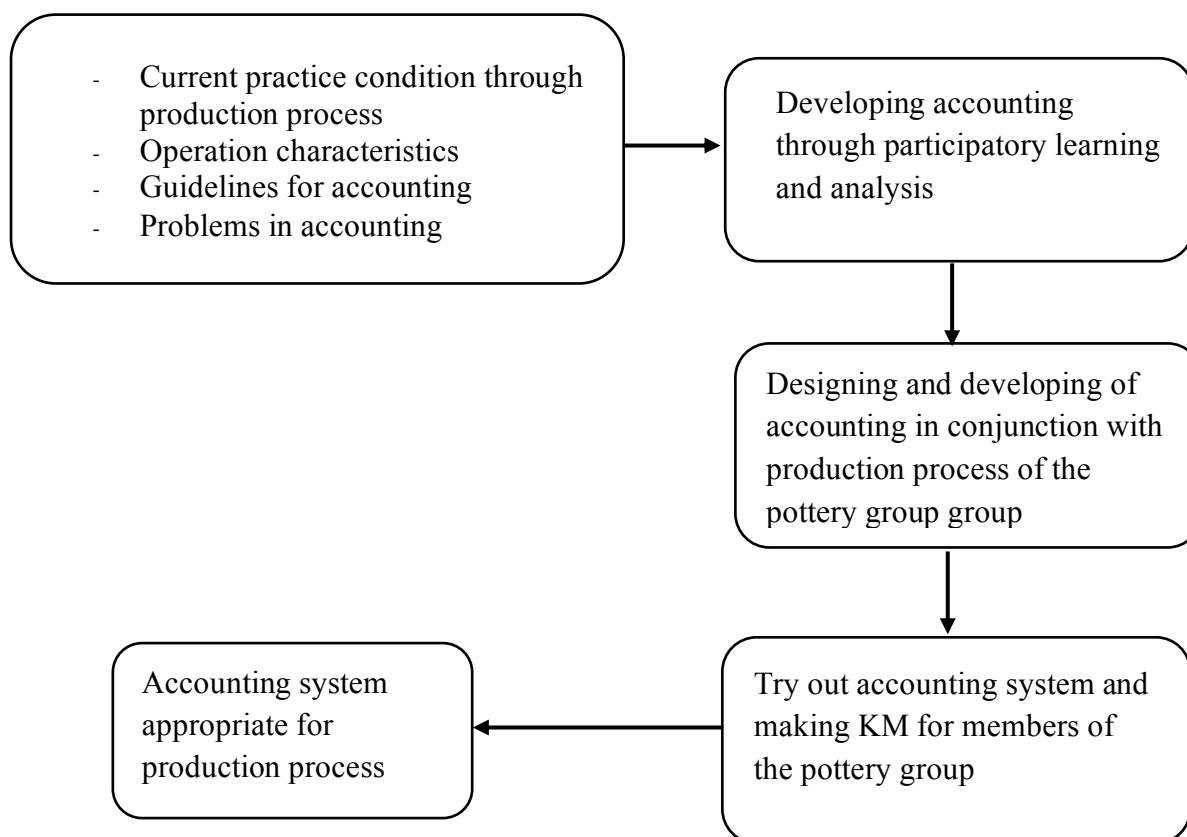


Figure 2: Research Conceptual Framework

Scope of the Study

Scope of the Content

This research investigated basic computerized accounting system using Excel Program, as follows:

1. Investigated the state of practice, guidelines for accounting and problems in accounting of Ban Chiang Khrua pottery group, Mueang district, Sakon Nakhon province.
2. Investigate the guidelines for accounting using Excel Program.
3. Investigated and analyzed the data on accounting in order to analyze the cost of the products

Scope of the Population and Samples

The population and samples used in this study were 10 persons purposively selected from Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province.

Scope of the Area Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province.

Scope of the Time The data were collected during April 2023 to March 2024.

This study was a participatory action research: PAR starting from researching documentary, related studies and articles. It was a quality research applying a quality study process using interviews, structured forms, and confirmed quantitative data by a questionnaire. The instrument and data collection were as follows.

Step 1 Review of literature from documents, articles and related studies in order to construct a questionnaire and an interview based on the facts, namely: method of doing accounting, functions and responsibility of accounting, problems in accounting, guidelines of practice and current management of the group.

Step 2 Organized a training workshop to transfer knowledge, understanding on ways to do accounting and steps in documentation, making records following standard of accounting, exchanging on ways of doing business of community enterprises and understanding the steps on pottery production.

Step 3 Brainstorming for creating an accounting system, making documentary system for accounting records and steps of analyzing and types of production cost, producing pottery according to the steps of users' working which could be truly put into practice.

Step 4 Evaluated the result of using the accounting system and the document received from co-working which made a book and receipts for making records of cash received from selling the products, 2) receipts for recording the expenses such as buying raw materials, labor wage, and water bill, 3) profit-loss book for recording receiving and expenses in each month in order to show real profit or loss according to the real result of operation of the group.

Step 5 Held a meeting for an evaluation of the accounting system and related document to make a conclusion and give a handout and feedback to the pottery group.

Target Group

The target group refers to 10 members of the Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province who were interviewed through a semi-structured interview form purposively selected for the study from the participating population in accounting by dividing into: (1) the group consisting of three persons who provided information on accounting who have collected the information for decision making, planning and controlling of the operation, and (2) the group working on production process for understanding of the production steps, cost and control of related documents.

Research Instruments

The study employed these methods: (1) document analysis, and (2) a semi-structured interview form to investigate problems, obstruction in accounting when collecting data, using the data for cost production, document for recording the account, steps of operation, and opinions of members of the pottery group towards development of the accounting system.

Data Collection

The participatory action research collected the data from an interview, workshop and participation observation with the following steps: (1) coordinated with local community leaders to organized small group meeting with people related to business enterprises to support career at Ban Nikhom to interview about how they do accounting, what documents they use, problems and obstacles in accounting, knowledge and understanding in using the data for their work, analysis and computation of the cost in the production of the pottery, through exchanging opinions during the interview and observation of ways of working in order to collect the data in current accounting and find the ways to develop the accounting system consistent with the way they work, (2) organized a workshop to provide knowledge and understanding about a standard accounting system, significance and benefits of accounting, making understanding on accounting data, accounting recording, and getting the trainees to try on the accounting system they have co-designed, and (3) inquired their opinions on accounting development and using the accounting data and cost accounts to set the selling price. Analysis of the even point was for production planning and the researcher analyzed the data based on the interview and the small group meeting for exchanging ideas on a participatory basis order to the information on operation, ways of doing accounting, problems on accounting, doing cost accounting to set the selling price and steps of operation of Ban Chiang Khrua pottery group. The data received would be used for doing content analysis on the state of current accounting, system of accounting, cost production analysis by considering consistency of accounting design, the operation and the standard it should be. The analysis based on the data from the interview was an analysis of opinions of the person doing financial statements and ways of developing the accounting system of Ban Chiang Khrua pottery group, Mueang district, Sakon Nakhon province.

Research Finding

From the development and presentation of appropriate accounting system of Ban Chiang Khrua pottery group, Mueang district, Sakon Nakhon province, the analysis of the basic data on accounting for designing and set the accounting plan, form of recording accounts, and setting symbols displaying activities of carrying documents in a map, a handout of accounting, and setting a rule for accounting report as follows:

1. Cash income-expense book
2. Receipts of money
3. Profit-loss statement

Development and Creating Accounting System by Excel Program of Ban Chiang Khrua Pottery Group

Analysis of creating accounting cells done by participation between the researcher and the group members for a clear understanding on implementation was classified into steps as in figure 3.

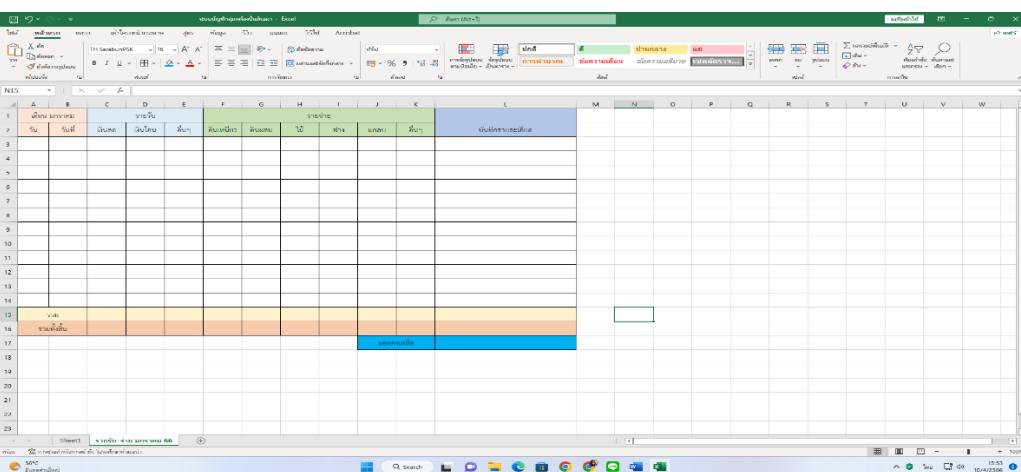


Figure 3: Showing an analysis of creating cells of accounting

An analysis of accounting items, trying on filing data on incomes- expenses classified into steps as in figure 4.

เพื่อน บุกรากาม		รายรับ			รายจ่าย							บันทึกรายละเอียด	
วัน	วันที่	ยอดยกมา	เงินสด	เงินโอน	ยอดต้น			ค่าธรรมด้วย		ค่าใช้จ่าย			
					เดือนหนึ่ง	รายรับ	น้ำ	ค่าธรรมด้วยทั้งหมด	ค่าธรรมด้วยที่น้ำ	ค่าไฟ	อื่นๆ		
อาทิตย์	1											ยอดยกมาเดือน ส.ค 65	
จันทร์	2												
อังคาร	3				24,000.00							เดือนนี้วัน 40 ศ.ค 65 600 บาท	
	3				990.00							ราย 2 ศ.ค 65 495 บาท	
	3				2,000.00							วัน 10 ที่น้ำ 1 月 200 บาท หน้า 4	
พุธ	4							400.00				กระดาษทิ้ง 50 ใบ/月 8 บาท	
พฤหัสบดี	5							400.00				กระดาษทิ้ง 50 ใบ/月 8 บาท	
ศุกร์	6							400.00				กระดาษทิ้ง 50 ใบ/月 8 บาท	
เสาร์	7							400.00				กระดาษทิ้ง 50 ใบ/月 8 บาท	
อาทิตย์	8							400.00				กระดาษทิ้ง 50 ใบ/月 8 บาท	
จันทร์	9							400.00				กระดาษทิ้ง 50 ใบ/月 8 บาท	
อังคาร	10							450.00				กระดาษทิ้ง 30 ใบ/月 15 บาท	
พุธ	11							750.00				กระดาษทิ้ง 50 ใบ/月 15 บาท	
พฤหัสบดี	12							300.00				กระดาษทิ้ง 20 ใบ/月 15 บาท	
ศุกร์	13							300.00				กระดาษทิ้ง 20 ใบ/月 15 บาท	
เสาร์	14							300.00				กระดาษทิ้ง 20 ใบ/月 15 บาท	

Figure 4: Showing an analysis of creating cells of incomes-expenses

To view the operational performance, one can select to display the performance based on the financial reports as shown in Figure 5.

กสุ่ມເກືອບັນດີນເນາ ບ້ານເຊີຍເກືອ ງບກໍາໄຮຫາດຖຸນ/ງບດຳເປັນງານ ປະຈຳເຕືອນ ມກຣາຄມ 2566				ຫນ່ວຍ : ບາທ
รายได้ :				
ขายสินค้า	เงินสด			xxxxxx
ขายสินค้า	เงินโอน			xxxxxx
รวมรายได้ทั้งสิ้น				xxxxxx
ค่าใช้จ่าย :				
วัสดุคิด :	คืนเหมือน			xxxxxx
	ทรัพย			xxxxxx
	ไฟ			xxxxxx
	รวมวัสดุคิด			xxxxxx
ค่าแรง :				
	ค่าแรงบัน/ค่าแรงທາງตรง			xxxxxx
	ค่าแรงอื่นๆ/ค่าแรงທາງอ้อม			xxxxxx
	รวมค่าแรง			xxxxxx
ค่าใช้จ่าย :				
	ค่าน้ำ			xxxxxx
	ค่าไฟ			xxxxxx
	ค่าอื่น ๆ			xxxxxx
	รวมค่าใช้จ่าย			xxxxxx
กำไร/ขาดทุน ขั้นต้น	รวมค่าใช้จ่ายทั้งสิ้น			
ยอดยกมา				xxxxxx
รวมเงินสด				xxxxxx

Figure 5: Showing Profits-Loss Statement

Validation of the Developed Accounting Process Model for Practical Application

The research team conducted a knowledge transfer session with the members of the Ban Chiang Khrua Pottery Group. During the preliminary trial, members simulated data entry based on existing manual records to help them understand the source of numerical data. They then practiced inputting income and expense information into the group's Excel-based accounting program. The entry fields were adjusted to reflect the group's actual operations. Members also practiced generating monthly and annual profit and loss statements and jointly analyzed production cost items to assist in determining appropriate product pricing.

An evaluation was conducted to assess members' opinions regarding the effectiveness of the developed accounting process model. The results are as follows:

Overall, members' opinions regarding system effectiveness were rated at a high level ($\bar{x} = 4.15$). A breakdown of each aspect revealed the following:

1. Ease of Use: Rated at the highest level ($\bar{x} = 4.26$), particularly for the clarity of on-screen messages, followed by the ease of system navigation and the overall suitability of the user interface design.

2. User Needs Alignment: Rated at the highest level ($\bar{x} = 4.23$), especially in terms of database accuracy and completeness, followed by the system's capability to present and update information effectively.

3. Functionality: Rated at a high level ($\bar{x} = 4.20$), especially regarding the accuracy of data entry, followed by correct data categorization and overall system performance accuracy.

4. Data Security: Rated at a high level ($\bar{x} = 4.06$), with strengths in user support and problem-solving, followed by system features that match user needs and the presence of security measures against viruses and intrusions.

5. System Efficiency: Rated at a high level ($\bar{x} = 3.93$), particularly the overall system processing speed, followed by the speed of data entry, updates, and information presentation.

Discussion

The development and presentation of appropriate accounting system of Ban Chiang Khrua pottery group, Mueang district, Sakon Nakhon province was a co-analysis between the researcher and the group members of the pottery group by setting the accounting forms, namely: (1) receipts of money, (2) cash income-expense book and (3) profit-loss statement which was consistent with a study of Office of the Public Sector Development Commission and Thailand Productivity Institute (2005). A study and report on the result of creating standard system of community enterprises should have a record of income-expense account and making a simple account by computer by means of a survey of the community enterprise sample group. As a whole, an analysis of the cost of production of small and large pots found that the total cost was labor wage, such as mold wage and others, followed by raw materials such as soil and wood which was consistent with a study by Jintana Jantanon, Sakdadet Kulakun and Niramon Nueangsiththa (2023) who investigated and analyzed the cost and returns from agriculturalists' water melon growing, a case study of Tha Kon sub-district, Akat Amnuay district, Sakon Nakhon province. The costs mainly came from raw materials and labor cost, but the operating expenses were electricity and water supply bills. Incomes came from real sales divided into two kinds: whole sales and retails. The sales prices were classified by types of products, ranging from 30 to 150 baht which were the same as the products on market. The set prices had impact on setting the returns, being consistent with a study of Sitthichai Hathachot and others (2020). The cost and the returns of Tilapia fish raising in Sakon Nakhon province effected the profit from the fish raising. The cost increased but the sale prices changed the returns, being in line with a study of Phimjai Phromsuwan and Jidapha Haemawang (2020).

The feedback to the results in using the accounting system at Ban Chiang Khrua pottery group revealed that, based on the members' opinions on the efficiency of the accounting system using the created Excel Program, it was easy to use, direct to the needs and wants, the system of increasing and decreasing of data was correct, the security system was good and fast in working according to the system and necessity of use of the members in Ban Chiang Khrua pottery group. This was consistent with a study by Wijitrat Boonthong (2016) who investigated an appropriate accounting system of the National Village and Urban Community Fund in Mueang district, Nan province. Originally, development of the accounting recording was the accounting system that recorded the items of all activities together, including activities of savings and activities of the one - million *baht* fund. Later on, an accounting system was developed to be able to assess each activity, with recording details, documents accompanying the account, and a complete set of financial reports, a good internal control and that it could be examined and could enable the entrepreneur to examine the financial data efficiently.

Suggestion

1. Suggestions for Application

1.1 The members of Ban Chiang Khrua pottery group, Mueang district, Sakon Nakhon province could make use of the data recording the incomes-expenses for an analysis and planning in order to find the real cost and set the way to lower the cost.

1.2 The members of Ban Chiang Khrua pottery group, Mueang district, Sakon Nakhon province could make use of the data on the sale prices to set higher sale prices.

1.3 The members of Ban Chiang Khrua pottery group, Mueang district, Sakon Nakhon province could forward the data on the personnel problems to the local administration organization to run activities for career promotion for the new generation.

1.4 The members of Ban Chiang Khrua pottery group, Mueang district, Sakon Nakhon province could take the data for planning to look for raw materials such as soil, firewood and sand which are currently rare because of their decreases, but the prices are higher. Due to several causes and factors, the soil and sand are currently adequate for production, but the prices may be higher. For the firewood for burning, its price is also higher since it has to be brought from other sources far away. The government sector also limits the area for cutting small trees.

2. Suggestions for future study

2.1 A study should be made in other areas or production of similarity in order to analyze and compare good points, weak points and the those should be improved,

2.2 The member group of the pottery should adjust themselves up to the modern age both in production and sale channel through online media but maintaining the local identity.

2.3 Entrepreneurs should develop the pottery to have better quality and have more forms of production to respond to the needs and wants of groups of customers.

2.4 Entrepreneurs should promote their descendants in the community to have interest in pottery and develop the existing personnel to become important labor force for production in the future.

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The Influence of Beauty Queens in Marketing Communication on The Online Purchase Behavior of Consumers in Thailand

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Abstract

This research examines the influence of beauty queens in marketing communication on online purchasing behavior of consumers in Thailand. Data was collected from a sample of 404 individuals who have purchased products or participated in activities influenced by beauty queens on online platforms. The data was gathered through a structured questionnaire, using convenience sampling combined with survey sampling, and analyzed using descriptive and inferential statistics, such as Pearson's correlation coefficient and multiple regression analysis. The findings reveal that below-the-line communication has the most significant impact on online purchasing behavior ($\beta = 0.356$, $p < 0.001$), followed by expertise ($\beta = 0.200$, $p < 0.001$), above-the-line communication ($\beta = 0.164$, $p < 0.002$), attractiveness ($\beta = 0.154$, $p < 0.001$), and similarity to the target group ($\beta = 0.091$, $p < 0.009$), all of which have a positive effect, but with varying levels of significance. Trustworthiness ($\beta = -0.086$, $p < 0.001$) has a negative effect, while respect ($\beta = -0.018$, $p = 0.651$) does not have a significant impact, as consumers do not prioritize it in this context. The study's findings highlight the role of beauty queens as influencers who can effectively stimulate online purchasing behavior, providing valuable insights for the development of marketing strategies that align with business goals.

Keywords: Influence of Beauty Queens, Marketing communication, Online purchasing behavior

Introduction

In the modern era, where digital technology and online platforms play a crucial role in consumer behavior, online marketing has become highly competitive. This is particularly evident in Thailand, where the online purchasing behavior has been steadily increasing. According to the Electronic Transactions Development Agency (ETDA, 2023), the e-commerce market in Thailand has grown rapidly. As a result, businesses must develop strategies to attract and persuade online purchasing behavior. One popular strategy is leveraging the influence of celebrities or influencers, which enhances brand credibility and builds positive relationships with target audiences. In Thailand, where the beauty pageant phenomenon remains popular, pageants not only inspire but also serve as a platform for

generating commercial value through advertising and brand engagement (Cheung, 2018). Beauty queens' expertise in communication and creating a credible image makes them vital in influencing consumer decisions. The growing trend of engaging with beauty pageants through online platforms is evident in events like the live streaming of Miss Universe Thailand 2023, which attracted an impressive 82,508,127 viewers via streaming and social media (Marketing Oops, 2023). This highlights the significant role of beauty queens in promoting online purchasing behavior by reaching a large audience simultaneously, raising awareness, and effectively stimulating online purchasing behavior through endorsements or promotions during live broadcasts.

Using influential figures with attractive appearances, such as "beauty queens" to promote products or services has become a popular strategy in various forms, including advertising, public relations, and promotional activities. This is because these individuals often influence consumer behavior and capture attention (Chung & Cho, 2017). The influence of beauty queens in communicating products or services arises from several factors that enhance credibility and stimulate online purchasing behavior. Key factors include expertise, which builds trust in the product or service; trustworthiness, which instills consumer confidence in the brand; attractiveness, which creates appeal and leaves a positive impression on the product; respect, stemming from their status as accomplished and socially recognized individuals; and similarity to the target audience, which helps consumers feel connected and understand the product experience. Integrating these factors with appropriate communication strategies increases the likelihood of capturing attention and driving online purchasing behavior effectively (Cialdini, 2009).

A review of relevant literature reveals that although many studies focus on the influence of presenters, most research centers around general influencers or well-known figures in the entertainment industry (Schouten, Janssen, & Verspaget, 2020). However, there is limited research specifically exploring the use of beauty queens as presenters for product promotion on online platforms within the Thai market context. This study aims to fill that gap by examining the impact of using the image of influential beauty queens on online purchasing behavior of consumer. The results of this study will offer both theoretical and practical contributions, providing insights for developing effective marketing strategies especially in selecting presenters who can build relationships with consumers and influence online purchasing behavior in Thailand. Furthermore, the findings can assist brands in planning marketing campaigns and selecting influential figures who resonate with Thai society (Kapoor & Dwivedi, 2020).

Objective

1. To study the influence of beauty queens, including attractiveness, trustworthiness, expertise, respect, and similarity to the target audience, on consumer online purchasing behavior in Thailand.
2. To analyze the impact of above- the- line communication on consumer online purchasing behavior in Thailand.
3. To analyze the impact of below- the- line communication on consumer online purchasing behavior in Thailand.

Literature Review

Concepts and Theories on the Influence of Beauty Queens

The influence of beauty queens refers to their ability to inspire and motivate others, often as individuals with knowledge, expertise, or deep interest in products. Beauty queens can provide reliable product information to consumers, creatively use online media, and share their experiences with a wide audience. Each beauty queen presents unique content styles, reflecting their individuality (Saetea & Sansook, 2021). This influence can be analyzed using the TEARS model (Shimp, 2003), which consists of five key components

1. Attractiveness refers to the characteristics or factors that draw attention or create satisfaction in individuals, objects, or concepts (Lee & Koo, 2015). This could relate to physical appearance, personality, expression, or social and cultural appropriateness. Attractiveness is a crucial concept in psychology and marketing, as it impacts consumer perception and behavior in purchasing decisions or interpersonal relationships. Research by Dion, Berscheid, & Walster (1972) found that individuals with appealing external traits are often perceived as having desirable qualities. For example, those with unique abilities are deemed more credible or attractive than average individuals, as people tend to judge qualities based on appearance. In beauty pageants, attractiveness is a core strategy. Contestants are often selected for their outstanding appearance and personality to impress and engage audiences, particularly on social media. Additionally, McCroskey & Teven (1999) noted that individuals who demonstrate sincerity, competence, and care are more likely to gain trust and attract others. For beauty queens, a natural personality and charming communication enhance an impressive image and foster relationships with fans and followers.

Hypothesis 1: The influence of beauty queens in terms of attractiveness impacts consumer online purchasing behavior in Thailand

2. Trustworthiness refers to the confidence others have in an individual's ability and reliability, often leading to role modeling (Phassasanan Anekthammakul, 2010). Baier (1986) defines trust as relying on another's ability and intent to safeguard entrusted matters without harm or exploitation. Morgan & Hunt (1994) emphasize that trust is a critical component of lasting brand-customer relationships. Similarly, Chaudhuri & Holbrook (2001) found that trust in a brand directly influences customer satisfaction and loyalty. In the context of beauty queens, trustworthiness is reflected in their role as inspirational figures who connect followers or supporters with related brands or organizations. Trust is often demonstrated through exemplary behavior and decisions, fostering sustainable relationships across personal, organizational, and business contexts. For instance, in the Miss Grand Thailand pageant, building trust in beauty queens and associated brands is vital for enhancing the positive image of products and services. When a beauty queen's personality conveys reliability and integrity, it establishes an emotional connection with consumers, thereby effectively fostering brand loyalty.

Hypothesis 2: The influence of beauty queens in terms of trustworthiness impacts consumer online purchasing behavior in Thailand.

3. Expertise refers to an individual's proficiency and specific skills acquired through training and accumulated experience (Hovland et al., 1953). In the context of beauty queens, they are perceived as experts with knowledge, abilities, and exceptional experiences capable of conveying reliable information and creating awareness among consumers. Expertise does not necessarily mean mastery in all fields but the ability to communicate effectively,

enabling consumers to understand the presented information. When beauty queens present products that align with consumer needs, they can positively influence consumer attitudes. Moreover, utilizing expertise relevant to the product enhances trust and encourages online purchasing behavior of consumers (Kullanart Warratrakitikorn, 2021). Mears (2011) defines the expertise of beauty queens as the knowledge, skills, and unique qualities developed during competitions or their reign, contributing to credibility and social influence. This expertise encompasses personality, communication, leadership, and cultural representation, allowing beauty queens to use their roles to create a positive image for both consumers and brands.

Hypothesis 3: The influence of beauty queens in terms of expertise impacts consumer online purchasing behavior in Thailand.

4. Respect involves honoring or esteeming individuals, objects, or attitudes by sincerely acknowledging their value or dignity, including morality, abilities, rights, or individuality. It also entails appropriate behavior towards others without violating their rights (Oxford English Dictionary, 2024). Respect is often derived from admiration for individuals who excel in their careers and can serve as role models or inspirations, such as Victoria Keer Theil, an entrepreneur, dancer, and teacher who succeeded in Miss Universe 2024 (Thansettakij, 2024). In the context of beauty queens, their achievements and exceptional abilities garner admiration and acceptance from consumers, especially when aligned with their values and standards. Beauty queens are often seen as exemplary figures or sources of inspiration through impressive competitions or expressions. Furthermore, their appropriate behavior and image enhance admiration and respect in the eyes of consumers (Jariya Kaewnongsang, 2021). Close relationships and direct interactions between beauty queens and fans build trust, which may promote confidence in the products or brands they represent and encourage online purchasing behavior of consumers related goods or services in the future (Djafarova & Rushworth, 2017; Stubb et al., 2019).

Hypothesis 4: The influence of beauty queens in terms of respect impacts consumer online purchasing behavior in Thailand.

5. Similarity refers to the resemblance between influencers and target audiences in terms of personality and lifestyle, such as age, gender, ethnicity, and social status (Cialdini, 2007). Selecting influencers who share similarities with the target audience can effectively foster connection and understanding between the product and consumers. For example, Amanda Obdam, a former Miss Universe Thailand, was chosen as the brand ambassador for GO HAIR under the concept “Beautiful Plus, Never Rejected” (innews, 2024). Amanda's elegant personality and distinctive image align with the brand's target audience—modern women who value beauty and confidence. The role of a national or global beauty pageant figure positively influences consumer attitudes. Desphande & Stayman (1994) found that the race or cultural background of an influencer can build trust in a brand, while Shimp (2003) highlighted that similarities between influencers and target audiences enhance brand recognition and foster positive attitudes. Additionally, Farrell et al. (2000) noted that consumers are more likely to identify with influencers they perceive as similar. Therefore, resemblance between influencers and target audiences helps establish connections, trust, and favorable attitudes toward the brand, ultimately leading to positive brand perception and online purchasing behavior.

Hypothesis 5: The influence of beauty queens in terms of similarity to the target audience impacts consumer online purchasing behavior in Thailand.

Concepts and Theories of Communication Marketing Tools

Duncan (2005) and Rujichok (2022) emphasized that marketing communication tools help differentiate products and services from competitors. They aim to persuade, invite, and highlight unique attributes and benefits that consumers receive, fostering brand recall. Marketing communication tools can be divided into two categories.

1. Above-the-Line (ATL) Communication refers to marketing strategies that utilize mass media channels to reach a broad audience, such as television, radio, newspapers, magazines, billboards, and widely used digital platforms. These channels promote brands or special offers, enabling the rapid dissemination of product and service information to a large number of consumers (Pritchard, 2011; Kotler & Keller, 2014). Advertising plays a vital role in generating interest, reinforcing brand recall, and potentially leading to online purchasing behavior (Madhavaram, Badrinarayanan & McDonald, 2013). The primary objectives of ATL are to 1. Provide information about products and services. 2. Stimulate and motivate consumers to make purchase decisions. 3. Reinforce brand familiarity through reminders (Duralia, 2018). Using beauty queens in advertisements enhances marketing messages effectively, as their image and personality often align with cultural values and consumer lifestyles (Rafique, 2012). The combination of beauty and talent not only reflects a positive brand image but also builds credibility and trust in the brand, fostering consumer connection. Highlighting quality and affordability through this approach enhances brand recall and long-term trust in the product (Rai, 2013).

Hypothesis 6: Above-the-line communication impacts consumer online purchasing behavior in Thailand.

2. Below-the-Line (BTL) Communication involves two-way interactive communication targeting specific customer segments rather than broad audiences (Ricardo Seixas, n.d.). This approach includes activities such as marketing events, direct marketing, sales promotions, and personal selling, enabling closer and more effective engagement with target customers. One significant BTL tool is public relations, which plays a crucial role in fostering understanding and positive attitudes toward an organization. Bernays (1952) noted that public relations are vital for creating a favorable image, promoting popularity, and protecting business reputations in the eyes of customers. Public relations serve as an effective channel for disseminating information and building long-term credibility. Influential individuals, such as beauty queens, effectively use BTL communication. By leveraging platforms like online public relations, they reflect societal values, enhance credibility, and create positive business images. For example, beauty queens often contribute to public relations goals by hosting events or promoting national tourism, as demonstrated in studies by Pirisana Kampusiri, Pruet Supasetsiri, and Kittikorn Nopudompon. (2022). Their influence enhances brand reputation and trustworthiness.

Hypothesis 7: Below-the-line communication impacts consumer online purchasing behavior in Thailand.

Concepts and Theories Related to Online Consumer Purchasing Behavior

Online Purchase Behavior refers to the process through which consumers consider and decide to purchase goods and services through online channels, relying on the information they receive and being influenced by various internal and external factors that affect their behavior. According to Chuchai Smithikrai (2019), online purchasing behavior is the result of a process of thinking and considering information from multiple sources, as well as the stimuli from marketing activities. Kotler and Keller (2016) proposed a five-step decision-

making process, including: Problem Recognition, Information Search, Evaluation of Alternatives, Purchase Decision, and Post-purchase Behavior. Furthermore, Kotler and Keller (2016) elaborated that the purchase decision is the final step in the decision-making process, where consumers evaluate key factors such as product selection, brand selection, vendor choice, purchase timing, quantity, and the amount of money spent. Online purchasing behavior is influenced by several factors, one of the key influences being the impact of celebrities, such as beauty queens, who play a significant role as opinion leaders and trendsetters on social media (Schiffman & Kanuk, 2007). These influential figures can drive online purchasing behavior because they are socially accepted. When consumers perceive their own image reflected through influential figures like beauty queens or influencers, it builds trust in the product and brand, leading to quicker and more confident purchase decisions (Yada Taweesak & Thanakrit Wongmahaset, 2024).

Research Methodology

Conceptual Framework

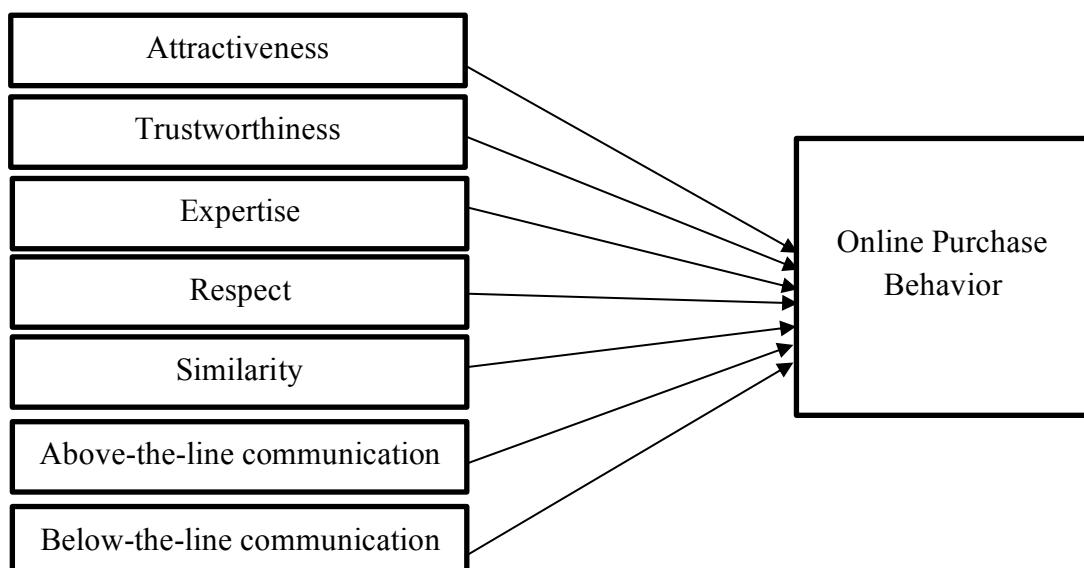


Figure 1: Conceptual Framework

Population and Sample

The population scope consists of consumers residing in Thailand who have previously purchased products or participated in activities influenced by beauty queens mentioning or using products on online platforms. The sample size was calculated using Cochran's formula (Cochran, 1977), with a 95% confidence level and accounting for a 5% loss rate in survey responses. The calculation resulted in a sample size of approximately 384.160 people, rounded up to 385 people. To account for potential survey response loss, an additional 15 people were added, bringing the total sample size to 404 people. This ensures greater reliability in the research results. The sampling method used was non-probability sampling, employing both convenience sampling and survey sampling techniques. Convenience sampling allowed easy access to online users who have seen or been influenced by products mentioned by beauty queens, making it suitable for the researcher's time and resource constraints. At the same time, survey sampling facilitated the systematic collection of quantitative data to support the analysis.

according to the study's objectives. Although this method has limitations in generalizing the results, the clear definition of the target group and the use of appropriate tools can enhance the credibility of the research, particularly in the context of studying consumer behavior influenced by beauty queens on online media.

Research Instruments

The primary research instrument was a close-ended questionnaire consisting of 404 sets, distributed online via Google Forms. The questionnaire used a 5-point Likert scale to measure respondents' opinions and included concise multiple-choice questions. It was divided into three sections: Section 1: Demographic and basic information of the respondents. Section 2: Information on product perception, experiences, and consumer behavior. Section 3: Questions on the influence of beauty queens, covering attractiveness, trustworthiness, expertise, respect, similarity to the target audience, above-the-line communication, below-the-line communication, and online purchase behavior in Thailand. The validity of the questionnaire was checked using the Item-Objective Congruence (IOC) index from three experts, with an IOC value of 1.00, which exceeds the required threshold (≥ 0.500), indicating that the questionnaire aligns with the research objectives. Additionally, the Cronbach's Alpha coefficient ranged from 0.745 to 0.855 (≥ 0.700), showing that the questionnaire is reliable and suitable for the research.

Data Collection

1. The research study on the influence of beauty queens in marketing communication that impacts online purchase behavior of consumers in Thailand was conducted by the researcher using convenience sampling and survey sampling methods. Data was collected through a Google Forms questionnaire, targeting consumers residing in Thailand. The questionnaires were collected from December 2024 to January 2025, with a total of 404 completed responses.

2. The researcher distributed the questionnaires via various online platforms such as Instagram, Line, and Facebook. Online distribution was an easy way to quickly disseminate the questionnaires to the target respondents and gather the required number of responses.

3. Once the required number of responses was collected, the researcher analyzed the gathered data using the Statistical Package for Social Sciences (SPSS) software.

Statistical Procedures for Data Analysis

The data analysis employed both descriptive and inferential statistical methods. Descriptive statistics included the mean, standard deviation, and percentage to summarize and interpret the questionnaire responses. For inferential statistics, the Pearson Correlation Coefficient was used to determine the relationships between variables. Multiple Regression Analysis was applied to analyze the relationships between several independent variables and one dependent variable. Meanwhile, Simple Regression Analysis was used to test the significance level, standard error, regression coefficients (both unstandardized and standardized), and hypothesis testing statistics.

Research Finding

Part 1. The analysis of opinion levels and multicollinearity analysis regarding the influence of beauty queens included attractiveness, trustworthiness, expertise, respect, similarity to the target audience, above-the-line communication, below-the-line communication, and online purchase behavior in Thailand.

Table 1: The results of an analysis of the average and standard deviation of the variances.

The Variances Used	\bar{x}	S.D.	Level
Attractiveness: ATT	4.378	0.462	Most Agree
Trustworthiness: TW	3.988	0.534	Highly Agree
Expertise: EXP	4.376	0.509	Most Agree
Respect: RES	4.365	0.496	Most Agree
Similarity: SIM	4.246	0.485	Most Agree
Above-the-line communication: ALT	4.409	0.466	Most Agree
Below-the-line communication: BTL	4.389	0.446	Most Agree
Online purchase behavior: OPB	4.332	0.422	Most Agree

Table 1 presents the results of data analysis regarding the level of opinions on the influence of beauty queens in marketing communication affecting online purchase behavior of consumers in Thailand. The findings indicate that, overall, the factor with the highest level of opinion is Above-the-line communication, with an average score of 4.409. This is followed by Below-the-line communication (average score: 4.389), Attractiveness (average score: 4.378), Expertise (average score: 4.376), Respect (average score: 4.365), Online purchase behavior (average score: 4.332), and Similarity (average score: 4.246), respectively. The factor with the generally highest level of opinion is Trustworthiness, with an average score of 3.988.

Part 2 The analysis of the linear relationship between variables using Pearson Correlation tests to check the independence of each variable.

Table 2: Correlation coefficients to check discriminant validity between data variables.

Coefficients								
ATT	1							
TW	-0.086	1						
EXP	0.465**	-0.040	1					
RES	0.445**	0.000	0.450**	1				
SIM	0.138**	0.018	0.198**	0.155**	1			
ATL	0.597**	-0.012	0.595**	0.513**	0.251**	1		
BTL	0.552**	-0.056	0.504**	0.503**	0.273**	0.701**	1	
OPB	0.553**	-0.127*	0.561**	0.417**	0.286**	0.639**	0.667**	1

Table 2 shows that all independent variables, including Attractiveness, Trustworthiness, Expertise, Respect, Similarity, Above-the-line communication, and Below-the-line communication, are significantly correlated with Online Purchase Behavior at the 0.01 level.

In particular, the variables Expertise ($r = 0.561$), Attractiveness ($r = 0.553$), Below-the-line communication ($r = 0.667$), and Above-the-line communication ($r = 0.639$) exhibit moderate to strong relationships. When examining the correlation coefficients between the independent variables, the values range from -0.127 to 0.701, with most r values below 0.80, indicating that there are no issues with Multicollinearity or overlapping relationships among the variables. Therefore, the data is suitable for further multiple regression analysis.

Part 3 Hypothesis Testing - Analyzing the Influence of Beauty Queens in Marketing Communication on Online Purchasing Behavior in Thailand Using Multiple Regression Analysis

Table 3: The results of an analysis of multiple linear regression

Variable	Unstandardized Coefficients		Standardized Coefficients	t-test	Sig
	B	Std. Error	β		
ATT	0.141	0.040	0.154	3.561	<0.001
TW	-0.068	0.026	-0.086	-2.583	0.010
EXP	0.166	0.035	0.200	4.706	<0.001
RES	-0.016	0.034	-0.018	-0.453	0.651
SIM	0.079	0.030	0.091	2.640	0.009
ATL	0.149	0.048	0.164	3.103	0.002
BTL	0.337	0.046	0.356	7.248	<0.001

Table 3 shows the impact of the influence of beauty queens in marketing communication on online purchasing behavior of consumers in Thailand. The influence of Below-the-line communication has the most significant effect ($\beta = 0.356$, $P < 0.001$), as it directly reaches the target audience through promotional activities and direct interaction with consumers. This is followed by Expertise ($\beta = 0.200$, $P < 0.001$), which reflects the credibility of the beauty queen in recommending products, thereby increasing consumer confidence in making purchase decisions. Above-the-line communication ($\beta = 0.164$, $P = 0.002$) has a positive effect, but due to its broad mass media advertising approach, it is less effective than Below-the-line communication. Attractiveness ($\beta = 0.154$, $P < 0.001$) results in consumers feeling a connection to the beauty queen and generating interest in the product. Similarity with the target audience ($\beta = 0.091$, $P = 0.009$) has a positive effect, but it is the least influential, as consumers still require other factors when making a purchase decision. Trustworthiness ($\beta = -0.068$, $P = 0.010$) has a negative effect, as consumers may sometimes perceive it as an insincere form of advertising. Respect ($\beta = -0.018$, $P = 0.651$) has no impact, as consumers do not prioritize this factor in the context of online purchase behavior.

Suggestion

General Marketing Recommendations

1. Brands should organize activities that allow consumers to try the product, such as offering product samples or conducting online activities where participants can interact and have fun with beauty queens representing the brand. This approach helps consumers feel more connected to the brand and encourages them to try the product.
2. Select beauty queens whose image aligns with the brand's identity, such as portraying healthiness or self-confidence, and have them share real stories about using the product in daily life. This will increase consumer trust in the brand.
3. Combine broad and targeted advertising strategies. While mass-reach advertising may not immediately drive purchases, using it alongside activities that directly engage the target audience will help increase brand awareness and make it easier for consumers to make an online purchasing behavior.

Conclusion

The findings from the research on the influence of beauty queens in marketing communication and its impact on online purchasing behavior in Thailand reveal that the following variables have a significant effect: Attractiveness, Trustworthiness, Expertise, Similarity to the target audience, Above-the-line communication, and Below-the-line communication. However, the variable that could not be used for prediction or did not have a significant effect is Respect.

1. The attractiveness of beauty queens as brand ambassadors positively impacts online purchasing behavior in Thailand. The presence of a beautiful and attractive celebrity endorser helps build brand trust and encourages consumers to make a purchase decision more easily. Consumers associate beauty queens with aesthetics and value (McCracken, 1989). When the image of the beauty queen aligns with the brand, it enhances marketing communication efficiency (Kamins, 1990). Additionally, if the endorser's image is close to the one consumers aspire to, it boosts motivation to buy (Choi & Rifon, 2012). Recent research by Nawamin Siwasaranon and Ongart Singlumpong (2024) confirms that the attractiveness of influencers on social media influences the purchasing decisions of Gen Z consumers.

2. The trustworthiness of beauty queens negatively affects online purchasing behavior in Thailand. While trust in beauty queens as brand ambassadors can reduce concerns over online purchasing behavior, such as fear of receiving products that do not match the description or non-delivery after payment, in some cases, trust can have a negative impact. Some consumers may view the presence of beauty queens as merely a commercial advertisement lacking sincerity, which can reduce brand credibility and cause hesitation in purchase decisions. According to research by Gefen et al. (2003), "trust" plays a crucial role in reducing concerns in online transactions. Morgan & Hunt (1994) also point out that trust can establish long-term relationships between consumers and brands. Moreover, research by Thanisara Kesuwan and Jarachawan Jantrarat (2020) found that influencers with credible and relevant expertise, such as health or lifestyle expertise related to the product, play a significant role in motivating purchase interest.

3. The expertise of beauty queens in product endorsement positively influences online purchase behavior in Thailand. Their knowledge and skills in presenting products enhance credibility and make consumers feel confident in the information they receive, impacting online

purchasing behavior. This is particularly effective when the endorser has direct knowledge or experience with the product, such as its components, origin, or usage recommendations. Research by Thananya Sawanghaboon (2022) indicates that in an era where online information spreads rapidly, having an expert endorsing a product is a key factor in building confidence and facilitating purchase decisions. This is supported by research from Kattakamon Phislaengam and Sirinya Wirunrat, (2024), which found that influencers with in-depth product knowledge create consumer confidence and encourage purchasing decisions.

4. The respectability of beauty queens does not directly impact online purchasing behavior in Thailand. While beauty queens are admired and respected figures, this does not directly affect consumers' online purchasing behavior. Consumers tend to prioritize factors such as product quality, price, convenience, brand credibility, and user reviews. Therefore, selecting a beauty queen as a brand ambassador should focus more on whether she aligns with the target audience's image and personality, rather than her fame or follower count (Heroleads, 2022). This is consistent with research by Thananya Sawanghaboon (2022), which found that consumers are more focused on the attractiveness and relevance of the endorser's image rather than their academic achievements or social status.

5. The similarity between beauty queens and the target audience positively influences online purchasing behavior in Thailand. Beauty queens who share similarities with the target audience, such as lifestyle, values, or ways of thinking, have a significant impact on online purchasing behavior. Consumers feel more connected and understood, especially younger generations who seek influencers with similar experiences or lifestyles. If a beauty queen uses accessible language or shares experiences that resonate with the target audience, it helps build trust and increases the likelihood of a purchase. This is supported by research by Sudarat Yomrat, Theptat Thongkum, and Thammarong Tangkaew (2020), which found that similarity in age, income, or profession between consumers and brand ambassadors, such as K-pop idols, significantly attracts attention and motivates purchase intentions.

6. Above-the-line communication, such as advertising, positively influences online purchasing behavior in Thailand. ATL communication helps products reach a large audience, and when combined with a beauty queen or celebrity endorser, it enhances credibility and attracts consumer attention, leading to future online purchasing behavior. Research by Darawan Phona and Narasap Tuncho (2023) indicates that online advertising as part of integrated marketing communication plays a vital role in stimulating demand for products like dietary supplements. Furthermore, Aphirat Na Ranong, Napaporn Khunthongtha, and Montri Piriayakul (2016). found that using celebrities in advertisements helps build product likability and trust, which are crucial factors in facilitating purchasing decisions.

7. Below-the-line communication strategies, which focus on targeted outreach such as public relations or product launch events, positively affect online purchasing behavior in Thailand. When a beauty queen with a famous reputation presents these communications, it helps enhance the brand image and generates interest in the product, leading to easier online purchasing behavior. Research by Rujinan Ueapitaksakul, Wiraporn Chotipanya, and Natthawut Somyaron (2021) found that product launches, both in public settings and on online platforms, significantly impact purchasing behavior. Additionally, research by Darawan Phona and Narasap Tuncho (2023) confirms that endorsing product quality through direct communication with the target audience builds confidence and encourages purchase decisions.

Recommendations for Future Research

1. Research should compare the impact of beauty queens with other public figures, such as athletes, musicians, or lifestyle influencers, to analyze who can most effectively influence online purchasing behavior in different contexts. Additionally, studies on the impact of beauty queens in countries with different cultures from Thailand should be conducted to compare communication strategies and consumer behavior in online purchasing, which will help adapt marketing strategies to the needs and behaviors of consumers in various countries.
2. Research should examine the long-term effects of using beauty queens in marketing communications, such as building brand loyalty and creating a sustainable brand image. This should include investigating the risks of using influencers with specific, niche images to assess the sustainability and effectiveness of this strategy over time. Such research would assist brands in adjusting their strategies to reduce risks and maintain continuous value.
3. Studying the impact of beauty queens' characteristics on different target groups, such as age, gender, or online shopping behaviors, will help understand how different consumer groups respond. This insight can be used to adjust marketing strategies to better fit specific target segments.

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The Relationship between Public Relation Officers' Competency Factors and The Image of Suvarnabhumi Airport

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Abstract

This research aimed to examine personal information of passengers using the airport's services at Suvarnabhumi Airport, competency factors of public relation officers, the image of Suvarnabhumi Airport, and the relationship between personal factors, performance factors, and the image of Suvarnabhumi Airport. The research was quantitative research and 206 samples were collected focusing on public relation officers at Suvarnabhumi Airport. The questionnaire was validated based on the Index of Item Objective Congruence or IOC by three experts. The validity was between 0.67-1.00. The questionnaire was used to find reliability and the scale was 0.819. Statistics were used in order to analyze data using frequency distribution, percentage, mean, standard deviation, and correlation. The results found that overall competency factors were at a high level ($M = 4.36$), airport image was at a high level ($M = 4.42$). The relationship between competency factors and image of Suvarnabhumi Airport was positive at a moderate level ($r = 0.499$). When considering each component, it found that there was a relationship between value and competency factors at positively moderate level ($r = 0.318$). Therefore, the executives should pay attention to competencies of public relation officers by promoting and training continuously for the good image of organization from the public relation officers sustainably.

Keywords: Relationship analysis, Competency factors, Image of Suvarnabhumi Airport, Public Relation Officers

Introduction

It has been almost five years since the COVID-19 pandemic that was treated as an influenza. The economy started to accelerate in a positive direction as well as the government tending to welcome foreign tourists. This positively affected the aviation industry. Starting from February 28th, 2023, there were over 800 flights arriving at Suvarnabhumi Airport per day which contributed to more than 2,000 flights arriving at airports in Thailand. The number of tourists were roughly 300,000 per day and would make 20 million to 25 million people per year. Therefore, the flights and tourists would be increased accordingly (Bangkok Biz News., 2023). Mr. Kittipong Kittikachorn, General Manager of Suvarnabhumi Airport at Airports of Thailand Public Limited Company or AOT stated there were 107,304 flights and over 17 million people since October 1st, 2022 to February 15th, 2023. After a lockdown, China promoted the travel industry and allowed people to travel overseas from February 6th, 2023, which created a high volume of tourists traveling to Thailand.

The flights have been increased and would generate income of over 800 billion Baht both inbound and outbound (Prasit. P., 2013).

Moreover, Suvarnabhumi Airport has promoted a good performance in management and income which led to the three awards as follows:

1. CAPA Airport of the Year 2010
2. The 3rd Rank of Best Airport Worldwide in 2009
3. The most successful airport in terms of the highest market value of around 1 trillion Baht.

On June 29th, 2023, Airport of Thailand (AOT) was known as the highest market value airport. It had a market value of around 1.02 trillion Baht. AOT was ranked at the 633rd (credited by CompaniesMarketCap). The annual income was around \$880 million or 31 billion Baht. AOT currently oversees six airports in Thailand: Suvarnabhumi Airport, Don Mueang Airport, Chiang Mai, Mae Fah Luang (Chiang Rai), Phuket, and Hat Yai. Besides, Aena Airport in Spain was ranked as the 2nd market value of around \$24,460 million or 864 billion Baht. The annual income was around \$4.73 billion. However, Shanghai Airport in China was ranked as the 3rd market value airport of around \$15.58 billion or 550 billion Baht. There is one or two of Asian companies which AOT included with a market value in the top 10th in the world (Bangkok Biz News., 2023.).

The Civil Aviation Authority of Thailand (CAAT) stated that the aviation industry started to grow after COVID-19 pandemic in 2022. There were more than 75 million passengers coming to Thailand and the flights to Thailand were increased to around 570,360 flights. In 2023-2024, there would be more passengers traveling in Thailand. However, due to the unexpected recovery, there might not be enough manpower to return into the airline industry. Besides, the number of those airline employees who returned into the business had not met requirements yet. Since the business started to grow, a higher standard would be required in order to work (Bangkok Biz News., 2023).

McCleland, D. (1973) stated that competence was a key to success and would be a better measure than intelligence. Similarly, competence was the ability effectively in life skills and was very beneficial (Hongkhuntod, A., 2020). It showed that competences are very important since it helps people to be able to adapt and engage in any situation.

Sittisomboon et al. (2020) synthesized the component of organization image from the previous researches and it concluded that the organization image consists of 7 components as 1) atmosphere and environment 2) social responsibility 3) officer and administrators, 4) executives 5) instrument and office equipment 6) product and services and 7) business operation. This showed that business operation, product and services were from the service provision of the officers and administrators affecting the organization images.

This research was conducted and expanded from the previous research by using variables which related to a conceptual framework. However, this research adopted independent variables of performance components (Hongkhuntod, A., 2020). Observable variables consisted of knowledge skills, characteristics, management, actions, tasks and achievement. Besides, image variables were adopted from Sereewattana, N., (2020) which consisted of characteristics, benefits and personality values of service users.

Objective

1. To survey the personal factors of public relations officers of Suvarnabhumi Airport
2. To survey public relations officers' competency factors for Suvarnabhumi Airport
3. To survey the image of Suvarnabhumi Airport
4. To find the relationship between personal factors, competency factors and the image of Suvarnabhumi Airport

Literature Review

McClelland, D., (1973) developed Behavior Event Interview or BEI, it was a method to assess people's past behavior and experiences in order to predict their future performance for their job which was also called competency. Later, Boyatzis, R., (1982) wrote "The Competence Manager: A Model of Effective Performance". He found that competencies were individual intrinsic abilities and characteristics that lead to successful performance.

Dales, M. & Hes, K. (1995:80) stated that competencies were resources to help people achieve excellent performance or superior performance. They also stated that occupational competency was the ability to perform and organize a certain job effectively. However, competencies consisted of knowledge, skills, social roles, and internal image also could be developed.

Not only Corporate Code of Ethics and Strategies Planning, some companies utilized Core Competency as tools to contribute to their sustainability and success. Competency was key to competitiveness in organizations. It also helped to manage human resources departments to develop personnel in terms of organizational development (Insorn, W. et al, 2023).

Similarly, (Hongkhuntod, A., 2020) stated that competency education management was caused by the low proficiency of learners who were unable to apply their knowledge, understanding, skills, and characteristics to daily life. For those reasons, the education system was changed from Content-Based to Competency-Based. Therefore, it would be better for educational management who involved to identify "Competency" and apply the skills and knowledge to the better outcomes.

Hamel, G. & Prahalad, C.K., (1994) mentioned in "Competing for The Future" that Core Competencies in business strategy was used as concepts such as basic knowledge, skills and abilities in order to meet the organization's needs.

The organizational image holds significant importance for both the department and the organization as a whole. It plays a vital role in establishing credibility and fostering acceptance among internal and external stakeholders who interact with the organization. Image creation consists of seven key elements: 1) atmosphere and environment, 2) social responsibility, 3) officers and administrators, 4) executives, 5) instruments and office equipment, 6) products and services, and 7) business operations. Among these, business operations, products, and services are shaped by the service quality provided by officers and administrators, which directly influences the organization's image. (Sittisomboon et al., 2020)

Sereewattana, N., (2020) studied brand image, service quality and brand equity influencing on loyalty and buying decision on Thai-Denmark milk land product users. In terms of image, the study was based on features, benefits, value, and personality of service users.

Research Methodology

Population and Sample of the Study

In this study, data was gathered from 206 individuals through purposive sampling. Participants included employees from AOT and an outsourcing company, as referenced by the Head of Public Relations Department at Suvarnabhumi Airport (2023) and Wanichbuncha, K. (2012). The researcher specifically employed the purposive sampling method.

Research Instrument

The questionnaire was used as the instrument on 206 public relations officers at Suvarnabhumi Airport. However, the questionnaire was designed as follows:

1. The questionnaire was designed related to the research objectives, and conceptual framework
2. The questionnaire was based on the Index of Item Objective Congruence or IOC by three experts. However, the questionnaire was adjusted based on their suggestions. The IOC results of the questionnaire was 0.67 – 1.00 (Tirakanan, S., 2013).
3. In order to check the reliability of the questionnaire, they were pilot tested with 30 participants. The reliability check from the pilot test result was 0.819 (Cronbach, L. J., 1990).

The questionnaire consisted of four parts based on a checklist and rating scale as follows:

- Part 1 Personal factors (checklist)
- Part 2 Performance factors (rating scale)
- Part 3 Image of Suvarnabhumi Airport (rating scale)
- Part 4 Suggestions (rating scale)

However, parts 2 to parts 4 of the questionnaire consisted of a five-point Likert scale items (Likert's Scale, 1932). A scale of Likert Scale rated as below:

- 5 = Strongly Agree
- 4 = Agree
- 3 = Neutral
- 2 = Disagree
- 1 = Strongly Disagree

Data Collection

Primary Data

The data was collected with public relations officers at Suvarnabhumi Airport using questionnaire which was based on IOC and the reliability checked.

Secondary Data

The researcher gathered information from various electronic media resources such as electronic literature, books, journals, magazines and websites.

Data Analysis and Statistics used in the Analysis

Descriptive statistics were used to describe the personal factors, competency factors, image of Suvarnabhumi Airport using frequency distribution, percentage, mean and standard deviation.

Inferential statistics correlation coefficient (person correlation) was used to find the relationship between competency factors and image of Suvarnbhumi Airport. The criteria for interpreting the ranges were as below: (Srisaard, B., 2013).

Correlation Coefficient	Interpretation
1.00	Perfect positive linear relationship
0.80-0.99	Very strong positive relationship
0.60-0.79	Strong positive relationship
0.40-0.59	Moderate positive relationship
0.20-0.39	Weak positive relationship
0.01-0.19	Very weak positive relationship
0.00	No linear relationship

Research Finding

Part 1 The analysis of personal factors of public relations officers at Suvarnbhumi Airport: Analysis of personal factors, the questionnaire was a check list.

Table 1: Shows the percentage of personal factors.

Personal factors	Respondents	Percentage
1. Gender		
Male	101	49.0
Female	98	47.6
Others	7	3.4
Total	206	100
2. Personnel		
Airport of Thailand (AOT)	86	41.7
Outsourcing companies	120	58.3
Total	206	100
3. Age		
Gen Z 18 – 24 years old	71	34.5
Gen Y 25 – 40 years old	89	43.2
Gen X 41 – 56 years old	45	21.8
Baby Boomer 57 – 75 years old	1	0.5
Total	206	100
4. Education		
Bachelor's Degree	133	64.6
Master's Degree	52	25.2
Doctoral Degree	2	1.0
Others	19	9.2
Total	206	100
5. Years of experience		
Less than 1 year	65	31.6

Personal factors	Respondents	Percentage
1 – 5 years	81	39.3
6 – 10 years	44	21.4
11 years or more	16	7.8
Total	206	100
6. Income		
Below 15,000 Baht	48	23.3
15,001 – 25,000 Baht	60	29.1
25,001 – 35,000 Baht	39	18.9
35,001 – 45,000 Baht	45	21.8
More than 50,000 Baht	14	6.8
Total	206	100

The results show that 101 males and 98 females responded the questionnaire. There were 120 respondents who worked under outsourcing companies and there were 86 respondents who worked under AOT. Considering the age of respondents, there were 89 respondents aged between 25-40 years old. There were 133 respondents who graduated with a bachelor's degree. There were 81 respondents with 1-5 years of experience and 60 respondents with income between 15,001-25,000 Baht.

Part 2 The analysis of competency factors of public relations officers at Suvarnabhumi Airport: Analysis of competency factors, the questionnaire was a rating scale.

Table 2: It shows mean and standard deviation of competency factors.

Competency factors	μ	S.D.	Level
1. Knowledge	4.26	.705	High
2. Skills	4.31	.564	High
3. Attributes	4.41	.575	High
4. Applicative Thinking	4.30	.626	High
5. Action	4.39	.570	High
6. Tasks/Situations	4.41	.599	High
7. Achievement	4.46	.528	High
Total	4.36	.604	High

The results found that overall, competency factors were at a high level (mean = 4.36). Considering achievement was at the highest (mean = 4.46) followed by attributes (mean = 4.41), tasks/situations (mean = 4.41), action (mean = 4.39), skills (mean = 4.31), applicative thinking (mean = 4.30) and knowledge (mean = 4.26). It meant achievement created contribution to personal growth. It would also benefit both individuals and organizations.

Part 3 The analysis of image of Suvarnbhumi Airport: Analysis of the image of Suvarnbhumi Airport, the questionnaire was a rating scale.

Table 3: It shows mean and standard deviation of the image of Suvarnabhumi Airport.

Image of Suvarnabhumi Airport	μ	S.D.	Level
1. Qualification	4.33	.586	High
2. Benefits	4.40	.677	High
3. Value	4.47	.504	High
4. Personality	4.49	.576	High
Total	4.42	.585	High

The result shows the image of Suvarnabhumi Airport was at a high level (mean = 4.42), personality was at the highest (mean = 4.49) followed by value (mean = 4.47), benefits (mean = 4.40) and qualification (mean = 4.33). That being said, qualifications were competency and skills. Employees needed to apply their knowledge and skills to perform their job effectively.

Part 4 The analysis of the relationship between public relations of officers' competency factors and the image of Suvarnabhumi Airport.

Table 4: The analysis of competency factors and image.

The results indicated that the competency of public relations officers at Suvarnabhumi Airport demonstrated a positive relationship at a moderate level ($r = 0.499$). When examining individual factors, the relationship between image and value was positive at a moderate level ($r = 0.318$) and statistically significant at the 0.05 level ($P = 0.000$).

Discussion

Objective 1 To survey personal factors of public relations officers

It found that there 101 respondents were males and worked under outsourcing companies. There were 120 respondents aged between 25-40 years old (GEN Y) and 89 respondents graduated with a bachelor's degree. However, there were 133 respondents with 1-5 years of experience and 81 respondents who earned monthly 15,001-30,000 Baht. The result was similar to Sereewattana., N., (2020). The result shows the same in terms of income, but there would be slightly different in genders (283 respondents) and age (18-25 years old).

Objective 2 To survey competency factors of public relations officers

The result shows that competency factors were at a high level. It meant that the respondents considered achievement at a high level followed by attributes, tasks/situations and action. Similarly, Hongkuntod., A., (2020) stated "competency" was a person's ability to apply knowledge and skills in work, living style, and problem-solving skills. McClelland., D., (1973) stated that "competency" was key to leading a person to be successful in their future career. It meant that competency was better than intelligence. So, competency should be a better learning outcome which directly affects the quality of life.

Objective 3 To survey the image of Suvarnabhumi Airport

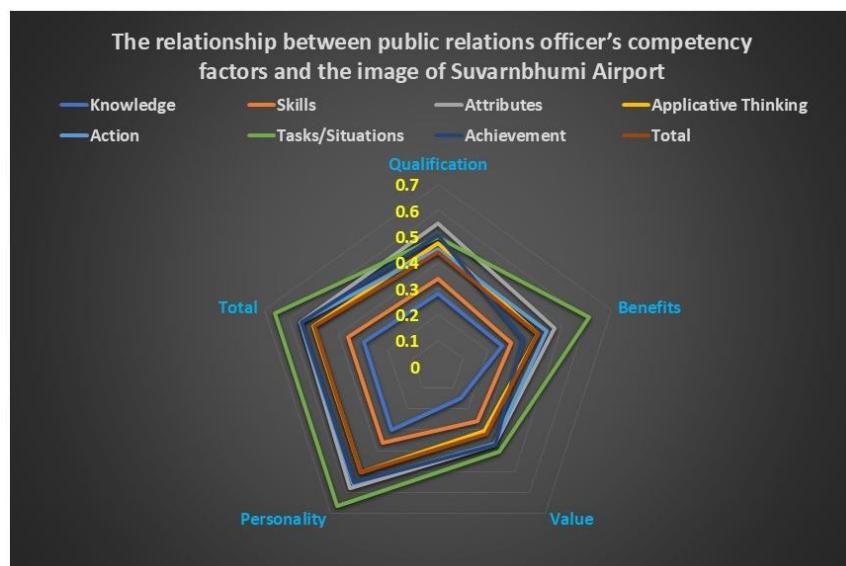
The result of the image of Suvarnabhumi Airport was at a high level. In term of personality, it was at the highest level, followed by value, and benefits. Similarly, Sereewattana., N., (2020) found that overall, the level of image was at a high level. Speaking of each factor, the respondents looked into the benefits followed by personality. However, they were quite different since they were both studied in different contexts. With the same variable, the respondents had different opinions. This aligns with the research findings of Sittisomboon et al. (2020), which analyzed the synthesis of image creation encompassing seven components: 1) atmosphere and environment, 2) social responsibility, 3) officers and administrators, 4) executives, 5) instruments and office equipment, 6) products and services, and 7) business operations. The study emphasized that business operations, products, and services were shaped by the service quality provided by officers and administrators, significantly influencing the organization's image. (Sittisomboon et al., 2020)

Objective 4 To survey the relationship between public relations officers' competency factors and the image of Suvarnabhumi Airport

Overall, the results showed a positive relationship. When examining each factor, it was found that the relationship between value, knowledge skills, and characteristics was low to moderate. Despite this, the relationship remained consistent and statistically significant at the 0.05 level ($P = 0.000$).

Similarly, McClelland., D., (1973) and Hongkuntod., A., (2020) agreed that competency factors would be a key to success in a future career. Sereewattana., N., (2020) stated that image was very important for business overall. It would build trust with customers who soon would become repeat customers. The findings aligned with those of Sittisomboon et al. (2020), who synthesized research and concluded that business operations, products, and services derived from the service quality of officers and administrators significantly influenced the organization's image.

Diagram showed the relationship between competency of public relation officers and image of Suvarnabhumi Airport



Conclusion

The public relations officers at Suvarnabhumi Airport who responded to the questionnaire were males. They all worked under outsourcing companies and were aged between 25-40 years old with a bachelor's degree. They have had 1-5 years of experience and earned 15,001-25,000 Baht. In terms of competency factors, they were at a high level. They first considered achievement followed by attributes, tasks/situations, action, skills, applicative thinking and skills. On the other hand, the image of Suvarnabhumi Airport was at a high level in personality followed by value, benefits and qualifications.

There was a positive relationship between the competency factors of public relations officers and organizational images at a moderate level. Meanwhile, the relationship between the competency factors of public relations officers and values was positive but at a low level.

Suggestion

Suggestions from the research results

1. In competency factors, it found that public relations officers' aptitude in English communication skills were at low level. All parties should take action and encourage training and taking English lessons, so it would increase their ability and performance in the future.

2. The skills of using equipment and tools were at the lowest level. The officers should be trained to use equipment and tools. It would help them to perform their work effectively. The management should prepare, provide and train new employees to use basic equipment and tools. It would help them to work smoothly.

Suggestions for future research

1. Since public relations officers worked in a shift and rotated in 4 shifts, plus there were both AOT officers and outsourcing companies' officers so, it would be difficult for the research to gather information and collect questionnaires. For the future research, the future researcher should contact the managers of both AOT and outsourcing companies directly, in order to hand out the questionnaire in hard copy and Google form. It would be the best way to collect all data.

2. The researcher should be aware that the airport was concerned about safety and security. So, the researcher should carry a permission letter at all times.

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

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Abstract

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

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

Keywords: Attributes of contemporary school administrators, Competencies of the 21st-century teachers

Introduction

The National Education Plan 2017-2036 focuses on enhancing the effectiveness of teaching and developing essential skills for the 21st century, particularly in the development of educational leaders and education personnel with skills for effective school management. (The Office of the Education Council, 2017) Contemporary school administrators should possess good attributes and be able to apply new ideas in the management, as well as inspire staff and students to improve the quality of teaching. (Musikarangsir, 2021) The appropriate attributes of leaders are crucial in promoting collaboration within an organization.

Additionally, the attributes of leaders in the Next Normal era clearly highlight the virtues of management. Educational institutions serve as a crucial mechanism and variable in managing education to ensure quality. They have a significant influence on the outcomes of successful management, which can respond to competition and remain relevant to the changes of the 21st century. Therefore, the school administrators must possess outstanding and appropriate qualities, including knowledge of theoretical principles, skills, roles and responsibilities, and experience in modern educational management to lead organizations toward success. (Wannapairo and Sritep, 2024) The Attributes of contemporary school administrator show the behavior that reflects the knowledge, abilities, and expertise of leaders in their roles and responsibilities. It involves setting a clear vision, innovative thinking, building relationships with others, creative thinking to build a learning community, and effectively utilizing technology and digital tools in school operation. This is done in alignment with objectives to ensure the highest efficiency and effectiveness. (Khuanwang, 2024)

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

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

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

Objective

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

Literature Review

The attributes of contemporary school administrator's concept

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

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

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

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

The competencies of the 21st-century teacher's concept

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

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

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

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

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

Research Methodology

Conceptual Framework

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

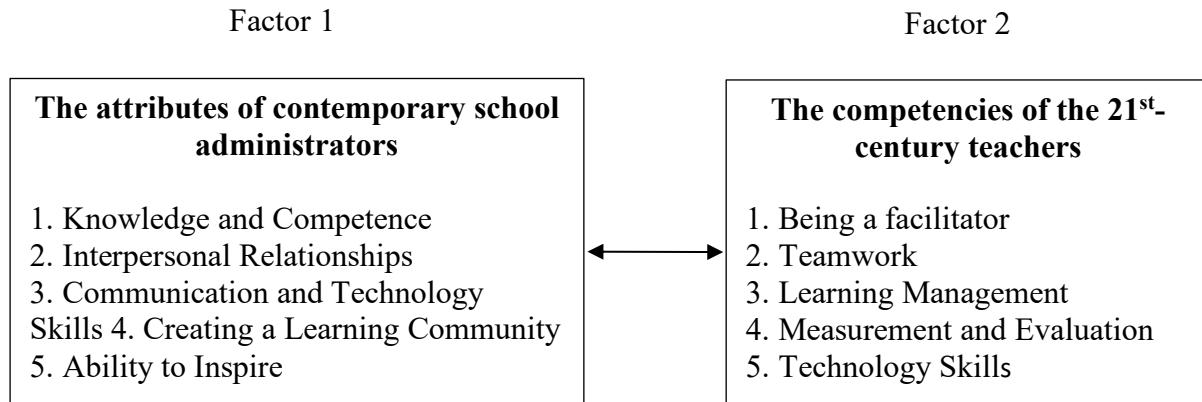


Figure 1: A conceptual framework of the attributes of contemporary school administrators and the competencies of the 21st-century teachers

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

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

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

Research Finding

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

Table 1: The attributes of contemporary school administrators under Songkhla Primary Educational Service Area Office 2

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

From Table 1, it is found that the attributes of contemporary school administrators under Songkhla Primary Educational Service Area Office 2 are generally at a high level, with an average score of ($\bar{x} = 4.2549$, S.D. = 0.5206). When considering individual aspects, the highest average score is for Knowledge and Competence ($\bar{x} = 4.3158$, S.D. = 0.5497), followed by Creating a Learning Community ($\bar{x} = 4.2925$, S.D. = 0.5864), Communication and Technology skills ($\bar{x} = 4.2544$, S.D. = 0.5567), Interpersonal Relationships ($\bar{x} = 4.2497$, S.D. = 0.5947), and Ability to Inspire ($\bar{x} = 4.1791$, S.D. = 0.6587).

Table 2: The competencies of the 21st-century teachers under Songkhla Primary Educational Service Area Office 2

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

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

Table 3: The correlation between the attributes of contemporary school administrators and the competencies of the 21st-century teachers under Songkhla Primary Educational Service Area Office 2

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

Note: Significantly correlated at the .01 level

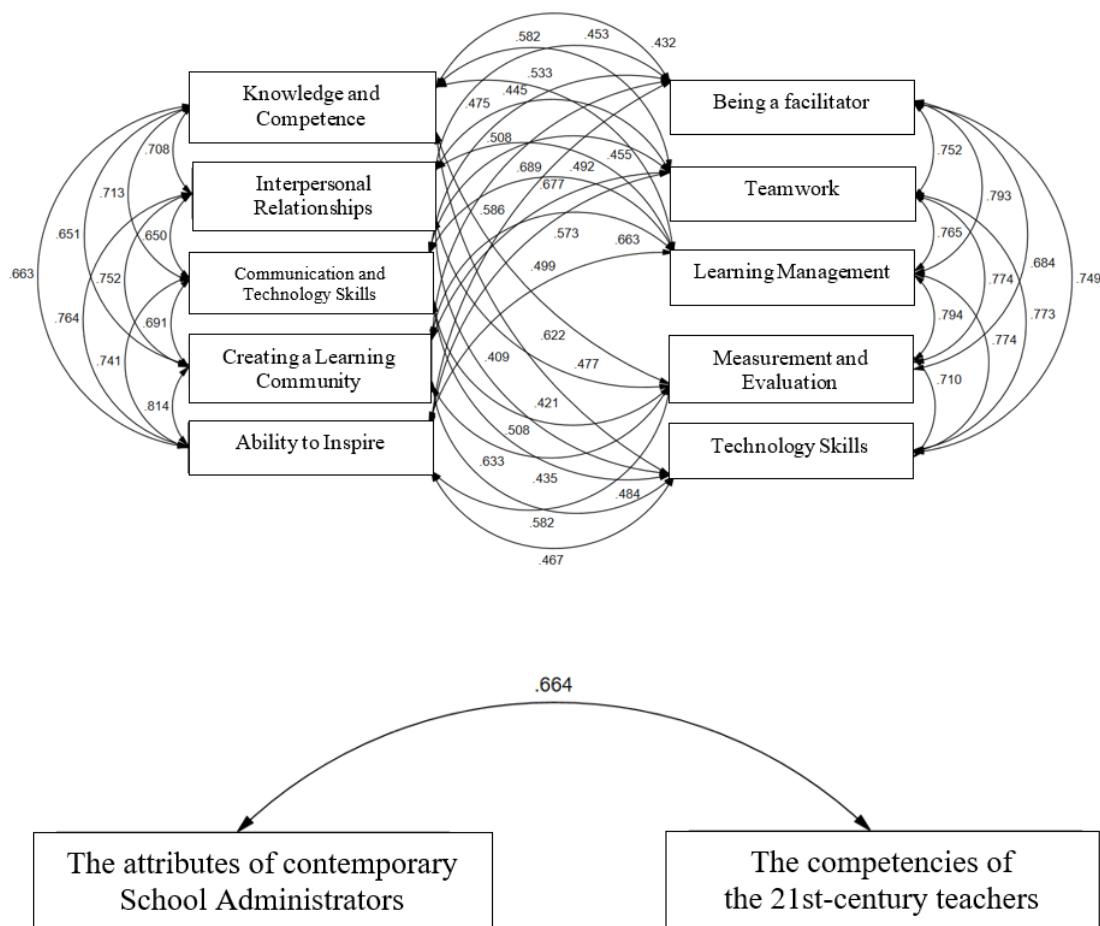


Figure 2: The correlation between the attributes of contemporary school administrators and the competencies of the 21st-century teachers under Songkhla Primary Educational Service Area Office 2

As shown in Table 3 and Figure 2, the correlation between the attributes of Contemporary school administrators and the competencies of the 21st-century teachers under Songkhla Primary Educational Service Area Office 2 is moderately positive overall ($r = .664^{**}$). For each aspect, there is a statistically significant positive correlation at the .01 level.

Discussion/Conclusion

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

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

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

administrators and teacher's competency in the 21st century under the Lopburi Primary Educational Service Area Office 1. The study found that overall, there was a positive relationship with statistical significance at the .05 level.

Suggestion

1. Suggestions for Applying Research Findings

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

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

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

2. Suggestions for Future Research

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

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

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

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Digital Marketing Model in the Technology Transformation Era for B2B Enterprise: A Case Study of the YonYou Company in China

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Abstract

The rapid advancement of digital technologies led to a significant transformation in the business landscape, particularly for business-to-business (B2B) enterprises. Traditional marketing approaches proved insufficient in engaging digitally-savvy B2B buyers who demanded personalized experiences and seamless online interactions. This study investigated the factors influencing the creation of new digital marketing strategies for B2B enterprises in the technology transformation era. The study aimed to examine the relationship between six key digital marketing technologies (artificial intelligence, big data analytics, marketing automation, cloud computing, mobile marketing, and social media analytics) and marketing effectiveness in the context of B2B enterprises. A quantitative research design was employed, utilizing a stratified random sample of 240 employees from the marketing department of a B2B enterprise in China. Data were collected through an online survey and analyzed using confirmatory factor analysis (CFA) and multiple regression analysis (MRA). The CFA confirmed the validity of the measurement model, demonstrating a significant relationship between the observed variables and their corresponding latent constructs ($p < .001$). The MRA revealed that all six digital marketing technologies were significantly associated with marketing effectiveness ($p < .001$), with marketing automation and social media analytics exhibiting the largest estimated impact. The model explained 24.10% of the variance in marketing effectiveness. The findings underscored the growing importance of digital technologies in driving marketing effectiveness for B2B enterprises. By strategically leveraging these technologies, B2B marketers could enhance customer engagement, optimize marketing strategies, and achieve sustainable success in the digital age.

Keywords: Digital marketing model, B2B enterprises, Marketing effectiveness, Factors in digital marketing, Technology Transformation

Introduction

The rapid advancement of digital technologies, encompassing artificial intelligence (AI), big data analytics, and cloud computing, has triggered a profound transformation in the global business landscape. This technology transformation era demands that businesses, particularly those operating in the business-to-business (B2B) sector, adapt their marketing strategies to remain competitive. Traditional marketing approaches are proving insufficient in engaging digitally-savvy B2B buyers who expect personalized experiences and seamless online interactions. Consequently, B2B enterprises are increasingly seeking effective digital marketing models to leverage these technologies and optimize their marketing efforts (Algharabat et al., 2023). Digital marketing, characterized by the utilization of digital channels and technologies to reach and engage target audiences, has emerged as a critical driver of business growth in this era. For B2B enterprises, digital marketing encompasses a wide range of activities, including search engine optimization (SEO), content marketing, social media marketing, email marketing, and paid advertising (Tuten & Solomon, 2022). The effectiveness of these activities is amplified by the integration of emerging technologies. AI, for instance, enables personalized content recommendations, predictive lead scoring, and automated customer segmentation. Big data analytics provides valuable insights into customer behavior, campaign performance, and market trends, facilitating data-driven decision-making (Verhoef et al., 2021). Furthermore, cloud computing offers scalability and flexibility in marketing operations, while mobile marketing enables B2B enterprises to connect with their increasingly mobile workforce. Social media analytics provides tools for monitoring brand sentiment, tracking competitor activities, and identifying influential voices in the industry (Saura et al., 2022). The integration of these technologies into a cohesive digital marketing model is crucial for B2B enterprises to achieve their marketing objectives, which may include lead generation, sales growth, customer engagement, brand building, and customer lifetime value enhancement. However, the successful implementation of a digital marketing model requires more than just technology adoption. It necessitates a shift in organizational culture, a commitment to data-driven decision-making, and the development of new marketing capabilities. B2B enterprises must foster a culture of innovation and agility to adapt to the constantly evolving digital landscape (Algharabat et al., 2023). They also need to invest in training and development to equip their marketing teams with the skills and knowledge required to leverage these technologies effectively. Effective digital marketing models are of paramount importance for B2B enterprises in the technology transformation era for several reasons. Firstly, they enable businesses to reach and engage their target audience in a more targeted and personalized manner. By leveraging data analytics and AI, marketers can gain a deeper understanding of customer needs and preferences, tailoring their messaging and content accordingly (Verhoef et al., 2021). This personalized approach enhances customer experience, strengthens relationships, and ultimately drives conversions. Secondly, digital marketing models facilitate data-driven decision-making. The abundance of data generated through digital channels provides valuable insights into campaign performance, customer behavior, and market trends. By analyzing this data, B2B marketers can optimize their strategies, allocate resources effectively, and achieve a higher return on investment (ROI) (Tuten & Solomon, 2022). Thirdly, digital marketing models enable B2B enterprises to adapt to the rapidly changing digital landscape. The continuous emergence of new technologies and platforms requires businesses to remain agile and responsive. A well-defined digital marketing model provides a framework for adapting to these changes, incorporating new tools and strategies to maintain a competitive edge (Saura et al., 2022).

Despite the significant benefits, implementing effective digital marketing models in the technology transformation era is not without its challenges. Many B2B enterprises struggle with data integration, legacy systems, and a lack of skilled personnel to manage and analyze the increasing volume of data (Algharabat et al., 2023). Moreover, ensuring data privacy and security is a growing concern, requiring robust data governance frameworks. Another challenge is the rapid pace of technological change. Keeping up with new technologies and platforms can be overwhelming, requiring continuous learning and adaptation. Furthermore, measuring the ROI of digital marketing initiatives can be complex, requiring sophisticated attribution models to accurately assess the impact of different touchpoints across the customer journey.

In conclusion, the technology transformation era necessitates that B2B enterprises adopt robust and adaptable digital marketing models to thrive in the competitive landscape. By strategically leveraging emerging technologies and addressing the associated challenges, B2B marketers can enhance customer engagement, drive sales growth, and achieve sustainable success in the digital age. Future research should continue to explore the evolving dynamics of digital marketing in the B2B context and provide guidance for effective strategy development and implementation.

Objective

1. To investigate the factor of creating new strategies for digital Marketing in the technology transformation era for B2B enterprise - taking Yonyou as an example.
2. To develop a digital marketing model in the technology transformation era for B2B enterprise.

Literature Review

The Evolving Landscape of Digital Marketing

Digital transformation fundamentally reshaped B2B marketing, driving a shift from traditional approaches to digital-first strategies. This shift was fueled by emerging technologies, such as AI, big data analytics, and marketing automation, which B2B marketers increasingly leveraged for personalized content, predictive lead scoring, customer insights, campaign optimization, and streamlined processes (Algharabat et al., 2023). Cloud computing facilitated collaboration and data access, while mobile technology enabled personalized experiences, and social media analytics provided valuable insights into brand sentiment and engagement (Mikalef et al., 2022). These technologies empowered B2B buyers to conduct thorough online research, evaluate offerings through digital channels, and expect personalized interactions (Kacker et al., 2022). This necessitated a customer-centric approach, agile adaptation, and a data-driven culture within B2B organizations (Deogaonkar, 2023). Ultimately, successful digital transformation enabled B2B enterprises to enhance efficiency, gain a competitive advantage, and build stronger customer relationships (Rathore, 2023).

Table 1: Factors Influencing Digital Transformation in B2B Marketing

Factor Category	Specific Factor	Description
<i>Technological Advancements</i>	Artificial Intelligence (AI)	Enables personalized recommendations, chatbots, and predictive analytics.
	Big Data Analytics	Provides insights into customer behavior, market trends, and campaign performance.
	Marketing Automation	Automates repetitive tasks, improves efficiency, and personalizes customer journeys.
	Cloud Computing	Facilitates data storage, access, and collaboration.
	Mobile Technology	Enables mobile-first marketing and personalized experiences on mobile devices.
	Social Media Analytics	Provides insights into social media engagement and brand sentiment.
<i>Customer Behavior</i>	Online Research	B2B buyers increasingly rely on online research before making purchase decisions.
	Digital Channels	B2B buyers expect seamless experiences across multiple digital channels.
	Personalization	B2B buyers demand personalized content and offers.
<i>Organizational Culture</i>	Data-Driven Decision-Making	Utilizing data to inform marketing strategies and optimize campaigns.
	Agility	Adapting quickly to changes in the digital landscape and customer needs.
	Customer-Centricity	Prioritizing customer experience and satisfaction.

Note: (Algharabat et al., 2023; Mikalef et al., 2022; Kacker et al., 2022; Rathore, 2023)

Technology and B2B Marketing Effectiveness

Technology revolutionized B2B marketing, enabling unprecedented levels of efficiency and effectiveness. AI was employed for personalized content recommendations, chatbot interactions, predictive lead scoring, and even content generation, enhancing customer experiences and streamlining sales processes (Algharabat et al., 2023). Big data analytics provided valuable insights into customer segmentation, campaign optimization, and market trend analysis, empowering B2B marketers to make data-driven decisions (Justesen & Mikalef, 2022). Marketing automation streamlined repetitive tasks, improved lead nurturing, and enhanced customer communication, freeing up marketers to focus on strategic initiatives (Maestrini et al., 2021). Cloud computing provided scalability, flexibility, and access to advanced marketing tools, enabling B2B marketers to adapt to changing business needs (Tabares et al., 2022). Mobile marketing, through mobile optimization, mobile advertising, and location-based marketing, allowed B2B marketers to reach their target audience on the go (Rajaobelina et al., 2021). Lastly, social media analytics tools facilitated social listening, sentiment analysis, and competitor benchmarking, providing valuable insights into brand perception and market dynamics (Kacker et al., 2022).

Table 2: Technologies Enhancing B2B Marketing Effectiveness

Technology	Application in B2B Marketing	Benefits
Artificial Intelligence (AI)	Personalized content, chatbots, predictive lead scoring, content generation	Enhanced customer experience, improved lead generation, increased efficiency
Big Data Analytics	Customer segmentation, campaign optimization, market trend analysis	Data-driven decision-making, improved targeting, enhanced campaign performance
Marketing Automation	Streamlining marketing tasks, lead nurturing, customer communication	Increased efficiency, improved lead conversion, enhanced customer engagement
Cloud Computing	Scalability, flexibility, access to advanced marketing tools	Adaptability, cost-effectiveness, enhanced collaboration
Mobile Marketing	Mobile optimization, mobile advertising, location-based marketing	Reaching B2B buyers on the go, personalized mobile experiences, location-based targeting
Social Media Analytics	Social listening, sentiment analysis, competitor benchmarking	Brand monitoring, reputation management, competitive intelligence

Note: (Maestrini et al., 2021; Rajaobelina et al., 2021; Algharabat et al., 2023; Justesen & Mikalef, 2022; Tabares et al., 2022; Kacker et al., 2022)

Challenges and Future Trends

While digital transformation offered significant opportunities for B2B marketers, it also presented challenges. These challenges included concerns surrounding data privacy and security, the complexities of integrating new technologies with existing systems, and the need to bridge talent gaps in areas such as data analytics and digital marketing expertise (Tabares et al., 2022). Additionally, keeping pace with the rapid evolution of technology and adapting to changing customer expectations required ongoing investment and agility (Justesen & Mikalef, 2022). However, the future of B2B digital marketing promised further innovation and disruption. Emerging trends such as metaverse marketing, Web3 technologies, and blockchain applications were poised to reshape how B2B companies interacted with customers and conducted business (Algharabat et al., 2023; Maestrini et al., 2021). These technologies offered the potential for immersive customer experiences, decentralized data management, and enhanced transparency and security in transactions. Successfully navigating these challenges and embracing emerging trends would be crucial for B2B marketers to thrive in the increasingly digital and interconnected business landscape (Rajaobelina et al., 2021).

Table 3: Challenges and Future Trends in B2B Digital Marketing

Category	Factor	Description
Challenges	Data Privacy and Security	Ensuring compliance with data protection regulations and safeguarding customer information.
	Integration Issues	Integrating new technologies with existing systems and legacy infrastructure.
	Talent Gaps	Acquiring and retaining skilled professionals in data analytics, digital marketing, and emerging technologies.
	Keeping Pace with Technological Advancements	Adapting to the rapid evolution of technology and continuously updating marketing strategies.
Future Trends	Metaverse Marketing	Creating immersive experiences for B2B customers in virtual environments.
	Web3 Technologies	Utilizing decentralized platforms and applications for enhanced customer engagement and data management.
	Blockchain Applications	Leveraging blockchain for secure and transparent transactions and supply chain management.

Note: (Tabares et al., 2022; Justesen & Mikalef, 2022; Algharabat et al., 2023; Maestrini et al., 2021; Rajaobelina et al., 2021)

Research Methodology

Conceptual framework

Conceptual Framework: Digital Marketing Model in the Technology Transformation Era for B2B Enterprise. As shown in Figure 1.

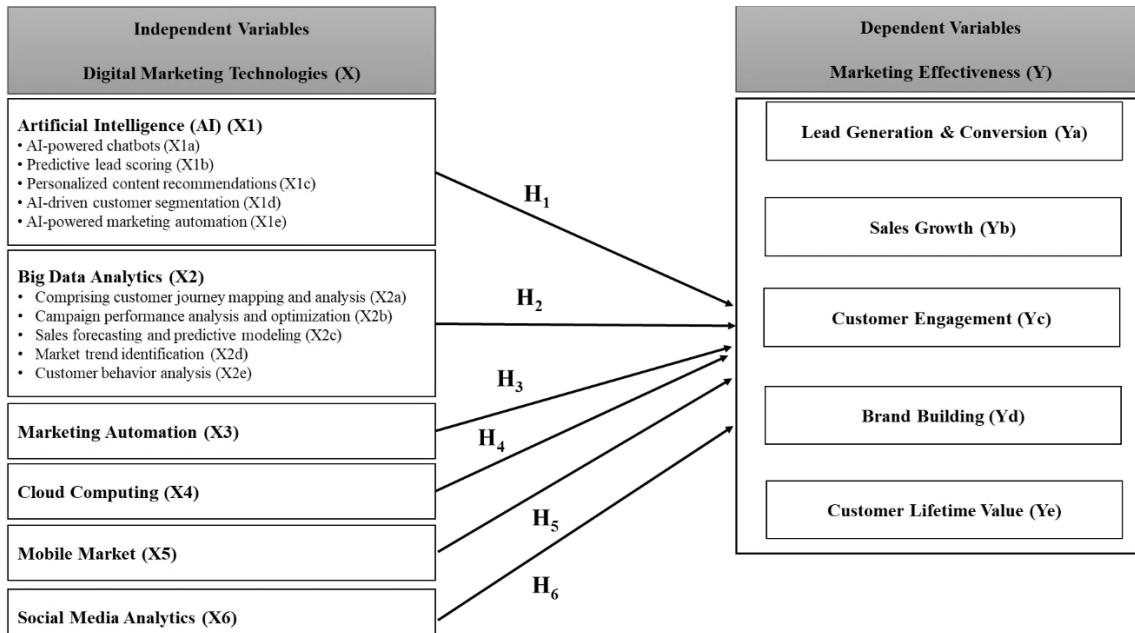


Figure 1: Conceptual Framework: Digital Marketing Model in the Technology Transformation Era for B2B Enterprise.

Figure 1 presented the conceptual framework for the study, "Digital Marketing Model in the Technology Transformation Era for B2B Enterprise." The independent variables were categorized as Digital Marketing Technologies, and included Artificial Intelligence (AI), encompassing AI-powered chatbots, predictive lead scoring, personalized content recommendations, AI-driven customer segmentation, and AI-powered marketing automation. Big Data Analytics was another independent variable, comprising customer journey mapping and analysis, campaign performance analysis and optimization, sales forecasting and predictive modeling, market trend identification, and customer behavior analysis. Marketing Automation, Cloud Computing, Mobile Marketing, and Social Media Analytics were also included as independent variables, each with their respective sub-variables. The dependent variable was Marketing Effectiveness, a multi-dimensional construct encompassing Lead Generation & Conversion, Sales Growth, Customer Engagement, Brand Building, and Customer Lifetime Value.

Research hypothesis

The strategic integration and utilization of digital marketing technologies:

H1: Artificial Intelligence (AI) significantly contributes to the overall marketing effectiveness of B2B enterprises in the technology transformation era.

H2: Big Data Analytics significantly contributes to the overall marketing effectiveness of B2B enterprises in the technology transformation era.

H3: Marketing Automation significantly contributes to the overall marketing effectiveness of B2B enterprises in the technology transformation era.

H4: Cloud Computing significantly contributes to the overall marketing effectiveness of B2B enterprises in the technology transformation era.

H5: Mobile Marketing significantly contributes to the overall marketing effectiveness of B2B enterprises in the technology transformation era.

H6: Social Media Analytics significantly contributes to the overall marketing effectiveness of B2B enterprises in the technology transformation era.

Population and Sample Size

The study population comprised all employees (N=600) of the marketing department at Yon You company, including marketing managers, sales managers, institutional general managers, and digital marketing project managers. A stratified random sampling method was employed to select participants. The target population was stratified based on professional titles, and random samples were drawn from each stratum. The Yamane Taro formula was used to calculate the sample size, with a 95% confidence level and a 5% margin of error, resulting in a sample size of 240 participants. Table 4 presents the distribution of the population and sample across the different positions.

Table 4: Size of Population and Sample to Questionnaires, Stratified by Position

Position	Population	Sample
1. Marketing Manager	120	60
2. Sales Manager	340	120
3. Institutional General Manager	80	40
4. Digital Marketing Project Manager	60	20
Total	600	240

Data collection

This research employed a quantitative approach to data collection. The questionnaire utilized as the primary data collection instrument exhibited a reliability coefficient of 0.769. During the formal survey stage, the scientific nature of the research and the representativeness of the samples were fully considered, and the data collection work was systematically planned. After weighing the time cost and economic cost, this formal survey mainly uses three methods to collect data. First, by observing the behavior of the subject; Second, through interviews with target subjects, such as on-the-job colleagues of the internship company, friends engaged in corporate marketing, etc.; Third, by issuing questionnaires to fill in. It took two months to issue and collect the normal questionnaire. First of all, through the statistics of the total sample number, we found that 145 questionnaires were collected by sending questionnaires, 84 questionnaires were collected by interviewing, and 76 questionnaires were collected by observing objects. Secondly, 305 questionnaires were screened, and samples containing missing values and those with a clear tendency to answer extreme or intermediate values were excluded. Finally, 240 valid questionnaires were retained, with an effective recovery rate of 78.70%.

Data Analysis

To ensure the validity of the research, several tests were conducted. Confirmatory Factor Analysis (CFA) was employed to assess the underlying structure of the data. CFA helps to verify whether the observed variables accurately represent the latent constructs in the conceptual framework. By using CFA, we can confirm that the measurement model fits the data well, which is crucial for the reliability of our research results. Subsequently, Multiple Regression Analysis (MRA) was conducted in Jamovi software to test the research hypotheses and examine the relationships between the independent and dependent variables. MRA allows us to determine the strength and significance of the relationships between different digital marketing technologies and marketing effectiveness. The results of these analyses provide a solid foundation for our research conclusions.”

Research Finding

A confirmatory factor analysis (CFA) and multiple regression analysis (MRA), based on the conceptual framework illustrated in Figure 1, was conducted to examine the factors influencing the creation of new digital marketing strategies for B2B enterprises in the era of technological transformation. The results of this analysis are presented in Table 5 and Table 6.

Confirmatory Factor Analysis (CFA)

Table 5: The confirmatory factor analysis (CFA), based on the conceptual framework.

Factor Loadings								
				95% Confidence Interval				
Factor	Indicator	Estimate	SE	Lower	Upper	Z	p	
Artificial Intelligence (X1)	X1a	0.644	0.0525	0.541	0.747	12.27	<.001	
	X1b	-0.239	0.0312	-0.300	-0.178	-7.66	<.001	
	X1c	0.357	0.0510	0.257	0.457	7.01	<.001	
	X1d	0.635	0.0603	0.517	0.753	10.53	<.001	
	X1e	1.039	0.0531	0.935	1.143	19.57	<.001	

Factor Loadings								
					95% Confidence Interval			
Factor	Indicator	Estimate	SE		Lower	Upper	Z	p
Big Data Analytics (X2)	X2a	0.181	0.0328		0.117	0.245	5.52	<.001
	X2b	0.291	0.0296		0.233	0.349	9.82	<.001
	X2c	-0.976	0.0521		-1.078	-0.874	-18.75	<.001
	X2d	-0.612	0.0438		-0.698	-0.526	-13.97	<.001
	X2e	-0.876	0.0588		-0.991	-0.761	-14.89	<.001
Marketing Automation (X3)	X3	0.508	0.0232		0.462	0.553	21.91	<.001
Cloud Computing (X4)	X4	0.972	0.0444		0.885	1.059	21.91	<.001
Mobile Market (X5)	X5	1.065	0.0486		0.969	1.160	21.91	<.001
Social Media Analytics (X6)	X6	1.118	0.0510		1.018	1.218	21.91	<.001

Note: *The significance level at p value< 0.001., ** Indicator: AI-powered chatbots (X1a), Predictive lead scoring (X1b), Personalized content recommendations (X1c), AI-driven customer segmentation (X1d), AI-powered marketing automation (X1e), Comprising customer journey mapping and analysis (X2a), Campaign performance analysis and optimization (X2b), Sales forecasting and predictive modeling (X2c), Market trend identification (X2d), Customer behavior analysis (X2e), Marketing Automation (X3), Cloud Computing (X4), Mobile Market (X5), and Social Media Analytics (X6)

The confirmatory factor analysis demonstrated that the measurement model exhibited a good fit to the data, and the observed variables were significantly ($p < .001$) related to their respective latent constructs as hypothesized. This indicates that the measurement model is valid and suitable for assessing customer satisfaction. The model comprised six latent constructs: Artificial Intelligence (encompassing AI-powered chatbots, predictive lead scoring, personalized content recommendations, AI-driven customer segmentation, and AI-powered marketing automation); Big Data Analytics (including customer journey mapping and analysis, campaign performance analysis and optimization, sales forecasting and predictive modeling, market trend identification, and customer behavior analysis); Marketing Automation; Cloud Computing; Mobile Market; and Social Media Analytics.

Multiple Regression Analysis (MRA)

A stepwise multiple regression analysis was conducted to examine the relationships between six independent variables representing digital marketing technologies (Artificial Intelligence, Big Data Analytics, Marketing Automation, Cloud Computing, Mobile Market, and Social Media Analytics) and the dependent variable, Marketing Effectiveness, which encompassed lead generation and conversion, sales growth, customer engagement, brand building, and customer lifetime value. The null hypothesis (H_0) was that there is no significant relationship between these independent variables and marketing effectiveness. The alternative hypotheses (H_1-H_6) were that each digital marketing technology significantly contributes to marketing effectiveness.

The hypothesis was tested at the significance level of 0.001, as follows: $H_1 : \beta_i \neq 0$, $H_2 : \beta_i \neq 0$, $H_3 : \beta_i \neq 0$, $H_4 : \beta_i \neq 0$, $H_5 : \beta_i \neq 0$, $H_6 : \beta_i \neq 0$

When H_1, H_2, H_3, H_4, H_5 , and H_6 is the independent variable; i affects the dependent variable.

Data analysis revealed that all six independent variables representing digital marketing technologies (Artificial Intelligence (X1), Big Data Analytics (X2), Marketing Automation (X3), Cloud Computing (X4), Mobile Market (X5), and Social Media Analytics (X6)) were significantly related to marketing effectiveness (Y), which encompassed lead generation and conversion, sales growth, customer engagement, brand building, and customer lifetime value (Estimate = 3.632, $p < 0.001$). Therefore, hypotheses H_1 through H_6 were supported.

Multiple regression analysis revealed that all six independent variables representing digital marketing technologies (Artificial Intelligence, Big Data Analytics, Marketing Automation, Cloud Computing, Mobile Market, and Social Media Analytics) were significantly related to marketing effectiveness ($p < .001$). The model explained 24.10% of the variance in marketing effectiveness (adjusted $R^2 = .241$). The independent variables, in descending order of their estimated impact on marketing effectiveness, were: Marketing Automation (Estimate = 5.000), Social Media Analytics (Estimate = 4.556), Artificial Intelligence (Estimate = 3.676), Cloud Computing (Estimate = 3.667), Mobile Market (Estimate = 3.000), and Big Data Analytics (Estimate = 1.894). This relationship is represented analytically in Equation 1. Which is described in Table 6.

$$Y = X1(3.676) + X2(1.894) + X3(5.000) + X4(3.667) + X5(3.000) + X6(4.556) \dots \dots \text{Equation 1}$$

Table 6: Overall results in the independent variables and dependent Variable.

Dependent Variable	Model Coefficients							R	R2	F	Hypotheses
	Independent Variable	Estimate	SE	t	p						
Marketing Effectiveness (Y) (lead generation and conversion, sales growth, customer engagement, brand building, and customer lifetime value)	Digital marketing technologies (X)	3.632	0.259	21.473	<.001	0.470	0.241	12.313			supported
	Artificial Intelligence (X1),	3.676	0.075	49.297	<.001	0.643	0.413		10.500		supported
	Big Data Analytics (X2),	1.894	0.349	5.426	<.001	0.644	0.414		11.400		supported
	Marketing Automation (X3),	5.000	0.591	8.450	<.001	0.251	0.063		7.980		supported
	Cloud Computing (X4)	3.667	0.133	27.600	<.001	0.390	0.152		14.100		supported
	Mobile Market (X5)	3.000	0.218	13.750	<.001	0.492	0.242		18.700		supported
	Social Media Analytics (X6)	4.556	0.187	24.313	<.001	0.401	0.161		11.200		supported

Note: *The significance level at p value < 0.001 .

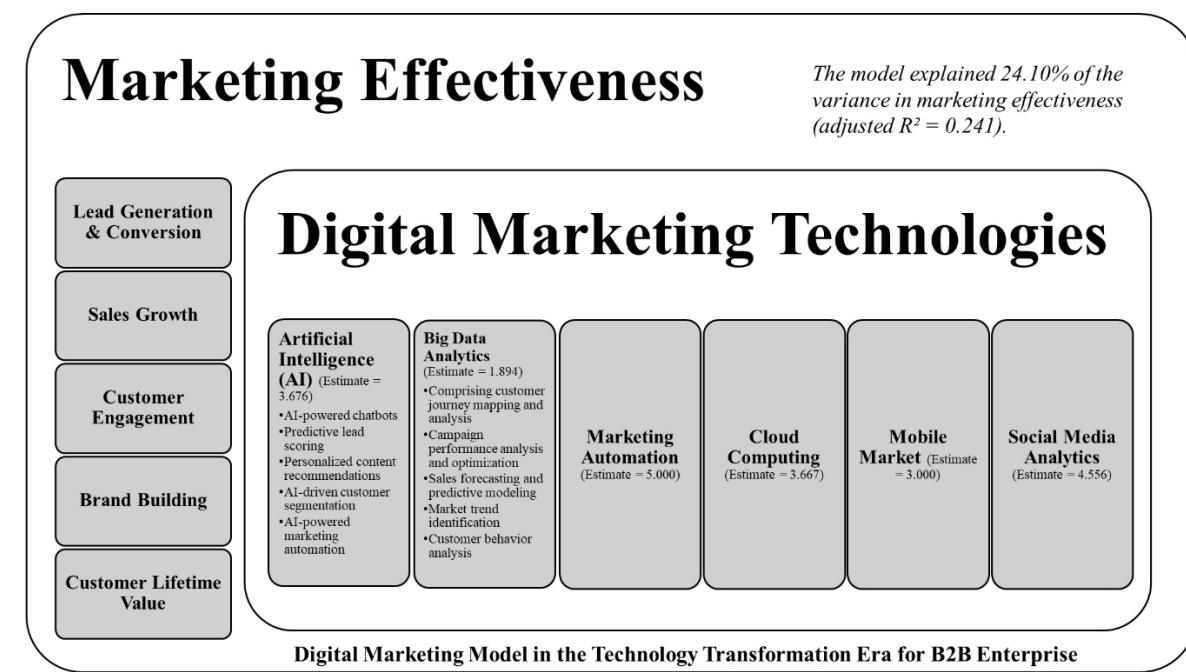


Figure 2: The digital marketing model within the context of the technology transformation era for business-to-business (B2B) enterprises.

Discussion

Investigating Factors for Creating New Digital Marketing Strategies

The research identified several key digital marketing technologies as factors influencing the creation of new digital marketing strategies in the B2B sector during the technology transformation era. These factors were: Artificial Intelligence (AI), Big Data Analytics, Marketing Automation, Cloud Computing, Mobile Marketing, and Social Media Analytics. The study's findings, derived from the multiple regression analysis (MRA), confirmed that all six of these digital marketing technologies have a significant relationship with marketing effectiveness. This suggests that B2B enterprises like Yonyou are indeed focusing on these technologies when developing new digital marketing strategies. Furthermore, the analysis revealed the relative importance of each technology. Marketing automation and social media analytics were found to have the largest estimated impact on marketing effectiveness. This implies that B2B companies are prioritizing automation of marketing tasks and leveraging social media data to drive marketing outcomes. The CFA confirmed the validity of the measurement model, indicating a significant relationship between the observed variables and their corresponding latent constructs ($p < .001$).

Developing a Digital Marketing Model

The study successfully developed a digital marketing model for B2B enterprises in the technology transformation era. The model (Figure 2) visually represents the relationship between digital marketing technologies and marketing effectiveness. The model illustrates how the six independent variables (digital marketing technologies) influence the dependent variable (marketing effectiveness). Marketing effectiveness, in turn, is shown to comprise several dimensions: lead generation and conversion, sales growth, customer engagement, brand

building, and customer lifetime value. The development of this model contributes a framework that B2B enterprises can use to understand and implement digital marketing strategies in the context of technological advancements. The MRA revealed that all six digital marketing technologies were significantly associated with marketing effectiveness ($p < .001$), with marketing automation and social media analytics demonstrating the largest estimated impact. The model explained 24.10% of the variance in marketing effectiveness.

These findings align with recent scholarly work emphasizing the increasing importance of digital technologies in formulating marketing strategies, particularly within the B2B landscape. This is consistent with Algharabat et al. (2023), who highlighted the crucial role of AI and big data in enhancing customer relationship management and marketing performance in B2B contexts. Similarly, the findings support the work of Mikalef et al. (2022), who noted the increasing adoption of marketing automation by B2B companies to improve efficiency and personalization. Furthermore, the significant influence of social media analytics observed in this study aligns with Kacker et al. (2022), who emphasized the strategic importance of social media listening and engagement for B2B brands.

The findings of this study contributed to the growing body of literature that emphasizes the need for B2B organizations to embrace digital transformation in their marketing strategies. The identified technologies, including artificial intelligence, big data analytics, marketing automation, cloud computing, mobile marketing, and social media analytics, represent key drivers of marketing performance in the contemporary business environment. The strategic use of these technologies enabled B2B companies to increase lead generation and conversion, drive sales growth, enhance customer engagement, and strengthen branding, ultimately increasing customer lifetime value.

However, it is important to acknowledge that the results of this study were context-specific and may not be generalizable. Future research could explore the nuances of these relationships across industries, organization sizes, and geographic regions. Furthermore, examining the moderating role of factors such as organizational culture, leadership support, and employee skills in the effective adoption and utilization of these technologies would further enhance our understanding of digital marketing in the B2B domain.

Conclusion

This study provided compelling evidence for the transformative impact of digital technologies on B2B marketing effectiveness in the contemporary business landscape. The confirmatory factor analysis validated the robust nature of the measurement model, highlighting the significant relationships between observed variables and their corresponding latent constructs ($p < .001$). Furthermore, the multiple regression analysis revealed that all six digital marketing technologies—artificial intelligence, big data analytics, marketing automation, cloud computing, mobile marketing, and social media analytics—were significantly associated with marketing effectiveness ($p < .001$). Marketing automation and social media analytics emerged as particularly influential drivers of marketing performance. These findings underscored the growing importance for B2B organizations to strategically adopt and integrate digital technologies to optimize their marketing strategies. The insights gleaned from this study aligned with recent scholarly work emphasizing the crucial role of AI and big data in enhancing customer relationship management and marketing performance (Algharabat et al., 2023), the increasing adoption of marketing automation for improved efficiency and personalization (Mikalef et al., 2022), and the strategic importance of social media listening and engagement for B2B brands (Kacker et al., 2022). While acknowledging

the context-specific nature of these findings, this research contributed valuable insights into the key drivers of marketing effectiveness in the digital age. Future research should delve deeper into the nuances of these relationships across diverse industries and organizational contexts, exploring the moderating influence of organizational factors, such as leadership support and employee skills, to further enhance our understanding of digital marketing in the evolving B2B domain. By embracing innovation and agility, B2B marketers can harness the power of digital technologies to gain a competitive advantage, deliver personalized customer experiences, and achieve sustainable marketing success in the technology transformation era.

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Laos' Educational Transformation Towards Digital Learning

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Abstract

Education in Laos has changed dramatically since the country's education system was established. The COVID-19 pandemic has seen a rapid and dramatic shift in digital learning in Lao education. The government has long recognized the importance of digital technology, with the Ministry of Digital Economy and Society announcing the Lao Digital Development Plan to boost the country's economy and society, in collaboration with several major innovation companies. Digital technologies and devices such as 5G, Cloud, and AI will be leveraged to benefit the economy, healthcare, transportation, manufacturing, and education sectors.

Keywords: Educational Transformation, Digital Learning

Introduction

Currently, education in Lao PDR is facing many difficulties. Since the COVID-19 pandemic and the country's economic and financial problems during the recession, the school attendance rate of Lao children and youth has dropped alarmingly. The Ministry of Education's education system has promoted local education to encourage parents to support their children to complete their education. If you live in the outskirts, there may be a little problem. It's because of the basics and economy. "He also said that in addition to the country's infrastructure still being difficult and unfavorable, the country's economic and financial problems have also caused parents and guardians to bear more expenses and indirectly forced those Lao people. Children and youth have to drop out of school early to find jobs to ease the burden of their families, according to a World Bank report in Laos.

The change of eras leads to development in various aspects, whether in the context of basic living, economics, innovation, or even in terms of social culture. It can be said that the transition from one era to another has a significant purpose. At present, we connect with people, society, and the country's infrastructure system more conveniently, easily, and quickly than before, such as sending messages, voice conversations with faces, or following news through the use of various social network applications without boundaries. We no longer have to waste time doing financial transactions at the bank because we can do them conveniently and quickly through Internet Banking applications. We do not have to travel to order food, wait in line at shops, or wait for a taxi because we can do them through various logistics applications without limitations. The context of the changing lifestyle in the public sector reflects that the

mechanism that has been placed to fill the gap between eras to create connections between each other is the digital system.

Importance Educational Changing, especially the new era of this world at this time, seems to have nothing that can surpass the development of digital technology. It has led to rapid changes in all aspects of humanity. No one can escape digital technology. It can be said that in this digital era, teachers must not only be teachers, but also learn with students, improve and change teaching styles, lesson plans, teaching methods, teaching techniques, or new teaching innovations that will develop teaching and learning to keep up with the rapidly changing social era (Disruption). Teachers should emphasize that students' study and research by themselves. Teachers have the duty to provide advice (Coaching), design teaching and learning according to the project-based learning model (Project-Based Learning), and integrate activities that help each student assess their own learning progress. In addition, teachers should integrate skills in adapting to society immediately in various situations because these things are not only in the subject content or textbooks, but are personal life skills that students must learn more to be useful in applying in Living in the 21st century as well (Tanita Liwung and Yaupon Sangit, 2019, page 10)

Educational institutions in the digital age must adjust their organizations to keep up with changes in the environment that occurs both inside and outside the institution. The use of digital technology to help manage educational institutions is necessary because digital technology will be a tool to support the organization's management to be more efficient, develop work processes or work systems in the organization to be modern and most efficient. Educational institution administrators play an important role in changing and leading the organization to success. "If the organization does not adapt, it will be closed. Educational institution administrators, if they do nothing, are going backwards because the world is moving forward quickly. If you know first, you will have an advantage, especially in applying digital technology to manage educational institutions." This is an important issue for educational institution administrators to study in order to develop the organization. The transition must come with preparation, management of both human resources and preparation for entering the digital age. Therefore, it is a challenge for administrators to find a way to make the transition with the least problems and create an organizational vision to grow along with the nature of the organization.

In conclusion, accurate digital learning is important for life, for people, for educational institutions, for organizations, and for administrators of educational institutions because in this era, digital technology plays many roles. Helping to manage educational institutions is considered necessary because digital technology will be a tool to support organizational management to be more efficient, develop work processes, and lead to rapid changes for humanity in all aspects. No one can escape digital technology

Literature Review

Digital Education Policy in Lao PDR

Through the study of the implementation of the policy and plan for the development of education for young people according to the goals of sustainable development of the Lao PDR, the researcher found that during the 9th 5-year plan period (2025-2030), the Party and the government have set 3 main goals, which are the national economic goals, the human resource development goals, and the natural resources and environment goals. In the human resource development goals, these goals have become an important factor in deciding to develop by upgrading the capabilities of personnel. The hardships of the people should be solved

comprehensively and with quality and direction. Emphasis is placed on continuing education reform to be stronger than before by investing in agencies specified in the education strategy plan and the human resource development strategy. There are also goals to develop the school attendance rate of 5-year-old children to 80%, the remaining rate of primary school students to 90%, and the promotion rate of students who graduate from lower secondary school to vocational education to 5% of all students who graduate and enter school. High school education to reach 90%, and students who graduate from high school to continue their studies in vocational education to reach 60%, continue their studies in higher education institutions to reach 20%, the education rate of people aged 15-24 years to reach 99%, the education rate of people aged 15 years and above to reach 95%, encourage everyone in society to exercise and play sports to reach 30% of the total population. In addition, there is the Law on the Lao Revolutionary People's Youth (2017), Article 4 on the State's Policy towards the Lao Revolutionary People's Youth, which contains the following content: Related to the government sector in promoting young people to receive education in science and technology, have jobs, receive information, access public health practices, participate in state protection, protect the economy and society. Article 9 on rights and duties mentions the main rights of the Lao People's Revolutionary Youth Committee to provide education to young people about political concepts and unity. At the same time, it also states the protection of the interests of young people and youth by planning strategies and development plans for young people and youth, which have been expressed in the past. The overall situation in the country has many basic and main facilities for the development of education for young people and youth, especially the policies, regulations, laws, attitudes and approaches of the Party and the government that consistently give importance to education, but are free from problems and challenges, especially in terms of budget, problems, hardships of the people, drug problems, religious problems and other problems related to the situation. It has also achieved success in many aspects in the past, namely, at present, there are 87,575 officers or agencies related to education and sports, 44,708 of whom are women. In the past 2 years, pre-school education has developed satisfactorily. The school attendance rate for 3-5 years in 2015 from 43.2% to 57.2% in 2018 and the school attendance rate for 5-year old increased from 66% to 77.1%. There are 8,858 primary schools nationwide, approximately 64% with 786,246 primary students. Secondary education in 2018, there were 1,758 schools, an increase of 107 compared to 2015, with a total of 671,064 students, an increase of 42,388 students. The total school attendance rate was 78.1% to 83.1%. Upper secondary education was 45.8% to 53.3%. The problem that the state provides. Secondary education is still challenging in adjusting the learning of students in these grades, especially Mat Hayom 1, Mat Hayom 2 and Mat Hayom 5. Non-formal education Teaching the secondary education upgrade model for the target group in 2018, with 111 cities, 3 provinces and 1 city announced the completion of lower secondary education, which exceeded expectations. Vocational education in 2017-2018 is in 4 universities under the Ministry of Education and Sports, with a total of 11,674 students, an increase of 2,422 people compared to the previous year. Education Teachers have taken care to organize the education upgrade model for kindergarten, primary and secondary teachers in various forms, both continuously during the end-of-year and regular periods, which will be located at the provincial development center. In addition, there is a project to upgrade the quality of education in rural areas, which has been implemented in 40 cities in 13 provinces. The purpose is to increase access and improve the quality of pre-school education services for children aged 3-5 years. In the target cities, the education quality improvement project has been implemented in 66 cities. The target of underprivileged education shows some success in developing education in Lao PDR to reach sustainable development.

In conclusion, the government's policy is to focus on developing human resources through good education, integrating the use of technology to develop education by setting strategic plans in stages by reforming the education system to be strong at each level, starting from kindergarten, primary, secondary and high school, with a systematic structure, enabling education to achieve its set goals.

Overall educational development direction to 2025

For the overall direction of education development in 2025, the attendance rate of 5-year-old children should be higher than 80%, primary school should reach 99%, dropout rate of students still studying should be 5%, grade 1 repetition rate should be 7%, primary school repetition rate should be left at 3%, and the number of cities that achieve the new inclusive education rate up to grade 5 should be higher than 95% from 134 cities to 140 cities, lower secondary school repetition rate should be left at 8%, upper secondary school should be left at 6%, promote people of all ages to participate in physical exercise, exercise and sports to reach 24% of the population, and convene and publicize the resolution of the Central Party Executive Committee No. 037/KBSOP dated June 18, 2018 on improving the efficiency of state protection and social protection with the law.

Digital Education for 21st Century Learners

Thongchai Kerkira (2010) said that in the era where everything is entering the digital world, whether it is marketing trends, social media, websites, smartphone applications of the business sector or the government sector, for the education sector itself, there is an awareness in applying a lot of technology and information to the learners. Learning comes in many forms, and we do not have to limit learning to the word "classroom" or the word "school" only. Because the arrival of the 4.0 era has changed the way knowledge is sought. Everyone, every age, not just students, can learn by themselves through education in the digital world.

Digital Education is a learning that results from a combination of learner-centered learning and application of various technologies. The teaching and learning focus on developing learners' thinking skills, whether it is creativity, analytical thinking, critical thinking, and systematic thinking. Another advantage of digital education, in addition to developing learners' thinking, is the freedom of learners to choose where and when to study, which can be applied to teaching via YouTube, teaching through playing games by using games to design questions for learners, creating blogs to share knowledge, or creating groups on Facebook or Line to bring teachers and learners closer. We can see that learning in the form of digital education is very interesting because it expands the scope of the word learning and also gives learners and teachers more freedom to create quality content than the current learning format.

Education system

Since the change of government in 1975 (2568 AD), Laos has used a 12-year education system, which is a 5:4:3 system, divided into 3 types of education systems:

The general education system consists of:

- Preschool and Kindergarten 3 years

- Primary education is 5 years. The duration of education is 5 years. Children start school at the age of 6 years. Education at this level is compulsory. All children must complete this level of education. However, in practice, compulsory education is only beneficial to children in large cities because the country is large and the population is dispersed.

- The 4-year lower secondary school takes 4 years to complete and in the future children will be taught English, Chinese, Vietnamese and other languages.

- High school level is 3 years long and takes 3 years to study and in the future children will be able to study

Highlights of educational management in Laos

Lao PDR has raised its status from being an underdeveloped country by maintaining a moderate and steady economic growth rate as the main goal of national development. The Vision 2020 on education focuses on providing universal compulsory education at the primary level while still allowing all sectors to participate more in education management so that all citizens have the opportunity to apply for education in a manner that responds to the country's economic situation. In addition, efforts are being made to eliminate illiteracy completely in order to improve the quality of life. In addition, vocational and higher education are being expanded in a manner that is in line with the needs of the labor market, with training for skilled labor, technical professionals, and intellectuals to be able to apply modern science and technology to meet the needs of economic and social development. National education is being raised to be close to international standards, with education being the core for human resource development based on the idea that developing human resources with appropriate knowledge and skills to help the country move beyond being an underdeveloped country. Lao PDR recognizes the need for human capital with skills in mathematics, reading and communication skills, and access to electronic knowledge sources will help promote social participation in national development.

Points for development in educational institution management

After the political change to communist socialism, because Laos is a small country that cannot rely on itself, it depends mainly on foreign aid because the level of literacy and education is still low, making it difficult to realize the importance of using communication technology. In addition, most of the population lives in remote rural areas, making it difficult to provide basic educational services. Lao PDR still lacks personnel with knowledge and skills in this area. In addition to having to face natural disasters such as drought in the North and floods in the Central and South, the government still faces the problem of lacking budget and sources of funds for national development and still has a lower standard of living in both education and public health.

Conclusion

At present, the change in education to digital technology with new innovations as tools to help teaching and learning more effectively than before is inevitable. Learners, teachers and educational institutions must integrate together to adjust themselves to coordinate all parties appropriately, quickly and in time with events in the country and other countries. They must also always be in line with digital technology and new digital devices. At the same time, this article suggests that all parties use digital technology and digital devices with social responsibility. There is meditation training for people to have appropriate and correct behaviors, a mind that is eager to learn, along with morality for the benefit of people in the nation and the world. In education, digital technology is integrated with skill development using innovation to promote learning, resulting in educational changes in the area of a thirst for knowledge and lifelong learning skills to keep up with the digital age. Having a good career

leads to a good quality of life for oneself, family and society. In terms of teaching and learning management, it will help reduce the time spent answering questions, submitting homework, reducing the gap in accessing knowledge from learning sources and sharing knowledge. However, the learning conditions must take into account morality and ethics in terms of social responsibility.

From the above conclusion, the transformation of Lao education to digital learning is very important at present because learning is something that everyone must have. At present, society has advanced and developed far. Technology plays many roles. In order to respond to the needs of the digital age quickly, accurately, and in line with human society, education must be more modern and efficient. Therefore, humans must have as much knowledge as technology in order to create a better quality of life and work in organizations quickly and efficiently. Teachers and administrators are important elements in driving the education system to change in the future.

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Development of Guidelines for Community-Based Agro Tourism: Hua Ruea Subdistrict, Ubon Ratchathani Province

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Abstract

This research study is a research and development. The objectives are 1) to study the potential of communities in agricultural tourism development in Hua Ruea; 2) to design a route for community- based agrotourism in Hua Ruea; and 3) to bring forward guidelines of development of community- based agrotourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province. The sample group used in qualitative research was 30 parties/ participants, this research were used semi-structured interviews.

The research findings revealed that the community's potential in developing agrotourism still lacks adequate knowledge and understanding in tourism operations, particularly in community- based agrotourism. This is largely due to the fact that most of the local people are engaged in agriculture and trade, leaving them with little time or interest in tourism development. Additionally, the community needs support from various agencies to act as mentors in helping them develop careers that can be elevated into tourism-related activities, thereby enhancing the community's capacity and enabling them to fully utilize their potential. In the case of designing community- based agrotourism routes in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province, the Hua Ruea community has developed unique agrotourism activities that reflect the local identity. These activities emphasize providing tourists with knowledge and new experiences through tourism, encouraging mutual learning between hosts and visitors. The tourism programs are designed to be suitable for all genders and ages. Furthermore, the community seeks to design agrotourism programs that are environmentally friendly and grounded in sustainability and process consists of 6 steps, in which all steps are in accordance with the approval from all parties: 1) development of people's potential 2) development of participation 3) development of tourism attractions 4) development of tourism activities 5) Local Product Development and 6) Marketing Development

Keywords: Tourism Development, Community-based Agro Tourism, Hua Ruea Community

Introduction

The Thai government has implemented policies to enhance agricultural tourism sites, raising their safety and hygiene standards to ensure greater confidence among tourists. Guidelines have been established to prepare these sites for tourism services in line with the New Normal way of life, emphasizing cleanliness and safety for both the community and visitors. Key measures include screening tourists before entry, allowing only those wearing surgical masks to access the sites, providing hand sanitizing stations, enforcing social distancing during tourism activities, regularly cleaning service areas, and ensuring that food and agricultural products for sale or service are contained in sealed and hygienic packaging. (Chalermchai Sri-on, 2020)

Agricultural tourism is a form of tourism that focuses on learning about rural agricultural lifestyles. It emphasizes the participation of tourists in various activities to gain knowledge about agriculture, local ways of life, culture, and traditions. This type of tourism utilizes existing resources to create learning opportunities while generating income for both the community and farmers. Agricultural tourism also promotes conservation alongside tourism, ensuring minimal impact on both the community and the environment. (Department of Tourism, 2009)

Ubon Ratchathani Province has a total area of 10,069,000 rai, with 5,350,894 rai designated for agricultural use, accounting for 53.14% of the province's total area. The province is well known for its agricultural products, particularly rice, cassava, and rubber. In terms of livestock, key products include cattle, buffaloes, broiler chickens, and pigs. Regarding cultivated land, the province is particularly suitable for the growth of Thai jasmine rice (Hom Mali rice). Most of the area consists of uplands, with rainfall beginning in May. Farmers typically start plowing and preparing the land in June, followed by planting between July and August. As the rainy season ends from late October to early November, harvesting takes place in November, when humidity levels are low. (Ubon Ratchathani Provincial Statistical Office, 2018)

Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province, is located north of Mueang Ubon Ratchathani District, approximately 17 kilometers from the city center. It was officially established in 1932 (B.E. 2475) and consists of 14 villages under its jurisdiction, covering an area of approximately 32.28 square kilometers. The subdistrict is divided into 16 communities with a total population of 9,223 people—4,578 males and 4,645 females—spread across 3,006 households. The majority of the residents engage in agriculture and trade. One of the key local attractions is Wat Ban Hua Ruea, which houses an ancient drum, a sacred village artifact. Before it can be played to invoke rain, a ritual offering of "Khan 5" or "Khan 8" must be performed. However, preliminary research indicates that Hua Ruea Subdistrict has not yet developed its tourism sector. The community lacks knowledge and understanding of tourism management, particularly community-based tourism, where local residents actively participate in planning and administration. (Hua Ruea Provincial Administrative Organization, 2015)

Therefore, to develop Hua Ruea Subdistrict in a way that aligns with its agricultural community lifestyle, the researcher has initiated a study titled "Guidelines for the Development of Community-Based Agricultural Tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province." This research aims to establish a tourism model that reflects the way of life of the local community and to implement community-based tourism management rooted in agricultural practices. The goal is to create a new tourism route in Ubon Ratchathani Province while also promoting and supporting community-based agricultural tourism as a means of generating additional income for local residents in the future.

Objective

1. To assess the community's potential in developing agricultural tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province.
2. To design a community-based agricultural tourism route in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province.
3. To propose guidelines for the development of community-based agricultural tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province.

Research Methodology

The Conceptual Framework

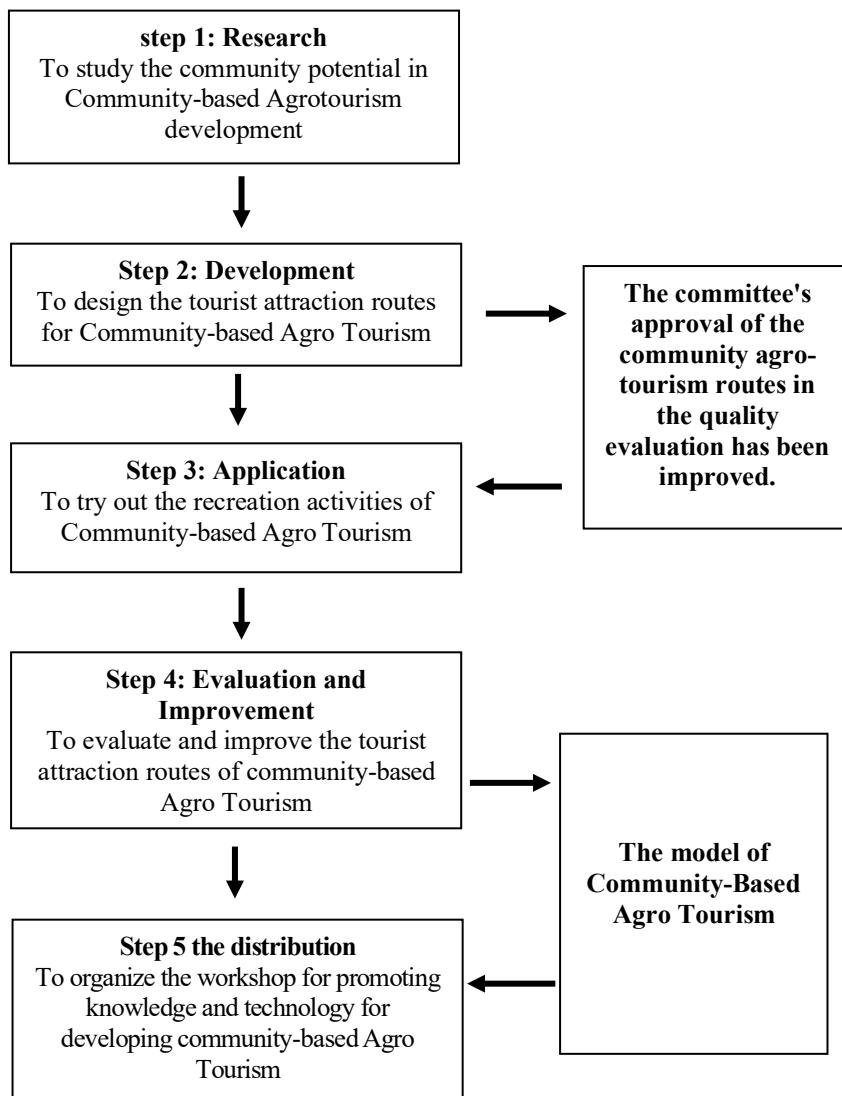


Figure 1: The Conceptual Framework

The study “Guidelines for the Development of Community-Based Agricultural Tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province” adopts a Research and Development (R&D) approach, which consists of five key phases as follows:

1. Research (R1):

- Assessing the community’s potential in developing agricultural tourism in Hua Ruea Subdistrict.

- Conducting in-depth interviews and group interviews with key informants to gather relevant data.

2. Development (D1):

- Designing a community-based agricultural tourism route by analyzing data from Phase 1.

- Conducting content analysis and evaluating the community’s potential.

- Developing the tourism route through focus group discussions with stakeholders.

3. Research (R2):

- Implementing a trial phase where tourists experience the newly developed community-based agricultural tourism route.

4. Development (D2):

- Evaluating the tourism route through focus group discussions with tourists and experts.

- Assessing the suitability of the tourism route and refining it based on feedback.

- Enhancing the potential of the tourism route for greater sustainability and effectiveness.

5. Dissemination:

- Organizing a practical training workshop to transfer knowledge and technology related to community-based agricultural tourism development.

- Training 30 tourism stakeholders in Ubon Ratchathani Province.

Population and Sample Group

The population and sample group for the study “Guidelines for the Development of Community-Based Agricultural Tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province” are divided into two groups:

1. Key Informant Group (Stakeholders in Agricultural Tourism Development)

This group consists of 20 individuals involved in the development of community-based agricultural tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province. It includes community leaders, local residents, local entrepreneurs, and government officials related to tourism development. The selection process combines Purposive Sampling and Snowball Sampling, where key informants recommend other knowledgeable and experienced individuals in the field of community-based agricultural tourism development.

2. Thai Tourist Sample Group

This group consists of 10 Thai tourists who are interested in agricultural tourism and voluntarily participate in tourism activities developed by the research team in collaboration with the Hua Ruea community, Mueang District, Ubon Ratchathani Province.

Data Collection

1. Secondary Data

This includes the guidelines for the development of community-based agricultural tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province. Data is collected from documents, published materials, reports, academic papers, research articles, and theses in both Thai and English.

2. Primary Data

This consists of field data, gathered using semi-structured interviews to assess the community's potential and explore guidelines for the development of community-based agricultural tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province.

Instruments used for data collection

The instruments used for qualitative data collection from key informants include semi-structured interviews, which are open-ended questions with keywords about the information need.

Data Analysis

For Qualitative data, the researcher examined it from different sources of key informants, examined data collection methods, semi-structured interviews, focus group discussions, and repeated data questions, and checked data with the data owner. Data triangulation was performed by examining data sources, sources, and individuals (Supang Chantawanich, 2000). The data obtained from the interviews was analyzed for content.

Discussion

From the research on the development of community-based agricultural tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province, several important issues can be discussed as follows:

Objective 1: Community Potential in Developing Agricultural Tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province

From the research findings, it was found that the community still lacks knowledge and understanding in managing tourism, particularly community-based agricultural tourism. This is mainly because most of the population in the community is engaged in agriculture and commerce, leaving little time to focus on tourism. As a result, there has not been much attention given to tourism development. Furthermore, the community seeks support from various organizations to act as mentors in the development of occupations, helping to elevate the community's tourism activities. This support would enable the community to enhance its potential and fully utilize its strengths. This finding aligns with the conclusion of Jeerasak Phokawin (2018), who summarized that the success of agricultural tourism development requires external networks to provide support and knowledge to local communities in managing agricultural tourism.

Ban Hua Ruea has a long history and rich cultural heritage, with unique local resources for tourism, including natural, historical, and cultural attractions. The community's natural tourism resources include Nong Chang Yai, Nong Janak, Nong Hua Ling, and Nong Mek, which are natural water sources that can be developed for eco-tourism. In terms of historical tourism resources, the community is home to significant historical sites such as the ancient large drum, the museum hall, the Sala Sao Yai (a traditional hall), Non Umong, and other

landmarks of historical importance. Additionally, the community boasts a variety of traditional festivals and customs, including the Bun Bang Fai (Rocket Festival), Loy Krathong, Bun Ok Phansa (End of Buddhist Lent), Tam Roy Fai, and the Wesak (Buddha's Birth, Enlightenment, and Death). Furthermore, there are Buddhist merit-making activities such as alms-giving during the Buddhist Lent and other religious holidays.

However, the tourism attractions in Ban Hua Ruea still face issues of degradation and require proper care, restoration, and management. There is a lack of education, infrastructure and amenities to support tourism, such as proper facilities to accommodate visitors. Additionally, there is a lack of connectivity and a well-established tourism route within the community.

Ban Hua Ruea community participates in the collective management of shared spaces, such as areas for agriculture and the development of the cultural road at Ban Hua Ruea, located at the Walking Street in Soi 5. However, there is still a lack of tourism resource management, as no tourism club has been established. The community of Ban Hua Ruea has a distinctive potential for tourism products and services. There is a clear division of work and responsibilities within the community, with active participation and strong cooperation from the community members.

However, the Ban Hua Ruea community still lacks the development of products and goods that can be marketed as key attractions for tourists. Additionally, there is a lack of tourism resource management, as no tourism club has been established to oversee and manage the operations.

The community is actively seeking agricultural tourism activities to create a lasting impression, with the cooperation of the government in developing community-based tourism. Another key strength of the Ban Hua Ruea community is its strong leadership, with community leaders collaborating effectively with government agencies, private sectors, and educational institutions to drive and set the direction for community-based agricultural tourism. This has enabled the community to involve residents in improving and developing the community's tourism more effectively.

The Ban Hua Ruea community actively participates in facilitating and coordinating between tourists and the tourism management group members. They have clearly defined roles and responsibilities in tourism management and are involved in initiating and implementing tourism activities within the community.

The committee has explained the process of community-based tourism to all sectors, emphasizing that all professions have the right to participate. Most of the community members are actively involved in meetings, offering suggestions regarding various operations within the community, including tourism-related ideas. This is considered a good starting point for managing tourism, as the community contributes valuable information about potential tourist sites and other locations that can be developed into tourist attractions within the community.

Additionally, the community has contributed to suggesting nearby tourist attractions. However, the majority of the population has not yet participated in community-based tourism activities. Some have joined in helping to take care of the tourists, but there are still few tourists visiting the community, and the frequency of visits is quite infrequent.

However, the community-based agricultural tourism activities are still in the process of understanding with the landowners and adjusting the format of the activities to allow tourists to actively participate. There is involvement in revenue sharing and using the income from tourism to develop the community. Most community members are actively participating in dividing the income and utilizing it for community development. After tourists return, there

will be a meeting to summarize the results of the activities. Once the information is gathered, the community will consider it as a guideline for future tourism operations

This is consistent with the findings of Narin Sangraksa, Somboon Yuenyongsuwan, and Natthayan Tangthawornsakul (2017), who concluded that the development of agricultural tourism destinations requires the community to be well-prepared for tourism management. There must be internal drive, a shared sense of ownership, identity building within the community, empowerment, and the establishment of academic networks.

However, the Hua Ruea community still lacks a fundamental understanding of tourism management, which has resulted in the absence of a formal tourism organization. Nonetheless, a key strength of the community is its unity, with residents supporting one another and openly sharing their opinions.

The community's potential for self-reliance reveals that Huaro residents can sustain themselves through traditional Isan ways of life. Their income from agriculture and trade enables them to maintain a stable livelihood.

Additionally, the community hosts Talad Phum Phuang (Huaro Subdistrict Council Fresh Market), located in the center of Huaro Village. It operates daily from 1:00 AM to 5:00 AM, with around 300 sidecar vendors and approximately 300 market stalls. The market generates a nightly cash flow of about 1.5 million baht. Most vendors are locals from Huaro Subdistrict and nearby areas. Apart from Talad Phum Phuang, the community also has Talad Laeng Kok Kho, a marketplace where both tourists and locals can shop for food and beverages.

The development of community-based agrotourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province faces several challenges and obstacles, including the impact of the COVID-19 Pandemic which caused the declining number of tourists, and the decreased sales due to the economic downturn. Moreover, the community members have a limited understanding of agrotourism. There is a shortage of storytellers who can share the history and culture of the community. Most existing storytellers are elderly, and there is a lack of knowledge transfer to younger generations. Eventually, the community members lack of understanding online marketing to effectively reach target tourists.

This aligns with the findings of Jiranant Khemkhan (2018), who concluded that agrotourism still lacks unique selling points and attractions, as well as an effective supply chain management system. These shortcomings pose risks for the future sustainability of agrotourism businesses. To address these challenges, key development strategies include enhancing existing resources and utilizing them efficiently, strengthening marketing strategies to highlight unique features and selling points to attract visitors and sustain interest in agrotourism.

Objective 2: Designing a Community-Based Agrotourism Route in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province

The research findings indicate that the design of the community-based agrotourism route in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province, showcases agrotourism activities unique to the local identity. These activities emphasize knowledge-sharing and hands-on experiences, allowing tourists to gain new insights and experiences while fostering cultural exchange between hosts and visitors. The tourism program is designed to be inclusive for all genders and age groups, ensuring accessibility for a diverse range of travelers. Additionally, the community expresses a strong preference for designing agrotourism activities that are environmentally friendly and promote sustainable tourism practices.

This is consistent with Maneerat Sukkasem (2016), who concluded that developing the potential of agrotourism must emphasize the value of tourist attractions, quality of services, management efficiency, environmental conditions, tourism activities, and available facilities.

Additionally, hospitality and the role of the local community as welcoming hosts are crucial factors in enhancing the overall tourism experience.

Objective 3: Guidelines for Developing Community-Based Agrotourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province.

To successfully develop community-based agrotourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province, six key aspects need to be improved:

1) Human Capacity Development: This focuses on preparing individuals for managing community-based agrotourism by enhancing their capabilities in various aspects, including planning, setting directions, implementing, and managing operations. It also involves developing knowledge relevant to agrotourism, such as agricultural tourism, storytelling skills, communication skills, and service skills. These are essential for creating sustainable development within the community.

2) Development of Participation: This involves providing opportunities for community members to actively participate, which leads to the exchange of ideas and fosters unity within the community.

3) Development of Tourist Attractions: This includes developing natural, historical, lifestyle, cultural, and traditional attractions to be ready to accommodate tourists. At the same time, the tourism areas must be managed to ensure beautiful landscapes and safety for visitors.

4) Development of Agricultural Tourism Activities: This involves developing agricultural activities that allow tourists to truly participate, such as coconut planting, grape harvesting, chili planting, growing or harvesting vegetables, and rice planting, among others.

5) Development of Community Products: This involves managing community souvenirs to ensure they meet standards and reflect the unique identity of the community. By creating stories around these products, the community can enhance their value and elevate the local products to become a sustainable source of income for the community.

6) Marketing Development: This involves utilizing appropriate marketing strategies for community-based agricultural tourism, both offline and online. The marketing should create satisfaction for both tourists and the community. It includes systematic promotion of community tourism while ensuring that the marketing efforts do not negatively impact society, culture, or local ways of life, leading to sustainable development.

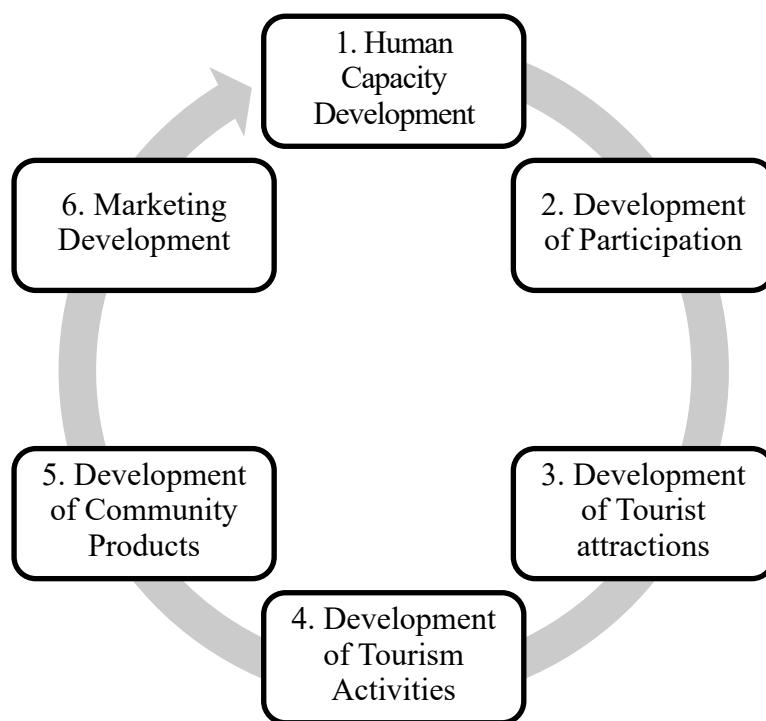


Figure 2: indicates Agricultural Tourism Activity, Hua Ruea Subdistrict, Muang District, Ubon Ratchathani Province.

Conclusion

From the research results on the development guidelines for community- based agricultural tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province, it can be summarized as follows:

1. Research (Research: R1) Study of the potential of communities in developing community-based agricultural tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province.

Human potential: It was found that the community still lacks knowledge and understanding about tourism operations, especially agricultural community tourism, because most of the people are farmers and traders, so they do not have time and are not very interested in tourism. The community also needs support from various agencies to be mentors in career development to upgrade it to tourism activities to increase the community's potential. There are various groups, namely, the organic vegetable farming group, bamboo, and plastic weaving group, preserved mango product processing group, Thai dessert community enterprise group, sun-dried beef group, herbal shampoo and dishwashing liquid production group, Thai massage group, rice mill group, herbal curry paste group, and clothing sewing group.

Area potential: Ban Hua Ruea has a long history and the slogan of Tambon Hua Ruea is that Hua Ruea chili is famous far and wide, the land of the big drum since ancient times. The villagers are religious, some monks are developers, and there is a large pillared pavilion. Tambon Hua Ruea has an Isan way of life and is an agricultural community in farming, gardening, and raising cows and buffaloes. There is a belief in and respect for "Don Pu Ta". The belief in the ghost of the grandfather is found throughout the villages of the Isan people. It is believed that it is the ghosts of the ancestors who are "good ghosts" who protect and take

care of their descendants to live happily. Each village will build a shrine of the grandfather in the area that is believed to be the center of the village. In addition, there is a belief in "wrong karma", eating wrong things, believing that if someone has wrong karma or wrong expression, they will use the community's secret herbal medicine from roots, namely, Rang Chuet, Ya Nang Daeng, Wan Chak Matuk, etc., which are herbs grown in the community.

In terms of tourism resources, Hua Ruea Subdistrict has unique natural, historical, and cultural tourism resources. The natural resources used for community tourism are Nong Chang Yai, a large reservoir covering an area of approximately 7,500 rai and holding 7.675 million cubic meters of water. It is a source of income for local people whose main occupation is rice farming, which relies on water from this pond. Rice farming can be done in both the wet season and dry season. Dry season rice farming starts in January and is harvested in February. Planting 1 rai of rice yields 20 sacks of rice. In addition, it is popular to grow various vegetables such as chili, cabbage, radish, Chinese cabbage, morning glory, and it is a water source for various livestock such as cows and buffaloes. It is also a fishing ground for various types of fish such as snakehead fish, pla nai, and tilapia. The tools used are mostly hooks, nets, and there is an agreement to refrain from fishing during the spawning season, which is from June to July of each year. In addition, Nong Jamnak, Nong Hua Ling, and Nong Mek are natural water sources for the community. which can be used as a natural tourist attraction, allowing tourists to take a drive around the area.

Historical tourism resources: This ancient large drum is located at the drum tower of Wat Ban Hua Ruea, Village No. 1, and is used in various ceremonies in the community every year. In addition, there is a museum, Sala Sao Yai, Non Umong, and traditions: Bun Bang Fai, Loi Krathong, Bun Ok Phansa, and Phra Wessantara traditions. From January to March, alms are given on the first day of Buddhist Lent and important religious days. However, the tourist attractions in Tambon Hua Ruea are still deteriorating and need to be taken care of, restored, and managed appropriately. There is a lack of study on various facilities to accommodate tourists, and there is also a lack of connections between tourist routes within the community.

Management Potential: It was found that Hua Ruea Community is actively involved in managing shared spaces, such as agricultural areas and the Cultural Road of Hua Ruea Village on Soi 5 Walking Street. However, there is a lack of tourism resource management, as no tourism association has been established yet. The community has significant potential in terms of tourism products and services, with unique offerings. Responsibilities are divided, and there is good cooperation and participation from community members. Nonetheless, Hua Ruea Community has yet to develop products and services that can serve as tourist attractions. Additionally, there is still no organized tourism association to manage and oversee tourism activities. Despite this, the community is making efforts to find agricultural tourism activities that will leave a positive impression on visitors. There is also collaboration with the government to promote community-based tourism in order to create value and enhance the travel experience for tourists.

Hua Ruea Community has a clear approach and steps for managing its tourism development, as outlined below:

- 1) There is a group formed for purchasing raw materials for processing using the group's funds. The group committee manages the purchasing of raw materials for processing, such as organic farming groups (chemical-free vegetables), bamboo weaving and plastic string groups, dried mango processing groups, Thai dessert community enterprise groups, sun-dried meat groups, Herbal shampoo and dishwashing liquid production groups, Thai traditional massage groups, rice mill groups, herbal curry paste groups, and sewing groups

2) Occupational groups have come together to jointly produce and process products, such as organic farming groups (chemical-free vegetables), bamboo weaving and plastic string groups, dried mango processing groups, Thai dessert community enterprise groups, sun-dried meat groups, Herbal shampoo and dishwashing liquid production groups, Thai traditional massage groups, rice mill groups, herbal curry paste groups, and sewing groups

3) The products are brought together to create community products, such as chili, curry paste, and grapes from the community's grapevine, bamboo baskets, fish baskets, fish scoops, nets, white cloth, cotton fabric, Jaew Bong (fermented fish dip) made from natural fish, sun-dried fish, sun-dried meat, salted eggs, Thai rolled gold cookies, Thai fried rice cakes, rice crackers, chemical-free vegetables from Nong Jamnak, such as water spinach, asparagus, Chinese cabbage, galangal, lemongrass, and kaffir lime leaves, plastic baskets, grass broomsticks, and coconut broomsticks, produced by the elderly group at Ban Nong Muk, Moo 2.

4) The community groups collaborate to sell products by having representatives from each group participate in various product exhibitions organized by both government and private sectors. They also have sales points for community products within tourism partnerships and sell them through their vocational groups. Additionally, the products are sold at the Cultural Street of Ban Hua Ruea and the Phum Phuang Market, as well as at the regular markets of Ban Hua Ruea.

Another notable strength of Ban Hua Ruea is the strong leadership within the community. The community leaders collaborate effectively with government agencies, private sectors, and educational institutions to drive and determine the direction of community-based agricultural tourism. Additionally, they have successfully encouraged local residents to participate in enhancing and developing the community's tourism offerings.

The community participation potential is evident as the Ban Hua Ruea community plays an active role in facilitating and coordinating between tourists and tourism management groups. Roles and responsibilities in tourism management have been clearly defined, and the community is involved in the administration of tourism activities. Community members collaboratively set up tourism models, program activities, and service fees. Currently, Ban Hua Ruea has started offering tourism services, with agricultural groups managing farms that can serve as educational sites, such as chili farms, grape farms, and coconut farms. The community plays an essential part in decision-making through the following steps:

Community participation in the initiation of agricultural community-based tourism shows that most of the community members are engaged in the initiation of tourism activities within the community. The committee has explained the process of community-based tourism to ensure understanding across all sectors. Every occupation group has the right to participate, but the challenge lies in the lack of understanding regarding the implementation of agricultural tourism.

Participation in providing feedback and attending meetings shows that the majority of community members participate in meetings and offer suggestions regarding various activities within the community, including those related to tourism. This has been a key starting point in tourism management, such as proposing tourist attractions, tourism activities, and identifying community stories. However, community members who do not attend meetings or are not part of the tourism leadership group generally do not participate in the discussions or provide feedback on tourism matters.

Involvement in providing information about tourist attractions within the community shows that the majority of community members actively participate in suggesting potential tourist sites or locations that can be developed as attractions within the community. They also

contribute by recommending nearby attractions such as the Kokkho Market, restaurants, accommodations, retail stores, and cafes, as well as local souvenirs and traditional foods for tourists.

Involvement in management, decision-making, implementation, and problem-solving reveals that most interviewees actively participate in the management of community-based agricultural tourism. They contribute by providing recommendations on improving tourism activities and enhancing the locations used for tourism events to better accommodate tourists.

Involvement in community-based agricultural tourism activities shows that most of the community members have not yet actively participated in tourism activities. However, some individuals have assisted in taking care of tourists. The number of tourists visiting the community is still low, and the intervals between their visits are quite long. Nevertheless, the community's agricultural tourism activities are in the process of educating landowners and adapting the activities to allow tourists to participate more actively.

Involvement in the distribution of income and using tourism revenue for community development shows that the majority of community members actively participate in the distribution of income and contribute to using the revenue from tourism to improve the community.

Involvement in the evaluation process: It was found that after each tourism activity, a meeting is held to summarize the results once the tourists have returned. Upon receiving the information, the community reviews and analyzes the feedback to guide the planning and execution of future tourism activities.

The community of Hua Ruea still lacks the basic infrastructure for tourism, which has resulted in the absence of a dedicated group for direct tourism management. However, a key strength of the Hua Ruea community is the unity and mutual support among its members, who openly share their opinions. For instance, when organizing events such as the annual cultural festival, Songkran celebrations, sports competitions, or community fund-raising activities, the community collaborates effectively. Additionally, when tourists contact the community to visit, a village meeting is held to discuss and prepare for their arrival, ensuring proper coordination and readiness.

The potential for self-reliance in the Hua Ruea community is evident in their ability to sustain themselves through traditional Isaan lifestyles. The community generates income through agriculture and trading, allowing them to maintain their livelihoods even when product sales decline. They are able to rely on agriculture and crop cultivation for sustenance. Additionally, the community has established various groups that sell products and offer tourism-related services, such as the organic vegetable group, bamboo weaving and plastic cord group, dried mango processing group, Thai snack community enterprise, sun-dried meat group, herbal shampoo and dishwashing liquid production group, Thai massage group, rice mill group, herbal curry paste group, and the clothing sewing group. These efforts demonstrate the community's resourcefulness and ability to self-sustain.

In addition, the Hua Ruea community has the Phum Phuang Market (Hua Ruea Subdistrict Fresh Market), located in the center of the Hua Ruea village. The market operates daily from 01:00 AM to 05:00 AM. Each day, approximately 300 vehicles (sidecar trucks) and around 300 stalls are present at the market. The circulation of money in the market per night is estimated at around 1.5 million baht. Most of the vendors are from Hua Ruea and nearby sub-districts, such as Rai Noi, Paeng Yai, Lao Suea Kok, Khee Lek, Paa Oaw, Kham Yai, Muang Sam Sip (Yang Sak Kapholum), Tan Sum, and Don Mod Daeng. The main products purchased by villagers include various vegetables, fish, fresh meat, fruits, and frogs. The highlight of the market is the fresh products available daily at affordable prices, which are mostly sourced

directly from the community (no middlemen involved). In addition to the Phum Phuang Market, the community also has the Laeng Kkho Market (or Evening Market), where both tourists and locals can come to buy food, drinks, and snacks.

The problems and obstacles in developing agricultural tourism by the community in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province are various. Firstly, the outbreak of COVID-19 led to a decrease in the number of tourists and reduced sales of products, which has been further compounded by the current economic situation. Secondly, the community lacks knowledge on Agricultural Tourism: There is a lack of knowledge regarding agricultural tourism and how to develop related activities. Also, there have been limited community storytellers because most of the storytellers are elderly. This results in a lack of knowledge transfer to the younger generation, which hinders the continuity of cultural and tourism-related stories. Furthermore, the community lacks the knowledge and understanding of online marketing strategies, making it difficult to reach target customers effectively. This limits their ability to promote their products and services to a wider audience.

Development (D1): Designing the Agricultural Community Tourism Route in Huareua Subdistrict, Mueang District, Ubon Ratchathani Province.

Hua Ruea Community has an agricultural tourism activity that is a unique local identity, focusing on activities where tourists can gain new knowledge and experiences through travel. This encourages an exchange of learning between the hosts and visitors. The community designs a tourism program that is suitable for people of all ages, ensuring that everyone can participate. The community aims to create an agricultural tourism program based on environmental friendliness. As a result, the community has designed an agricultural tourism route consisting of one day's itinerary. This is because the community does not have homestay accommodations yet and is in the early stages of initiating tourism activities. Therefore, the community wants to test the tourism route through a pilot program as follows:

Table 1: Agricultural and Cultural Tourism Program of Hua Ruea Subdistrict

Huareua Subdistrict Agricultural and Cultural Tourism Program	
08.30 a.m.	The community is ready to welcome the group of tourists at the Hua Ruea Subdistrict Administrative Organization
09.00 a.m.	Take the tourists to Wat Hua Ruea to listen to a lecture on the history of Hua Ruea Subdistrict. They will also have the opportunity to take photos inside the temple, visit the large pillar sala, and see the ancient drum "E Tha Ban Hua Ruea."
10.00 a.m.	Visit the sustainable farming techniques at the "Phumipanya Thongthin Learning Center" of Phu Bun Leng.
11.00 a.m.	Visit the integrated sustainable farming system at the "Khok Nong Na Kamnan Khamoon" project. The project includes durian, banana, and various other crops, as well as fish farming in earthen ponds. Afterwards, take a drive to Nong Januk, enjoy the scenic surroundings, and observe a herd of 20 white buffalo.
12.00 a.m.	Lunch on at Hua Ruea Community
1.00 p.m.	Visit and learn about the 2-acre vineyard at "Mae Phikun Grape Garden."

Huareau Subdistrict Agricultural and Cultural Tourism Program	
2.00 p.m.	Visit and observe the fish farming in cement ponds, cattle raising, goat feeding, and learn about the cultivation of Israeli sweet signal grass (Napier grass) at Dino Farm.
3.00 p.m.	Take everyone to Anna Café, where you can enjoy coffee while admiring the scenic views of the rice fields and a lemon garden.
4.00 p.m.	Take everyone to Nong Chang Yai, where you can ride and enjoy a scenic view of the Nong Chang Yai reservoir.
5.00 p.m.	Stop by the Kokkho Market to buy souvenirs, visit the fried chili group at Moo 9, Ban Kho, and then safely return.

Research (R2) Implementing the developed community-based agricultural tourism route in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani, for tourists to experience.

After the community developed the community-based agricultural tourism route as a pilot tourism route, the research team conducted a trial where tourists participated in the activities. The participants included 10 individuals from government, private sectors, and educational institutions. The community warmly welcomed the tourists during the event.

Development: D2 Evaluation of the Agricultural Tourism Route

From the interviews with the trial group of tourists and consultations with experts who assessed the agricultural tourism activities in the community of Ban Hua Ruea Subdistrict, Muang District, Ubon Ratchathani, it was found that some tourist destinations within the community are located far apart, even though they are in the same district but in different villages. The arrangement of the tourist sites still has some issues in terms of route planning, making it somewhat confusing for the tourists to navigate. The tourism activities mostly follow the traditional format, where tourists visit and listen to community storytellers. However, there is a lack of active participation from tourists in the activities, and the community storytellers have not yet been able to organize and present the stories in a way that is engaging for the tourists.

However, the community's strength lies in its commitment to tourism development. Although the tourism activities were in a trial phase, the community showed great enthusiasm and focus in welcoming tourists and making every effort to manage the tourism process. The evaluators were able to sense the strong vision of the community leaders, as well as the community's strength and determination to continue developing and managing tourism activities in the future. This commitment is a solid foundation for the community to sustain and expand agricultural tourism in the years to come.

Dissemination: Organizing a workshop to transfer knowledge and technology in the development of community-based agricultural tourism to relevant tourism stakeholders in Ubon Ratchathani province, with 30 participants.

The research team has utilized the findings from the study to organize a hands-on training workshop focused on the development of community-based agricultural tourism for relevant stakeholders in Ubon Ratchathani province. This includes tourism operators, community members involved in tourism, government agencies, private sector representatives, and students from Ubon Ratchathani Rajabhat University studying tourism and hospitality,

totaling 30 participants. The participants were able to apply the knowledge gained from the research to further develop and manage community-based agricultural tourism.

The community is able to manage tourism in the right direction, with the government being able to leverage the knowledge gained to develop tourism policies. The private sector can use the tourism routes to offer them to tourists, while faculty members and students from the Tourism and Hospitality Management program at the Faculty of Humanities and Social Sciences, Ubon Ratchathani Rajabhat University, can use the knowledge to enhance their teaching and curriculum development.

Guidelines for the Development of Community-Based Agricultural Tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province

For the development of community-based agricultural tourism in Hua Ruea Subdistrict, Mueang District, Ubon Ratchathani Province to be successful, it must focus on developing six key areas as in 1) Human Capacity Development, 2) Promoting Participation, 3) Development of Tourist Attractions, 4) Development of Agricultural Tourism Activities, 5) Community Product Development, and 6) Marketing Development

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A Case Study on Relevant Elements of B2B Customer Centricity

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Abstract

B2B transactions make up a large part of the economic activities worldwide. Therefore, it is important to deal with business customers appropriately in order to best meet their expectations. The purpose of this article is to provide new insights on B2B Customer Centricity derived from practice. The study contributes to the generation of knowledge about Customer Centricity in the Business-to-Business (B2B) environment as it identifies seven relevant elements to consider. The findings can be used as an actionable guideline for B2B companies to implement or optimize Customer Centricity in practice. The underlying article contributes to the closure of the knowledge gap on B2B Customer Centricity as it is based on a dedicated B2B case study and therefore dissolves the dependency on extrapolations from the B2C sector. The study uncovers, how the existing model from the B2C area should be adapted for the B2B market and confirms the relevance of Customer Centricity in the B2B environment. Coding and triangulation of the data gained through interviews resulted in a consolidated set of relevant criteria of B2B Customer Centricity which build a framework for a structured monitoring and assessment of Customer Centricity in the B2B environment. The criteria contain elements already identified as relevant in the B2C context as well as social and B2B specific elements.

Keywords: Customer Centricity, Marketing, Case Study, Customer Orientation

Introduction

As any sales transaction is based on an interaction between the company and its customers, customer orientation is key for companies in the Business-to-consumer (B2C) and the Business-to-Business (B2B) sector. While the emotional factor is very important to initiate a purchase transaction in the B2C sector that is selling directly to consumers, the logic of the product and its features is more in focus in the B2B sector that is selling to companies. Furthermore, B2B sales usually have higher order values, longer sales cycles and are often more complex than B2C sales (Lilien & Grewal, 2022; O'Gorman & Schuster, 2024; Réklaitis & Pilelienė, 2019). The B2B environment is according to Seebacher (2021) rational, low-cost and most profitable decisions are taken. Instead of emotions, process optimization and profit sustainability are in focus. At the same time, pressure between competitors, lack of information available, costs or other reasons lead to a lower transparency in the B2B than in the B2C market

what also makes it less understood (Prior, 2023). Lilien and Grewal (2022) additionally highlight the presence of fewer but more powerful customers in the B2B market what makes different tools of the B2C domain inappropriate or request an adaptation. Also Gounaris and Almoraish (2024) as well as O'Gorman and Schuster (2024) mention, that so far all attempts to extrapolate or adopt customer-centric experience from the B2C market did not manage to successfully close the gap in literature. It is therefore crucial for a B2B company to understand how business customers perceive Customer Centricity. This is why the underlying study aims to identify specific elements of B2B Customer Centricity which are actually perceived and have so far barely been overlooked in literature.

Wahl (2023) considers customers as the driver of constant change as they keep on reflecting their own experiences and expectations and demand increasingly personalized offers to meet their many folded preferences. Customer Centricity has emerged out of this customer driven change as a strategy to keep up with the customer's expectations and needs. At the same time it also brings a sort of organisational transformation as it requires constant reflection of the actions developed, the strategic objectives and the cross-departmental involvement of all employees.

Lemon and Verhoef (2016), Goasduff (2019) and Aliekperov (2021) highlight, that a higher level of Customer Centricity is a driver of commercial success and results in greater profit growth, respectively lack of Customer Centricity will lead to drastic project failure. Therefore, building up a customer-centric company needs on one side a product or service that meets customer needs and on the other side a risk-free ambience of cooperation between the customer and a company in order to create long-term relationships (Aliekperov, 2021). Leavy (2022) also mentions the necessity to treat customers in a way that they come back and recommend to their friends.

Different experts actively call for more research in the area of Customer Centricity. McColl-Kennedy et al. (2019) for example, encourage research in B2B settings with multiple transactions during the customer journey or Wahl (2023) asked for studies in different contexts. Another area highlighted for further research are the different perspectives of employees and customers. As discovered by Temkin et al. (2010), many employees simply judge the customer's needs based on their own perception instead of really going an extra mile to completely understand the customer. As a result, they assume the customer's needs and references just like their own (Gaurav & Shainesh, 2017). An additional study by Seebacher (2021) confirmed, that this self-centric approach of the employees does not lead to completely satisfied customers as the companies' actions are not coordinated customer-centric. As so far no study has identified, what factors differ between the view on Customer Centricity from a customer's and an employee's perspective there is currently still a gap in research. This is exactly where the underlying study comes in as the case study gives a practice oriented perspective of two different parties. The objective of the underlying study is to enhance dedicated knowledge on B2B Customer Centricity through a catalogue of relevant elements that can serve B2B companies as a practical guideline for implementation or optimization of Customer Centricity.

Literature review

In a large part of the world B2B markets are responsible for around 70% of the economic activity. Even though the B2B business has therefore a larger effect on society, it is according to Gounaris and Almoraish (2024) and Prior (2023) fairly overlooked in the current literature. Especially the theories about B2B Customer Behaviour, Customer Journey and

Customer Centricity are so far completed with very limited empirical work (Prior, 2023; Purmonen et al., 2023). O'Gorman and Schuster (2024) point out, that most companies can not clearly be declared as customer-centric or non-customer-centric. Instead, they describe the transformation to a customer-centric organization as a continuous process with different stages of development. Wahl (2023) additionally underlines the importance of the holistic commitment of the whole organization as Customer Centricity requires a new mindset as well as new working styles and the transformation of all operational activities. Leavy (2022) mentions the principle of "loving your customer" as the core of successful customer-centric companies. This concept is following the assumption that making other people happy is the best way to create happy relationships. The researcher thereby point out, that the only way for a company to sustainably love its customers is to create inspired and committed teams.

Lovelock and Wirtz (2011) identified three success factors to support service excellence and productivity among service employees: hire the right people, enable them to do a great job and motivate and encourage them accordingly. Also Seebacher (2021) identified the employees as an important driver of customer satisfaction. He argues that employees must be motivated, competent at their jobs and innovative in their thinking in order to be able to create delightful customer experience. The willingness to understand the customer is thereby an indispensable prerequisite (Rademacher, 2022; Wahl, 2023). The decisive factor here is to understand why a customer decides for or against an offer. This helps to understand, how the offer can be optimized in order serve the customers even more successful (Rademacher, 2022). Especially in the B2B market this can be a challenging exercise as the purchasing process of an organization can easily involve multiple individuals which build the buying center. They all follow individual and collective goals, weight different experiences and have therefore a manifolded influence on the purchasing decision. Furthermore, the client list of a B2B company can include customers of very different sizes and the use of the offering can also vary heavily (Lilien & Grewal, 2022; O'Gorman & Schuster, 2024; Purmonen et al., 2023).

With his study Frank et al. (2020) created a set of 15 elements for a customer-centric Business-to-customer process design which is depicted in

Figure 1. Based on a literature review and insights from companies awarded in the area of Customer Centricity, Frank et al. (2020) derived key variables for Customer Centricity and validated those in expert interviews.

Independent Variable	Interaction	Process Integration	Social and Emotional Connection
	Channel flexibility Locational flexibility Temporal flexibility Customer self-service Privacy presence	First-contact problem resolution Informed point of contact Consistent brand experience Customer process integration Customer-friendly control flow Customer support	Customer excitement Personalised interaction Customer feedback Customer community
Dependent Variable	Customer Centric Processes		
	Customer satisfaction Customer loyalty Corporate Success		

Figure 1: Key variables for B2C Customer Centricity (Frank et al., 2020)

This example from the B2C environment served the underlying study as a great orientation in order to develop the criteria for customer-centric business design in the B2B environment.

Even though the literature highlights Customer Centricity as a key factor for future success (Hudetz, 2022; O'Gorman & Schuster, 2024; Seebacher, 2021) and acknowledges at the same time, that the B2B business is the driving force of the economy (Gounaris & Almoraish, 2024; Prior, 2023), there is still a gap in research on B2B Customer Centricity (Prior, 2023; Purmonen et al., 2023). Furthermore, a guidance for the implementation of Customer Centricity in the B2B area with a relevant practical background is missing. This is quite contradictory and underlines the importance of research on B2B Customer Centricity.

Research Methodology

In this study, a qualitative approach has been applied which offered the opportunity to gather in-depth insights. Proper documentation and description of the research procedure and data assured transparency. The research procedure defined has been consequently executed in order to guarantee methodic-ness. Furthermore, the study grounds on an explicit body of evidence. Thus, the most important criteria of qualitative research defined by Yin (2016) have been respected.

Single Case Study

This case study is addressing a research focusing on an institutional level including two different points of view. For this, an embedded single case design has been used. This design usually includes, according to Lee and Saunders (2017), the conduction of the analysis for two or more sub units that occur within a single case study. The underlying case study is focusing on a Swiss company which offers digital services such as websites and other online-solutions for business customers. This includes strategic and conceptional work, content production, web-design as well as user experience design, web solutions, digitalization processes, hosting and support together with education in the area of digitalization. Services or products provided by third parties have not been considered in the study.

While focusing on one specific case, this method offers the possibility to observe with a real-world perspective (Yin, 2014). Finding of a case study are thereby more convincing and accurate, if it is based on multiple sources of information. Furthermore, it is important to apply a triangulation. This means, that the case study's findings are based on multiple sources of evidence which have been analysed and constantly compared simultaneously. By developing convergent evidence, data triangulation helps to strengthen the construct validity of the case study as the different sources provide multiple measures of the same phenomenon (Yin, 2014). The underlying study applied data triangulation by including different perspectives (customers and employees) on the same phenomenon. Moreover, answers to the supported question have been challenged with those to the unsupported question and with key elements identified in the answers of a third question regarding missing elements.

Razi et al. (2022) already followed the suggestion of various researchers to make use of qualitative research in order to discover models of important factors in the B2B sector. They were using Grounded Theory as this method can present a meaningful perspective on complex problems which so far lack of a theoretical foundation. Razi et al. (2022) used in-depth interviews focusing on the study topic and around it. This proven method has similarly been applied in the underlying study. The application of Grounded Theory offers the possibility to turn professional experiences into theory. It enables to face and investigate practical problems from a professional perspective (Walsh et al., 2020). As the methodology is often used to create a theory where only limited knowledge is available, it perfectly suits the circumstances of B2B Customer Centricity. This method develops theory which is grounded in the behaviour, words and actions of the participants. The goal is to generate a theory that is relevant and problematic to those being studied. Therefore, this methodology requires the researcher to enter the field with only little knowledge of the problem under investigation (Goulding, 2002). Therefore, the in-depth literature analysis has been carried out after the field study and the coding process.

Krotz (2019) highlights nevertheless, that a certain amount of previous knowledge is unavoidable as this builds the base for a researcher to even start thinking about the area under investigation.

Interviews

According to Yin (2014), the interview technique is one of the most important source of case study evidence. For this study, the company built the entry point for the interviews. 47 qualitative interviews with company representatives and customers have been conducted to gain insights from both perspectives. This included questions about their understanding of Customer Centricity as well as organizational aspects, challenges and success factors in order to delimit their individual understanding. Open questions animated to give examples, anecdotes and further details. This allowed to gain insights in the environmental setting of a customer or an employee (Sukwadi, 2015). The semi-structured face-to-face interview with open ended questions is the most popular format of Grounded Theory. This format offers the possibility to collect rich and detailed information about the experience of the interviewees (Goulding, 2002). Qualitative interviews aim to understand the participants. This is in line with the fundamental objective of qualitative research, which aims to depict a complex social world from a participant's perspective (Yin, 2016).

The universe of units in which the data collection of the study takes place is called the population (Bell et al., 2022). A sample is thereby a segment of the entire population under study which has been selected for the investigation (Esteban-Bravo & Vidal-Sanz, 2021). Bell et al. (2022), Ghauri et al. (2020) and Yin (2016) consider purposive sampling, what supports the selection of units directly referred to the study, as the main concept for sampling in qualitative research. Bell et al. (2022) thereby mention the environment of the case study as the first level of sampling. Through the selection the single case study, this environment has already been defined. The second level is influenced by the units under investigation. In the underlying study, this includes customers as well as employees. The third level identified through purposive sampling defined sub-units of the customers in order to take the strategic relevance from a practical perspective into account.

Customers

Customers can be distinguished according to their customer type as A, B, C and D customers. Most often companies set up the segmentation based on actual sales, strategic potential (sales, margin development, know-how transfer, lead-user, disseminator potential, etc.), customer margin, customer growth or development potential. As resources are limited and have to be optimized in every area, this segmentation offers a great base to divide the resources available according to a customer's priority. An A-customer has a higher potential for development and infiltration what will automatically result in higher sales, revenue and margins than B-, C- or D-customers (Hofmaier, 2015). As the company under study realises the main part of its turnover with A- and B-customers, they have the biggest influence on the company's success. This is why purposive sampling has selected A and B customers to participate in the study. A total of 46 A- and B-customers, represented by the main contact person, have been invited to participate in the study. Out of these, 25 representatives agreed to participate. The interviewees mainly worked as project coordinators in the area of marketing or online marketing.

Employees

Representing the company with regular customer interaction, employees are a rich source of information when it gets to Customer Centricity. Lovelock and Wirtz (2011) describe the frontline-jobs with a direct face to the customers as one of the most demanding. These employees are expected to work fast and efficient and at the same time courteous and helpful when dealing with the customer. As the service employees represent the company's face to the customer, they often judge companies and their service quality based on their interaction with service employees. This is why a service employee's customer orientation is crucial for a company's success (Hennig-Thurau, 2004; Lusch & Vargo, 2006).

The company under study consists of 26 employees, 22 agreed to participate in the study. This covers from sales representatives to marketing, Human Resources, IT, trainees and the CEO all different kind of positions. All participants have direct or indirect customer contact on a daily basis and therefore actively shape the Customer Centricity perceived by the customer.

The focus of the questions was on Customer Centricity. The employee's questionnaire consisted of 27 questions, the customer's questionnaire consisted of 23 questions. The open question what Customer Centricity means to the interviewees offered the chance to get unsupported insights (Statista, 2023). Besides open questions, the interviewees received at the end of the interview an overview including 30 elements identified as relevant for future business activities by Frank et al. (2020), Hudetz (2022), Seebacher (2021), United Nations (2023) and wlw Inside Business (2022). The participants have been asked to mark all elements that they consider relevant and add a suitable prioritization. This supported question allowed to challenge existing theories about the importance of certain elements. The answers to the supported and the unsupported question built the base for coding and further analysis. Another question regarding elements that are missing in the current business relationship and could improve the Customer Centricity perceived has served as an additional source of relevant insights.

Data analysis

The case study aims to investigate Customer Centricity and its components in the practical environment. Therefore, Grounded Theory builds a suitable theoretical base to generate knowledge out of the information gained. Bell et al. (2022) defined Grounded Theory as the theory which has been derived from data, gathered with a specific system and analysed throughout the research process. A fundamental feature is the constant comparison to look for patterns and themes. It allows to explore differences and similarities across incidents appearing in the same category that build patterns.

To identify such patterns, important keywords are labelled through a coding process. In this study, substantive coding has been applied that works with primary data input in order to identify concepts out of the collected data. This type of coding consists of Open, Axial and Selective Coding (Walsh et al., 2020). By applying open coding, the data has been broken down into units of meaning. Open coding is the initial stage of constant comparison in which data has been analysed in detail. The written transcript of the interviews has therefore been analysed to identify and label key words and phrases that belong together with codes. After that, the relationships between the different key words identified have been specified and core categories which represent a central aspect have been built in axial coding (Goulding, 2002). Further theoretical sampling as well as the constant comparison has been focused only on the

relevant categories. Incidents which are not connected to the core category have not been followed up (Walsh et al., 2020). At the final stage of selective coding, the emerging theory has been shaped through the modelling of interconnections between the different core categories identified and the related concepts. Theoretical codes model, how substantive codes relate to one another as propositions to be integrated in a theory. This creates a big picture with a main pattern built on the relationship between the core categories. The result is a conceptual model of Grounded Theory (Walsh et al., 2020).

Research Findings

The results have been extracted through coding of the interviews. The codes have been clustered and when possible, assigned to each other in order to create a comprehensive overview. Three questions of the interview concerning Customer Centricity delivered valuable insights for this. The first was an open question about the general understanding of Customer Centricity (unsupported), followed by the question about missing elements in the current business relationship and completed by the presentation of a catalogue of pre-defined elements to choose from (supported). As the elements in the catalogue have already been validated in the B2C sector and therefore show certain evidence, they built the starting point of the analysis.

Supported answers

Overall, 30 elements have been presented as possible elements to choose from (base for the supported selection). There was no limitation given in the number of elements to select. The interviewees selected between 4 and 24 elements as relevant. This range indicates, how versatile the interpretation of Customer Centricity is. On average, the participants of the study selected 12 elements as relevant. Table 1 gives an overview of what employees and customers have generally selected as relevant in the first column (regardless of the number and prioritization of the selected elements). The second column shows, which elements have been most often rated under the Top 10. Last but not least, the third column gives an overview of the attributes which have been most often selected as one of the top three priorities. The number next to the elements (#) indicates, how many participants labelled the respective element as relevant in the respective category.

The element “Customer support” has overall clearly been identified as the key element of Customer Centricity. It is the only element, that has been chosen by more than half of the participants as one of the top three elements (column three in Table 1). In total nine elements have been selected as relevant by more than 50% of the participants but only one of those elements is also consistently important and ranked in the Top 3 by more than 50%. The results imply, that employees as well as customers have a similar understanding of Customer Centricity but the importance of the respective elements is different. Therefore, an employee could for example not pay attention to a specific element even if he or she is aware of the fact that an element is important as the primary focus of the employee is on other elements. Those elements treated with priority instead, are on the other side probably not as valued by the customer as the employees may think.

Table 1: Consolidated overview of relevant elements of Customer Centricity for employees and customers incl. ranking and number of selections (supported)

Relevant Elements for Employees & Customers (n=47)	
Selection over all	#
Customer support	37
Partnership to reach goals	35
Personal interaction	34
Informed point of contact	31
Quality education	29
Customer excitement	27
Good health / work-life balance of employees	25
High availability	24
Data privacy	24
Innovation and infrastructure	23
Top 10	#
Customer support	37
Partnership to reach goals	35
Personal interaction	34
Informed point of contact	31
Customer excitement	27
Innovation and infrastructure	22
High availability	21
Channel flexibility	20
Data privacy	19
Temporal flexibility	18
Top 3	#
Customer support	24
Partnership to reach goals	21
Informed point of contact	15
Customer excitement	15
Personal interaction	14
High availability	9
Innovation and infrastructure	7
First contact problem resolution	7
Data privacy	6
Customer-friendly control flow	5
Integration in own processes	5

Unsupported answers

Before the participants had the chance to select the relevant elements from the list just mentioned (supported), the open question “What does Customer Centricity mean to you?” already delivered, after a cautious coding process, valuable insights into the unsupported selection of elements which can be compared and contrasted to the supported selection mentioned above. Figure 2 maps all attributes brought up by the participants when answering the open question. It also highlights overlapping elements in the middle, if they have been mentioned by both parties. The number in brackets indicates, how often it has been referred to the respective attribute in total. The number in the line indicates, how often the respective attribute has been mentioned by which party. Indeed, the three top scorer “Assessment of needs”, “Challenge ideas” and “Respond to requests” can be covered as attributes under the top scoring category of the supported answers “Customer support”. In total, eleven attributes have been mentioned by at least one employee and one customer. The four elements “Knowledge of customer”, “Delimitation”, “Profitability” and “Human centricity” have only

been mentioned by an employee but not by a customer. Customers on the other hand have mentioned eight attributes which seem currently not to be on the radar of any of the interviewed employees. Those elements need to be further examined by the company in order to cover the expectations of the B2B customers.

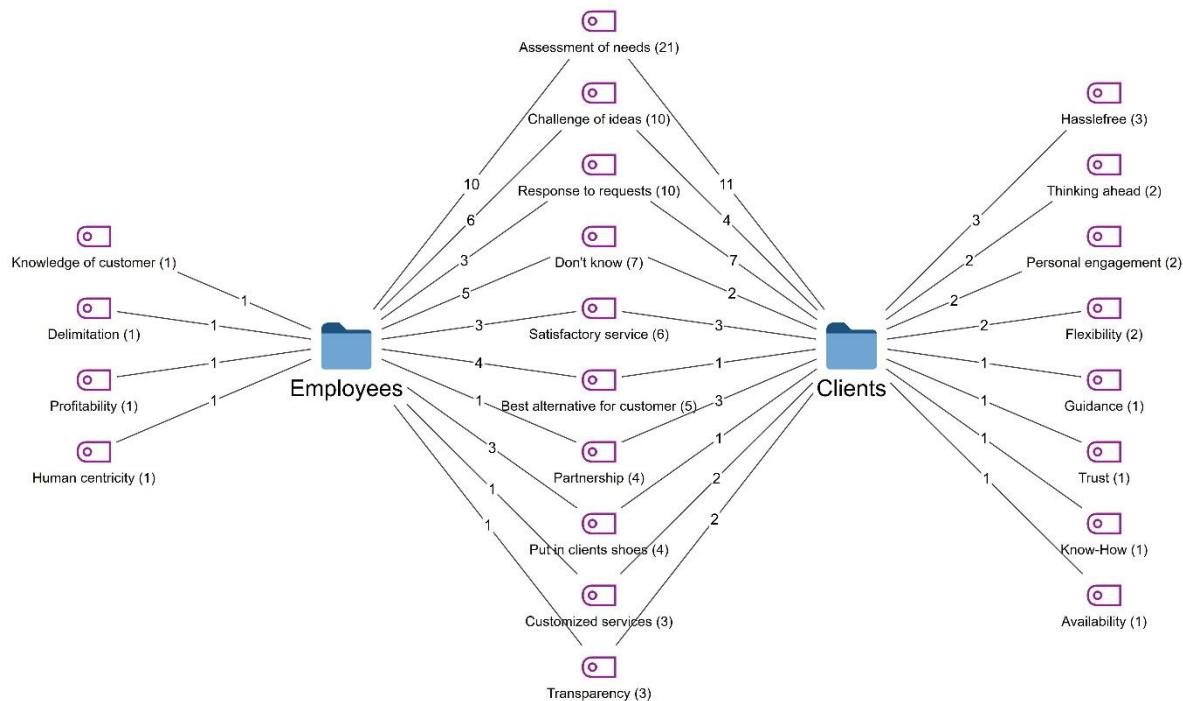


Figure 2: Map of relevant elements of Customer Centricity mentioned by employees and clients (unsupported)

Potential of optimization

Another question regarding the potential to optimize Customer Centricity in the company under study additionnally delivered insights about what clients and employees miss and therefore consider as relevant regarding Customer Centricity. Figure 3 gives an overview of attributes which have been mentioned as a potential of optimization. The attributes mentioned by both parties are thereby shown in the middle of the figure. Specific attributes only mentioned by employees are displayed on the left side and attributes only mentioned by customers on the right side.

Ten attributes have been mentioned by both parties but none of them has been mentioned by more than 50% of the participants. Noticeable is the fact, that ten interviewees confirmed room for improvement but were not able say, what exactly is missing or has to be improved in order to improve Customer Centricity. Furthermore, some of the optimizable attributes have already been mentioned in the list of attributes which belong to Customer Centricity but not all of them. None of the attributes regarding optimization which has been mentioned by both parties has also been mentioned by both parties in the general question about attributes of Customer Centricity. Nevertheless, if the attributes have been mentioned by employees and by customers, they seem to be relevant from both points of view in some way.

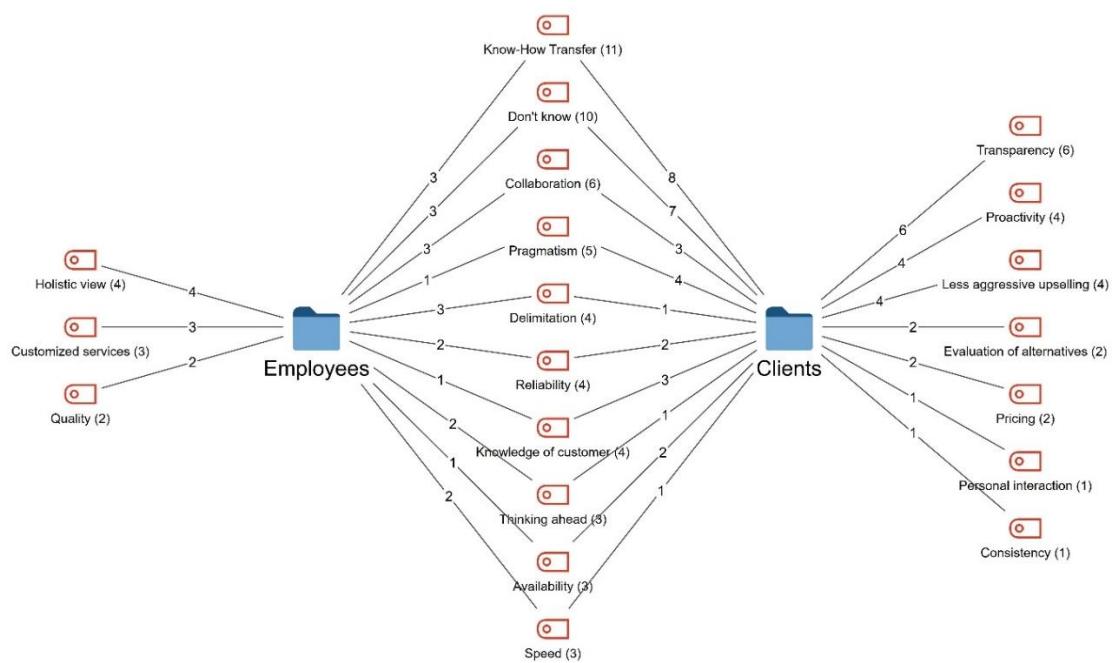


Figure 3: Potential of optimization of B2B Customer Centricity suggested by employees and clients

Catalogue of Relevant Elements in B2B Customer Centricity

In order to focus on relevant elements, those mentioned by at least 50% of the clients and the employees are taken into consideration for the overall composition of relevant elements of B2B Customer Centricity. Taking the top supported elements of Customer Centricity and mapping the unsupported attributes as well as the potential for optimization mentioned by clients and customers, delivers a consolidated overview.

A closer look into the feedback of the unsupported question reveals, that most of the attributes identified in the coding process are covered by the elements offered to select in the supported question. What seems to be missing in the catalogue presented as support is an element covering the point of view of the other party. As Customer Centricity covers employees as well as clients, attributes mentioned in Figure 2 like “Putting oneself in the other’s shoes”, “Best alternative for customers” or “Challenging each other’s ideas” could be covered by an additional element like “Sparring”. This represents a peculiarity of a B2B relationship in which ideas can be tested, advice are shared and a joint development is possible (Laube, 2022). Additionally, “Delimitation” and “Customized services” has been mentioned multiple times as missing elements, respectively relevant. In order to cover those attributes, the additional element “Consequent positioning” should be added to the list of relevant elements in B2B Customer Centricity. The consolidation of the top supported elements and the unsupported attributes, completed by the two additional elements “Sparring” and “Consequent Positioning” leads to the catalogue visible in Table 2.

Table 2: Catalogue of relevant elements of B2B Customer Centricity

Catalogue of relevant elements of B2B Customer Centricity	
<ul style="list-style-type: none"> - Customer support <ul style="list-style-type: none"> - Assessment of needs - Satisfactory service - Pragmatism - Thinking ahead - Availability - Speed - Partnership to reach goals <ul style="list-style-type: none"> - Partnership - Transparency - Collaboration - Reliability - Knowledge of customer 	<ul style="list-style-type: none"> - Personal interaction - Informed point of contact <ul style="list-style-type: none"> - Response to requests - Know-How Transfer - Quality education - Sparring <ul style="list-style-type: none"> - Putting oneself in the other's shoes - Best alternative for customers - Challenging each other's ideas - Consequent positioning <ul style="list-style-type: none"> - Customized services - Delimitation

Discussion / Conclusion

The study provides a new set of seven relevant elements of B2B Customer Centricity: Customer Support, Partnership to reach goals, Personal interaction, Informed point of contact, Quality education, Sparring and Consequent positioning. As highlighted by Lilien and Grewal (2022), models that work in B2C have to be challenged and adopted in B2B in order to unfold their full power. The results of the underlying study confirm some of the existing elements known from B2C and add also new B2B specific elements.

B2B specifics

The following Five elements have been labelled as relevant by at least half of all clients and employees: Customer support, Partnership to reach goals, Personal interaction, Informed point of contact and Quality education. This confirms the relevance of the three criteria of Frank et al. (2020) in the B2B context: "Customer support", "Personal interaction" and "Informed point of contact". Furthermore, it is also in line with a study of Sheth et al. (2023) that has proven that Customer Support can improve the overall customer experience if it is implemented along the entire customer journey. The attribute "Customized service" has already been critically analysed by Lusch and Vargo (2006). They mention the high complexity due to the individualization of the services that result in a bigger effort and longer periods to sell what can result in a low margin risk as companies have to customize the service for every customer at additional costs. Nevertheless, customized services can play, when applied correctly, an important role in a B2B partnership as it can create barriers to change to a competitor, increase loyalty and offer great possibilities for an upselling (Lusch & Vargo, 2006).

The two additional elements which have been identified as relevant "Partnership to reach goals" as well as "Quality education" confirm, that the trend of sustainability indicated by Hudetz (2022) and wlw Inside Business (2022) also affects the way customers and employees perceive Customer Centricity. Furthermore, Blum (2020) already mentioned the

collaborative element but in relation to digitalization in order to facilitate projects with multiple stakeholders. While the collaboration has also clearly been identified as a relevant factor, the underlying study has not confirmed the urgent need for digitalization. This result could be influenced by the industry the company under study is working in. As the company in focus of the underlying study is a provider of digital webservices, most of the projects take care of digitalization. Customers and employees already focus on digitalization in their joint projects and therefore might not especially highlighted this factor as a customer-centric element. On the other side, customers as well as employees work together on interlinked projects, that probably also involve various tools and platforms connecting two companies. A collaborative working environment is therefore key to allow both parties to jointly shape projects. Overall, 40% of the elements which have been selected as important by employees as well as by customers are part of the Sustainable Development Goals defined by the United Nations. This underlines the increasing importance of sustainability in the B2B business already raised by multiple researchers such as Höckel (2021), Hudetz (2021) and Prior (2023). The fact that the awareness of sustainability generally increased in the global environment could be one reason for this. As heavy weather phenomenon nowadays happens more often than before, the volatility of the global climate and with this also sustainability gets more in focus (Prior, 2023). This is in line with statement of Simakhajornboon (2022) highlighting that responsible, sustainable activities of a company have a growing influence on the acceptance of customers.

Comparison to B2C

Compared to Customer Centricity in the B2C area where the concept is more enhanced, certain elements like “Customer support”, “Personal interaction” and “Informed point of contact” are congruent. Other elements like “First-contact problem resolution” or “Data privacy” which also play an important role in B2C seem not to be top of mind in the B2B sector. In return, additional elements like “Partnership to reach goals”, “Quality education”, “Sparring”, “Consequent positioning” as well as “Pragmatism” should be added to the list of relevant elements of B2B Customer Centricity. This also brings in the component of sustainability, which is currently missing in the results of B2C studies.

As 15% of the interviewees were not able to describe how they perceive Customer Centricity in the unsupported question, it can be an indication, that not all people involved in the customer journey really know how they could contribute and what they could expect from a customer-centric company. Affected are customers and employees alike. The fact that 20% of the interviewees have indicated room for improvement in the area of Customer Centricity without being able to designate exactly, how it could be improved also underlines this. This is also in line with O’Gorman and Schuster (2024) who mention the missing definition and delimitation of Customer Centricity. Overall, one can conclude, that in the B2B area Customer Centricity has not been completely established yet. In order to successfully bring it to life, the creation of a common understanding of elements and attributes which belong to Customer Centricity is essential.

Practical Implications

The catalogue of relevant elements can be used as a practical guideline for the implementation or optimization of Customer Centricity within a B2B company. The result of the study highlights the importance of clear decisions on delimitation and customization. Furthermore, the company has to incorporate a forward-looking mindset and design their culture customer centric.

Most of the elements identified as relevant in the underlying study are likely to also be relevant for other B2B companies and transferrable to several industries. Nevertheless, the limitation of a single case might lead to elements specific for the service environment. Companies that produce physical products might have clearer guidelines and less options to change the field they are active in. "Consequent positioning" therefore might be given and less relevant. Also "Sparring" might be more relevant in a creative field as it requires a certain flexibility to discuss and challenge things that can be revised afterwards. Other industries or big, international companies steered by the headquarter might lack of such flexibility. They would therefore might not consider "Sparring" as a relevant element. Besides this, it is highly likely, that the element "Partnership to reach goals", "Informed point of contact" or "Customer support" are transferrable to other industries and also a relevant element for most B2B companies. The exact expectation of how far ahead the supplier should think and how fast the contact person has to be available thereby might change depending on the industry. The expectations in the area of education could thereby vary depending on the country and its educational system.

Suggestion

The study made it possible to compile a catalogue of 7 elements and 18 attributes in total which summarize the expectations and focus areas of customers and employees when it comes to B2B Customer Centricity. This result underlines, that a general, but not yet very concrete, understanding exists and the approach of Customer Centricity has arrived in the B2B market. Nevertheless, not all interviewees have been able to concretely formulate their expectations. But as Simakhajornboon (2022) highlighted, the request for services that meet the customer's growing expectations is increasing. Therefore, further research should generate knowledge in order to create a clear definition, guidelines, case studies and other tools that generate a common understanding and support the implementation and execution of B2B Customer Centricity. As the underlying study is based on a specific case, the results are not generalizable but build a stable basis to challenge the outcomes in the future. The relevant elements identified could be challenged in further studies. Furthermore, future research could for example focus on other companies, industries and countries in order to challenge the relevant elements of B2B Customer Centricity identified in the underlying study.

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The Influence of Male Celebrity Endorsers on Consumer Perceptions and Purchase Intentions of Cosmetic and Beauty Products in Thailand

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Abstract

This research addresses the challenges faced by businesses in utilizing male celebrities to endorse cosmetics and beauty products in Thailand, a market traditionally dominated by female-oriented imagery. The primary objectives of the study are threefold: 1) to examine the influence of male endorsers' attractiveness on consumer purchasing decisions, 2) to investigate the effects of integrated marketing communication factors, including advertising, public relations, sales promotion, direct marketing, and event marketing, on consumer behavior, and 3) to explore the impact of consumer acceptance of gender-neutral beauty on purchasing decisions.

The quantitative research approach was employed, using purposive sampling to select 400 Thai consumers who had previously been exposed to cosmetic and beauty product advertisements featuring male celebrities. Data were collected through an online structured questionnaire utilizing a 5-point Likert scale. For data analysis, descriptive statistics (including frequency, mean, standard deviation, and percentage) and inferential statistics (such as Pearson's correlation coefficient and multiple regression analysis) were applied according to the methodology.

The results reveal that attractiveness, sales promotion, direct marketing, event marketing, and the acceptance of gender-neutral beauty have significant positive effects on consumer purchasing decisions. In contrast, advertising and public relations do not exhibit statistically significant impacts. These findings offer practical insights for businesses aiming to develop more effective marketing strategies by leveraging male celebrity endorsements to meet the evolving expectations of modern consumers.

Keywords: Male actor, Cosmetics, Beauty Products, Purchase Decision, Acceptance

Introduction

Currently, the use of male actors in promoting cosmetics and beauty products is not yet widely accepted. This pose challenges that businesses must consider, particularly regarding the brand image. If a brand has previously targeted a predominantly female audience, shifting to male actors may lead consumers to feel that the brand has lost its expertise in female-oriented products or lacks a clear stance (McCracken, 1989). Additionally, while there are various benefits to using male actors in cosmetic advertising, factors such as consumer habits might influence purchasing decisions. Many consumers still view cosmetics and beauty products as being for women, and this shift could cause some groups to feel uncertain or reluctant to accept male actors endorsing these products. Cultural differences could also create barriers to male actors' acceptance in certain regions. However, the concept of gender binary, which traditionally categorizes people into opposing genders of male and female within societal or cultural frameworks, has recently been challenged. There is now an emphasis on revising this concept to embrace all gender identities and to promote broader acceptance in Thai society. This includes encouraging the use of male actors in promoting cosmetics, helping to foster understanding beyond cultural norms to encompass legal, educational, and employment dimensions (Kittinan Thammathach, 2024). Research from UNICEF supports this, stating that countries that support gender rights reduce inequality and improve the quality of life (UNICEF, 2023). Additionally, the World Bank reports that promoting rights for sexual diversity benefits both the economy and societal development (World Bank, 2020).

The cosmetics industry is one of the fastest-growing markets. In 2023, the global market value reached approximately \$374.18 billion, with a forecasted growth to \$758.05 billion by 2032, at a compound annual growth rate (CAGR) of 6.8% from 2024 to 2032. The Asia-Pacific region holds the largest market share, representing 41.4% of the total market value in 2023, with a remarkable annual growth rate of 9.8%, driven by the increasing demand for beauty products and the expansion of e-commerce in countries such as China, India, and Japan. Consumer behavior is increasingly focused on self-care and maintaining a good personal and social image (Fortune Business Insights, 2023). The rising focus on self-care and appearance, combined with the spread of social media, has led to new trends in beauty, such as the growing role of men in the beauty industry. This shift is a key driver of diversification in the cosmetics market. In the past, cosmetic products were primarily designed for women, and advertisements typically featured female actors embodying societal beauty standards. However, changes in societal perceptions of gender and beauty have prompted the beauty industry to adapt to gender diversity (Turcu, O., & Brancu, C., 2024).

Currently, the concept of Gender-Neutral Beauty has emerged, referring to the design of products and marketing strategies that cater to all genders, including both men and women, as well as non-binary individuals (Fischer et al., 2021). This change includes the use of male actors, who are knowledgeable and passionate about beauty, as representatives for advertising beauty products. The presence of male actors in cosmetic ads not only helps attract the growing male consumer base but also supports the idea that beauty is for everyone. The use of male actors in beauty advertising differentiates brands in a competitive market. Factors influencing purchasing decisions for beauty products advertised with male actors include the suitability of the actor for the brand, the actor's credibility, such as their reputation or expertise, and consumer attitudes that are open to gender-neutral beauty ideals. These factors play a significant role in increasing acceptance and trust in the products.

As discussed, this research will focus on studying consumer purchasing decisions when male actors are used in cosmetic and beauty product advertisements, emphasizing factors such as attractiveness, integrated marketing communication, and the acceptance of gender-neutral beauty. This study aims to improve research efficiency and provide practical applications in marketing. Furthermore, it seeks to determine whether using male actors in beauty product advertisements, instead of traditional female actors, can create significant market differentiation for businesses.

Objective

1. To examine the influence of attractiveness on consumer purchasing decisions for products featuring male actors in cosmetics and beauty advertisements in Thailand.
2. To study the influence of male actors in various aspects such as advertising, public relations, sales promotion, direct marketing, and event marketing on consumer purchasing decisions for products featuring male actors in cosmetics and beauty advertisements in Thailand.
3. To investigate the impact of gender-neutral beauty on consumer purchasing decisions for products featuring male actors in cosmetics and beauty advertisements in Thailand.

Literature Review

Concepts and Theories Regarding the Influence of Male Actors

The attraction of an artist based on physical appearance, such as good looks, is a key factor in making a positive impression on the audience. The concept and theory explaining attractiveness, particularly physical attraction, begin with external features such as attractiveness, symmetrical facial features (social attraction), and a warm, friendly personality. Task attraction, which refers to an artist's ability in singing or acting, further enhances the impression and adds value (McCroskey & McCain, 1974). This is also connected to Evolutionary Psychology theory, which suggests that physical and genetic fitness are qualities that male actors can use to attract the attention of viewers (Buss, 1989). Furthermore, the Self-Presentation Theory indicates that good-looking artists often pay attention to their appearance, which increases their popularity and acceptance in the entertainment industry (Goffman, 2023). The Symbolic Interactionism theory explains that an artist's beauty not only attracts physical attention but also reflects social symbols, thus earning the approval of the audience (Blumer, 1969). In attracting consumer attention through advertising, the TEARS Model is employed, which encompasses several factors. It starts with trustworthiness, derived from a good image and past achievements, helping consumers feel confident in the product. Expertise in the field, such as acting ability, enhances the credibility of both the actor and the related product. Attractiveness, including both physical appearance and distinct personality traits, plays a significant role in creating a positive impression. This attraction is further linked to respect, which stems from the actor's success and positive image. Finally, similarity, such as age, gender, or lifestyle, between the actor and the target audience, helps foster a sense of closeness, making it easier for consumers to relate to the product (Mehrabian, 1971). From these concepts, an attractive personality or similarity to the target audience are critical factors that help link products with consumers.

Hypothesis 1: The influence of attractiveness on consumer purchasing decisions regarding cosmetic and beauty products advertised by male actors in Thailand.

Concepts and Theories Related to Integrated Marketing Communication.

Integrated Marketing Communication (IMC) refers to the process of linking and integrating various marketing communication tools and channels to create consistency and a cohesive brand image that reaches the target audience. The goal is to enhance the effectiveness of communication, foster understanding, and stimulate a responsive reaction from consumers in a productive manner (Schultz, 1992). The concept of integrated communication consists of five key factors (Belch & Belch, 2018), which include the following components:

1. Advertising is a crucial tool in marketing strategies and has the ability to effectively reach a large number of consumers. Advertising helps to build familiarity between consumers and brands by creating awareness (Gadener & Trivedi, 1998). It communicates key benefits to consumers through various channels, such as television, radio, the internet, and print media (De Pelsmacker et al., 2018). Advertising plays an essential role in building a brand image and stimulating consumer purchasing decisions. By using characters or actors with positive images, it can generate credibility and attract consumer interest (Belch & Belch, 2003). In the beauty and cosmetics market in Thailand, utilizing the image of male actors in advertisements can attract consumers seeking a break from traditional values. It creates a connection between self-care and the modern masculine image, which may help increase opportunities for expanding the customer base for the brand (De Pelsmacker et al., 2018). Since marketers must understand the characteristics of different advertising media to choose the most effective channels that align with their target audience, this can lead to the brand differentiating itself and gaining a competitive advantage in the market.

Hypothesis 2: The influence of advertising on consumer purchasing decisions regarding cosmetics and beauty products featuring male actors in Thailand.

2. Public Relations focuses primarily on disseminating information (Cutlip & Center, 2000) and adapting to changes in media and technology, particularly through the use of television and radio to spread news to the public (Grunig & Hunt, 1984). Today, it emphasizes the development of long-term relationships between brands and consumers through trust-building. The Relationship Management Theory can be applied to foster deeper relationships (Ledingham & Bruning, 1998). Additionally, the Persuasion Theory, which aims to change consumer attitudes or behaviors through various communication techniques, such as the use of famous personalities, involves using male actors in advertisements to stimulate awareness and influence consumer purchasing decisions (Hovland, 1953). Furthermore, the Two-Way Symmetrical Model is another important approach for establishing friendly and sustainable relationships between brands and consumers by actively listening to feedback and responding effectively (Grunig, 1992). In the digital age, public relations have adapted to reach consumers through online channels and social media (Kent & Taylor, 2002), enabling brands to build trust and maintain positive relationships with consumers.

Hypothesis 3: The influence of public relations on consumer purchasing decisions regarding cosmetics and beauty products advertised by male actors in Thailand.

3. Sales Promotion is a short-term strategy used to stimulate product purchases and drive sales quickly. It can be used as a tool for consumers, distributors, and salespeople, with the goal of generating immediate sales reactions (Belch & Belch, 2003). Sales promotions can be integrated with other marketing strategies, such as advertising and public relations, to enhance brand image and consumer awareness (Etzel & Bruce, 2001). Sales promotions can be divided into three types: Consumer Promotion, which focuses on encouraging consumers to purchase or try the product more; Trade Promotion, which targets retailers and distributors to increase product distribution to consumers; and Sales-Force Promotion, which motivates salespeople to exert more effort in selling products effectively (Kotler & Keller, 2016).

Additionally, within the framework of Integrated Marketing Communications (IMC), sales promotions play an essential role in strengthening brand image and stimulating consumer purchase decisions through strategies such as discounts, coupons, or giveaways, which help create demand and increase product awareness. The theory of sales promotions also suggests that the use of promotional strategies can establish short-term positive relationships between brands and consumers (Shimp, 2010), while also fostering long-term loyalty through special offers or benefits.

Hypothesis 4: The influence of sales promotion on consumer purchasing decisions regarding cosmetics and beauty products advertised by male actors in Thailand.

4. Direct marketing is a strategy that emphasizes direct communication and marketing to customers through various channels, such as mail, email, telephone, or personal messages. The key advantage of direct marketing lies in its ability to precisely target specific customer segments, enabling immediate performance measurement and the adjustment of strategies to align with individual customer behaviors (Peppers & Rogers, 2016). Additionally, direct marketing serves as a crucial tool for building long-term relationships with customers (Dube et al., 2010). In the cosmetics and beauty products industry, direct marketing plays a vital role due to the need for personalized and targeted communication with diverse consumer groups. This is especially relevant in Thailand, where the market consists of highly varied consumer demographics (Chaffey & Smith, 2022). Personalized promotions, such as targeted discounts for specific customer types or tailored offers sent via email, can effectively stimulate purchasing decisions. Moreover, employing male actors as brand ambassadors in cosmetic advertisements is another strategy to attract consumer interest. This approach aligns with current trends where men are increasingly attentive to skincare and beauty products. Schultz et al. (1993) highlight that the credibility of brand ambassadors with a positive public image fosters consumer trust, enhancing product reliability and driving purchasing decisions (Peppers & Rogers, 2016). Furthermore, direct marketing enhances customer satisfaction, particularly when customers receive offers or products that align with their needs and interests.

Hypothesis 5: The Influence of Direct Marketing on Consumers Purchasing Decisions Regarding Cosmetics and Beauty Products Advertised by Male Actors in Thailand

5. Event marketing is a strategy that emphasizes direct communication and marketing to customers through various channels, such as mail, email, telephone, or personal messages. As a key tool in direct marketing, it plays an essential role in fostering long-term relationships with customers (Dube et al., 2010). In the cosmetics and beauty products industry, event marketing is particularly significant due to the personalized and targeted communication required for diverse consumer groups. This is especially relevant in Thailand, where consumer demographics are highly varied (Chaffey & Smith, 2022). Personalized promotions, such as tailored discounts for specific customer segments or exclusive offers delivered via email, can effectively stimulate purchasing decisions. Furthermore, the use of male actors as brand ambassadors in cosmetic product advertisements is an additional strategy to capture consumer attention. This approach aligns with current trends, where men are increasingly interested in skincare and beauty products. According to Schultz et al. (1993), the credibility of brand ambassadors with a positive image helps build consumer trust, enhancing product reliability and influencing purchasing decisions (Peppers & Rogers, 2016). Additionally, direct marketing contributes to customer satisfaction, particularly when customers receive offers or products that align with their specific needs and interests. **Hypothesis 6:** The Influence of Event Marketing on Consumers Purchasing Decisions Regarding Cosmetics and Beauty Products Advertised by Male Actors in Thailand.

Concepts and Theories on the Acceptance of Gender-Neutral Beauty

Gender neutral beauty is a concept that emerges from the transformation of traditional notions of beauty, which were previously confined within the binary frameworks of masculinity and femininity. Theories of gender identity and expression highlight that gender identity, and its manifestations are not limited to male or female categories but are instead fluid. As a result, gender-neutral beauty emphasizes self-expression without being bound by traditional gender roles or stereotypes (Wood & Eagly, 2012). Additionally, theories related to gender bias reduction reflect a societal shift towards greater openness and acceptance of gender diversity, moving away from traditional standards of beauty and gender roles. This is exemplified by the design of unisex beauty products that cater to all genders (Brown & Knight, 2019). Moreover, the acceptance of gender diversity incorporates insights from the evolutionary psychology of beauty, which suggests that universal attributes, such as facial symmetry or confident personality traits, are valued irrespective of biological sex (Buss, 1989). In contemporary society, the emphasis on gender-neutral beauty symbolizes equality, supported by the theory of beauty as social capital, which enables individuals of all genders to access various opportunities, such as employment and advertising (Chulalongkorn University, 2023). The beauty industry champions gender-neutral beauty by designing inclusive products for all genders, as seen in brands like Fenty Beauty. This perspective aligns with Pierre Bourdieu's theory, which argues that beauty is shaped by social and cultural contexts rather than inherent human nature (Bourdieu, 1984). The concept of gender-neutral beauty reflects societal development and provides everyone with an equal platform to express their identity.

Hypothesis 7: The Influence of Gender-Neutral Beauty Acceptance on Consumers Purchasing Decisions Regarding Cosmetics and Beauty Products Advertised by Male Actors in Thailand.

Concepts and Theories on Purchasing Decision Making

Purchasing decision-making is a process in which consumers evaluate and select products or services to meet their needs or solve their problems. Consumer satisfaction with a product or service can influence future purchasing decisions (Suchart Traipopsakul, 2021). According to Simon (1955), purchasing decision-making involves selecting one option from several alternatives. This process may be influenced by both internal and external factors. Similarly, Kotler and Keller (2012) emphasize that marketers should understand consumer psychology and behavior to design appropriate marketing strategies and build sustainable relationships between consumers and brands in the long term. Theories of purchasing decision-making provide foundational psychological insights into how consumers make buying decisions. Siriwan Serirat (1997) explains that the decision-making process begins with need recognition, which occurs when consumers identify an unmet need or ideal state, often driven by internal motivations. Next is information search, where consumers seek information about products or services that address their needs, including recommendations from close acquaintances. This is followed by evaluation of alternatives, where consumers consider factors such as quality and price based on the gathered information. The purchase decision stage involves selecting the best product or service from the evaluated alternatives. Additionally, the decision-making process plays a vital role in fostering long-term relationships between consumers and brands, particularly when consumers have positive experiences with a product or service (Seree Wongmontha, 2004). This behavior may also be influenced by factors such as promotional campaigns or opinions from others (Kotler & Keller, 2012).

Conceptual Framework

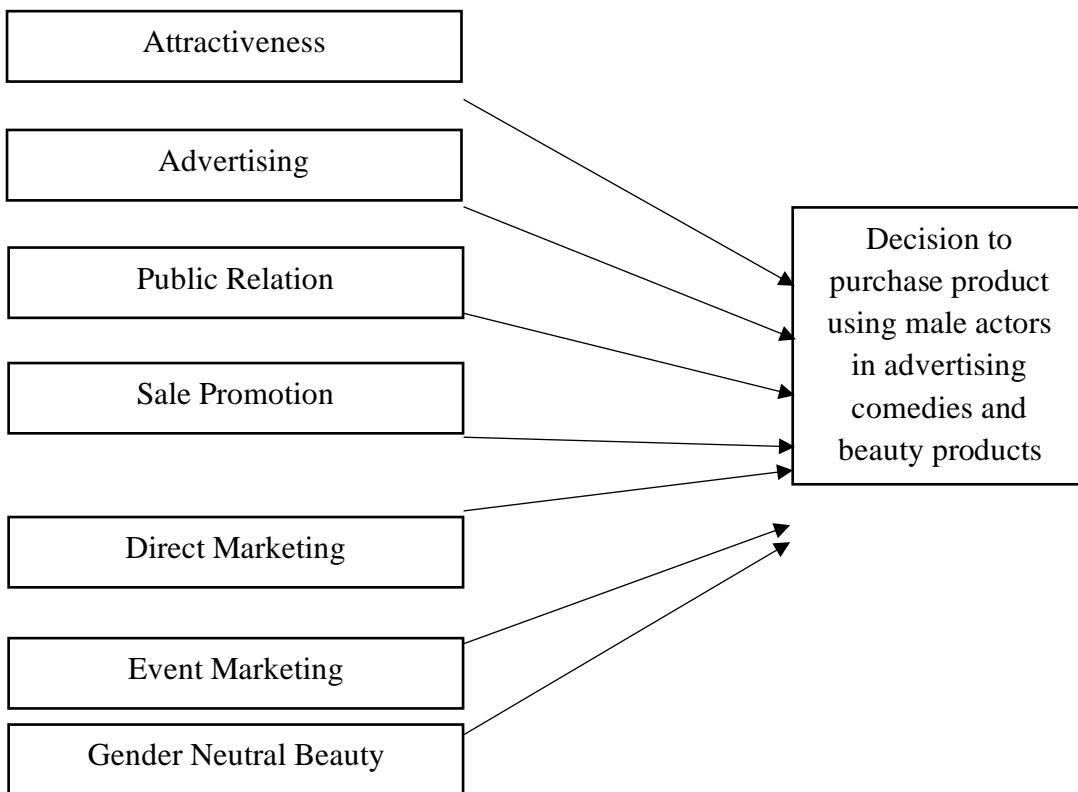


Figure 1: Conceptual Framework of the Study

Research Methodology

Population and Sample

This research adopts a quantitative research design, specifically using a Mono Method Quantitative approach in the form of Survey Research. The data collection follows a cross-sectional design. The population for this study consists of consumers residing in Thailand who have seen products featuring male actors in the advertising of cosmetics and beauty products. The sample size was determined using Yamane's formula, with a confidence level of 95% ($Z=1.96$) and a margin of error of $\pm 5\%$ or 0.05, resulting in a sample size of 400 individuals. The sampling method used was purposive sampling, with the selection criterion being individuals who have seen products featuring male actors in cosmetics and beauty product advertisements. Data was collected using a questionnaire with a 5-point rating scale.

Research Instruments

The research instrument used for data collection was a close-ended questionnaire consisting of 400 sets, created and distributed online via Google Forms. The questionnaire utilized a 5-point Likert scale to measure respondents' opinions and included concise multiple-choice questions. It was divided into three sections: Section 1 focused on screening the respondents, Section 2 collected demographic information, and Section 3 assessed factors such

as the attractiveness of the actors, advertising, publicity, sales promotion, direct marketing, marketing activities, acceptance of gender-neutral beauty, and purchasing decisions regarding products featuring male actors in cosmetic and beauty advertisements.

Data Collection

1. The research study on the influence of factors affecting consumer purchasing decisions for products featuring male actors in cosmetic and beauty advertisements in Thailand was conducted using a convenience sampling method and survey sampling technique through a Google Forms questionnaire. The sample group consisted of consumers residing in Thailand, and data was collected from 400 respondents between December 13-22, 2024.
2. The researcher distributed the questionnaire through various online media channels, such as Instagram, Line, and Facebook. The online distribution of the questionnaire was an effective method for reaching the target audience quickly and efficiently, achieving the desired sample size.
3. Once the questionnaires were collected, the researcher analyzed the data using the SPSS (Statistical Package for the Social Sciences for Windows) statistical software.

Statistical Procedures for Data Analysis

The data analysis was conducted using descriptive statistics, including frequency distribution, mean, standard deviation, and percentage to summarize the results from the questionnaire. Inferential statistics were also employed to examine the relationships between variables. Pearson's Correlation Coefficient was used to analyze the correlation between variables, while Multiple Regression Analysis was applied to assess the relationship between several independent variables and a single dependent variable. Additionally, Simple Regression was used to test the significance level (Sig.), standard error (S.E.), regression coefficient (B), standardized regression coefficient (Beta), standard deviation error (STD. Error), and the t-statistic for hypothesis testing.

Research Finding

Section 1 of the questionnaire focused on screening respondents, selecting only those who had seen products featuring male actors in advertisements for cosmetics and beauty products.

Section 2 collected demographic information about the respondents. The majority of the respondents were female, with 287 individuals (71.8%). The age group of 15-24 years accounted for 366 respondents (91.5%). Most respondents were single, totaling 390 individuals (97.5%). A majority of 354 respondents (88.5%) were pursuing undergraduate studies, and 358 respondents (89.5%) were students. Additionally, 197 respondents (49.3%) had a monthly income of 10,000 baht or less.

Section 3 analyzed the respondents' opinions regarding the attractiveness of male actors, advertising, publicity, sales promotion, direct marketing, marketing activities, acceptance of gender-neutral beauty, and purchasing decisions for products featuring male actors in cosmetic and beauty advertisements.

Table 1: The results of an analysis of the average and standard deviation of the variances

The Variances Used	\bar{x}	S.D.	Level
Attractiveness	4.2515	0.6016	Most Agree
Advertising	4.0875	0.6492	Most Agree
Public Relation	3.8342	0.7598	Highly Agree
Sale Promotion	4.2162	0.6331	Most Agree
Direct Marketing	4.0606	0.7429	Most Agree
Event Marketing	4.2230	0.6426	Most Agree
Gender Neutral Beauty	3.4916	0.9418	Highly Agree
Purchase Decision	4.0545	0.7102	Most Agree

Table 1 presents the results of data analysis regarding the level of opinions on factors influencing purchase decisions for cosmetics and beauty products featuring male actors in advertisements. The findings indicate that, overall, the factor with the highest level of agreement is Attractiveness, with a mean score of 4.2515. This is followed by Event Marketing (mean score of 4.2230), Sales Promotion (mean score of 4.2162), Advertising (mean score of 4.0875), Direct Marketing (mean score of 4.0606), and Purchase Decision (mean score of 4.0545), respectively. In contrast, factors with an overall level of agreement rated as "high" include Public Relations, with a mean score of 3.8342, and Gender-Neutral Beauty, with a mean score of 3.4916.

Section 4. Testing Hypothesis, an analysis employs multiple regression analysis to examine the factors influencing purchase decisions for cosmetics and beauty products featuring male actors in advertisements among consumers in Thailand.

Table 2: The results of an analysis of multiple linear regression

Variable	Unstandardized Coefficients		Standardize d Coefficients	t-test	Sig
	B	Std. Error	β		
1. Attractiveness	0.2730	0.0640	0.2310	4.2780	<0.0010
2. Advertising	0.0300	0.0390	0.0280	0.7680	0.4430
3. Public Relation	-0.0570	0.0330	-0.0610	-1.7140	0.0870
4. Sale Promotion	0.3460	0.0600	0.3090	5.7700	<0.0010
5. Direct Marketing	0.3030	0.0380	0.3160	7.9330	<0.0010
6. Event Marketing	0.1160	0.0410	0.1050	2.8590	0.0040
7. Gender Neutral Beauty	-0.0750	0.0260	-0.1000	-2.8870	0.0040

Table 2 presents the influence on consumer purchasing decisions for products featuring male actors in cosmetics and beauty advertisements in Thailand, based on statistical significance (P-value) with a threshold of 0.05. The regression coefficients for variables that can predict or affect purchasing decisions are as follows: Attractiveness ($\beta = 0.2310$, $P < 0.0010$), Sale Promotion ($\beta = 0.3090$, $P < 0.0010$), Direct Marketing ($\beta = 0.3160$, $P < 0.0010$), Event Marketing ($\beta = 0.1050$, $P = 0.0040$), and acceptance of gender-neutral beauty ($\beta = -0.1000$, $P = 0.0040$). On the other hand, variables that cannot predict or affect purchasing decisions are Advertising ($\beta = 0.0280$, $P = 0.4430$) and Public Relation ($\beta = -0.0610$, $P = 0.0870$).

Discussion/Conclusion

Based on the research findings aligned with the objectives and hypothesis testing results from the study on factors influencing purchase decisions for cosmetics and beauty products featuring male actors in advertisements among consumers in Thailand, it was found that the hypotheses related to Attractiveness, Sales Promotion, Direct Marketing, Event Marketing, and Gender-Neutral Beauty were accepted. However, the hypotheses related to Advertising and Public Relations were rejected. The results can be further discussed as follows

1. Attractiveness Factor

Attractiveness as a Factor Influencing Purchase Decisions significantly impacts consumers' purchase decisions for cosmetics and beauty products advertised by male actors.

The analysis at a 0.05 significance level reveals that physical appeal and a polished image capture attention, create positive impressions, and make advertisements more memorable (McCroskey & McCain, 1974). This aligns with Symbolic Interactionism (Blumer, 1969), which suggests that an actor's attractiveness reflects not only physical traits but also social standards and symbols, such as fashion and hairstyles aligned with trends, fostering consumer acceptance. Moreover, unique talents and engaging expressions further enhance the actor's charm, even when physical appearance is not perfect, stimulating positive consumer responses.

2. Advertising Factors

Advertising does not significantly influence the purchasing decisions of consumers when male actors are featured in advertisements for cosmetics and beauty products. The study, analyzed through correlation coefficients at a 0.05 significance level, found that advertising remains a key tool in marketing strategies to communicate with consumers via various channels such as television, radio, the internet, and print media, thereby stimulating consumer purchasing decisions, particularly for beauty products featuring male actors. However, the study reveals that this form of advertising has limited effectiveness among certain consumer groups, especially those who adhere to traditional values and still associate beauty products with women. While the use of male actors in advertisements helps expand the concept of gender-neutral beauty (De Pelsmacker et al., 2018) and captures the interest of some consumer segments, other consumers cannot fully associate the image of male actors with beauty products. This is particularly true for those who remain committed to traditional values, viewing cosmetics and beauty products as unsuitable for men (Clow & Baack, 2010). This finding aligns with research by Nitikarn Athithanaichaiyaphat, Supaporn Jaikarun, & Phaothai Wonglao (2016), which indicates that although male actor advertisements can enhance a modern image and attract consumer attention, they fail to trigger purchasing decisions for certain groups, particularly those not yet ready to embrace changes in beauty perceptions. This reluctance may stem from adherence to traditional values that still associate beauty products with women. There also remains a gender-based distinction in the perceived suitability of beauty products, influenced by societal values.

3. Public Relations Factors

Public relations does not significantly influence consumers' purchasing decisions when male actors are featured in advertisements for cosmetics and beauty products. The study, analyzed through correlation coefficients at a 0.05 significance level, shows that current public relations efforts focus on establishing long-term relationships between brands and consumers through effective communication and trust-building. However, the results reveal that public relations do not directly impact consumers' purchasing behavior. This aligns with the study by Sujanya Namthongkham (2017), which states that while consumers receive brand information via online media, this awareness does not necessarily lead to purchasing decisions or repeat purchases. These results indicate that building brand-consumer relationships through public relations does not effectively stimulate short-term purchasing decisions. Additionally, public relations using persuasion theory, such as featuring celebrity actors in advertisements to trigger awareness and purchasing decisions, does not always result in changed purchasing behavior (Hovland, 1953). While such communication may increase interest or awareness, it does not significantly alter long-term purchasing decisions. The findings suggest that public relations efforts aimed at building consumer relationships do not directly influence purchasing decisions, particularly when consumers do not see the need to purchase the product or are unable to connect the information from public relations with their decision to buy.

4. Sales Promotion Factors

Sales promotion plays a significant role in influencing consumers' purchasing decisions when male actors are featured in advertisements for cosmetics and beauty products. The study, analyzed through correlation coefficients at a 0.05 significance level, found that sales promotions, through offers such as discounts, coupons, or free gifts, effectively stimulate immediate purchase intentions (Shimp, 2010). Additionally, sales promotions help enhance the sense of value for consumers, making them feel that they are gaining more benefits or value from their purchases. Combining sales promotions with advertisements featuring popular male actors can further increase purchasing motivation, especially among consumers seeking diversity or non-gender-specific beauty concepts. The use of special offers, such as discounts or free gifts, combined with performances by well-known male actors, can effectively drive purchasing decisions.

5. Direct Marketing Factors

Direct marketing plays a significant role in influencing consumers' purchasing decisions when male actors are featured in advertisements for cosmetics and beauty products. The study, analyzed through correlation coefficients at a 0.05 significance level, found that direct marketing is effective in stimulating purchasing decisions by communicating directly with customers. This method allows for efficient targeting of the desired audience and provides measurable results (Peppers & Rogers, 2016). In the cosmetics industry, direct marketing helps build diverse consumer relationships, and the choice of a male actor as a spokesperson for beauty product advertisements enhances brand image and attracts attention (Chaffey & Smith, 2022). This aligns with the concept proposed by Duralia (2018), which suggests that direct marketing's key elements include customer databases that businesses can use for marketing purposes or to build good relationships with customers. Furthermore, direct marketing in Thailand helps adjust strategies and increase consumer satisfaction, leading to customer loyalty and repeat purchases in the future.

6. Event Marketing Factors

Event marketing significantly influences purchasing decisions for cosmetics and beauty products featuring male actors in advertisements. Based on the analysis of correlation coefficients at a significance level of 0.05, event marketing is a strategy that creates customer experiences and engagement through various activities, stimulating rapid purchasing decisions by appealing to the five senses and reflecting the brand's image (Kriangkrai Kanjanapokin, 2012). Such activities capture attention and drive consumer purchasing behavior in the cosmetics market, particularly when male actors are featured in advertisements, promoting a gender-inclusive perception of beauty and encouraging consumer decisions (Seree Wongmontha, 2004). This aligns with Nosrati et al. (2013), who argue that event marketing fosters awareness, understanding, and acceptance between businesses and consumers through diverse and consistent promotional activities, ensuring regular consumer access to information. The content presented in these activities plays a vital role in driving engagement and ultimately supporting purchasing decisions.

7. Gender Neutral Beauty Factors

The acceptance of gender-neutral beauty significantly influences consumers' purchasing decisions when male actors are featured in advertisements for cosmetics and beauty products. The analysis of correlation coefficients at a 0.05 significance level reveals a relationship between the acceptance of gender-neutral beauty and consumers' purchasing behavior. This result aligns with the research of Brown & Knight (2019), which focuses on

reducing gender bias. The acceptance of gender-neutral beauty is associated with reducing prejudice and breaking away from traditional gender norms. In society, there is an increasing openness to perceiving beauty without being restricted by male or female categories, leading to the creation of unisex beauty products suitable for all genders.

Furthermore, the research of Wood & Eagly (2012) indicates that gender identity and expression are not confined to male or female categories but can be flexible, especially in the context of gender-neutral beauty, which emphasizes self-expression without being bound by traditional gender roles or images. This factor has a significant impact on the demand or purchasing behavior for cosmetics and beauty products, especially when male actors communicate advertisements. Additionally, Erdem & Swait (2004) support this idea, suggesting that consumers' decisions to purchase cosmetics are often based on brand trust, product quality, and familiarity with the advertiser, rather than adhering to specific beauty images or concepts.

Suggestion

General Marketing Recommendations

1. Marketing Strategy in the Present the findings of this research can be used as a fundamental resource for planning the selection of male actors who are suitable for the brand image and target audience. By choosing actors who have an influence on consumers' purchasing decisions, the effectiveness of advertising and marketing communication can be improved, including the design of advertising campaigns. Businesses can use insights from studying factors that affect consumers to create advertising content that aligns with the needs and expectations of the target audience. Specifically, selecting the personality and expressions of male actors that match the characteristics of the product will help.

2. Creating Market Differentiation, the data from this research can assist brands in identifying and utilizing the unique traits of male actors as a selling point to create differentiation in the highly competitive cosmetics and beauty product market. This research helps brands understand the needs of consumers in each group, such as gender, age, or lifestyle, and adjust strategies to effectively reach specific target audiences. It can also influence consumer purchasing decisions.

3. Supporting New Product Development businesses can use data from this research to improve or develop new products based on consumer interests, particularly those responding to the use of male actors in advertisements. The approach of choosing male actors whom consumers trust and have a good relationship with the brand will help enhance brand image and trust in the product, ultimately benefiting marketing planning.

Recommendations for Future Research

1. Research Methodology this study employs a quantitative research methodology. However, if the researcher seeks more in-depth and detailed information, it is recommended to incorporate qualitative research methods, such as in-depth interviews with a sample group. This approach would help understand the reasons behind purchasing decisions and provide more effective analysis of the results.

2. Additional Factors to Consider further studies should explore additional factors that influence purchasing decisions regarding products advertised by male actors, particularly in the context of consumers in Thailand. There may be important factors outside the scope of this research that could provide valuable insights for future studies.

3. Evolving Online Media and Consumer Preferences given the rapid changes in online media, consumer interests may evolve over time. Therefore, researchers could consider using case studies that do not focus solely on purchasing decisions influenced by male actors in beauty product advertisements but instead explore other forms of decision-making regarding beauty products. As trends and preferences shift over time, adapting the research approach will help achieve the most effective analysis of the results.

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Competencies of School Administrators Affecting New Normal Learning Management In Schools Under Nakhon Phanom Primary Educational Service Area Office 1

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Abstract

This research aims to 1) study and compare the competency of school administrators, 2) study and compare the new normal learning management of schools, 3) Examine the relationship between the competency of school administrators and the new normal learning management of schools, and 4) Examine the predictive power of the competency of school administrators affecting the new normal learning management of schools under Nakhon Phanom Primary Educational Service Area Office 1. The sample used in this research consists of school administrators and teachers under Nakhon Phanom Primary Educational Service Area Office 1 for the academic year 2024, with a sample size of 319 people determined by Boonchom Srisa-ard's table. The research instrument is a 5-level Likert scale questionnaire. The statistics used include percentage, mean, standard deviation, Pearson's correlation analysis, and stepwise multiple regression analysis. The key findings are summarized as follows: (1) the overall of The Competency of School Administrators was at the high level. (2) In overall, the new normal learning management of schools was at the high level. (3) The competency of school administrators and the new normal learning management of schools revealed high significant positive correlation at the .01 level. (4) There were 3 variables of the competency of school administrators that affected the new normal learning management of schools under Nakhon Phanom Primary Educational Service Area Office 1: Knowledge (X1), Managerial (X5), and Attributes (X3) at the .01 level. They could be predicted up to 42.22 percent.

Keywords: Male Actor, Cosmetics, Beauty Products, Purchase Decision, Acceptance

Introduction

The changes in the 21st century is driven by globalization, technological advancements, and the dominance of financial capital, (Office of the Education Council, 2024)

leading the world into the 'New Normal.' This is particularly evident during the COVID-19 pandemic, which has severely impacted the global education system. Educational institutions had to adapt through distance learning and online platforms.(Thongkaew, T., 2020) School administrators play a crucial role in managing operations in alignment with the evolving context, employing both science and art to foster the holistic development of students in terms of knowledge, abilities, and moral values, ensuring that educational management achieves its ultimate objectives in line with the organization's vision.(Dechawattanachot, P., 2019)

The principles of the National Education Act B.E. 2542 (1999) and its amendments (No. 2) B.E. 2545 (2002) call for the establishment of a system, structure, and management process that ensures policy unity while allowing for diversity in implementation. Authority is decentralized to educational service areas and educational institutions in accordance with Section 39, covering academics, budget management, personnel administration, and general administration. This fosters operational flexibility and autonomy, particularly through a school-based management system as a foundation for continuous quality improvement. Educational institutions serve as critical units in driving educational quality, with school administrators leading the way in managing education. They are responsible for coordinating the efforts of all stakeholders both directly and indirectly involved in student development so that educational activities can achieve quality outcomes. School administrators must possess knowledge, skills, and credible attributes that inspire trust and confidence to support, drive, and motivate teachers and students to achieve their learning objectives. This responsibility and the ability to fulfill roles successfully, outperforming others, is referred to as 'competency.' Competency is crucial for individual performance, organizational operations, and plays an essential role in the personnel management of an organization. Competency contributes significantly to the successful achievement of organizational goals and the effective execution of its mission. (Duangkomtha, L., 2018)

New learning methods involve blended teaching approaches based on the instructors' perspectives and experiences, as well as the learners' abilities. These include online teaching combined with other types of learning content, such as integrating Web-Based Technology, mixing various teaching methods, combining instructional technology with traditional classroom teaching, and utilizing teaching technology alongside practical work, which has become widely popular. However, there are some observations regarding the limitations of purely online teaching, as it may yield less effective results. Students may lack interest or self-discipline. Therefore, this type of teaching often requires tutoring systems to supplement and enhance the learning process. (Thongkaew, T., 2020)

The Nakhon Phanom Primary Educational Service Area Office 1 has established a policy to improve the quality of basic education to ensure that students, teachers, educational personnel, and educational institutions are protected from all forms of threats, can adapt to emerging and re-emerging diseases, and can embrace the new way of life. The policy also includes creating an environment conducive to good health and well-being, as well as promoting and developing administrators, teachers, and educational personnel to become lifelong learners who keep pace with technological changes. They are expected to possess competencies, knowledge, expertise, professional ethics, and standards, as well as the true spirit of being educators. (Nakhon phanom primary educational service area office 1, 2024)

Based on the background and significance of the aforementioned issues, the researcher is interested in studying the competencies of school administrators that impact the implementation of new learning approaches in schools under the Nakhon Phanom Primary Educational Service Area Office 1. The aim is to enhance the effectiveness and efficiency of teachers' learning management. Furthermore, the research findings can serve as a guideline for planning and improving administrators' competencies by applying them to develop new learning approaches for teachers in a manner appropriate to their specific contexts, ultimately contributing to improved performance and outcomes for educational institutions.

Objective

1. Study and compare competencies of school administrators classified by status and school size.
2. Study and compare the new normal learning management of schools classified by status and school size.
3. Study the relationship between competencies of school administrators and the new normal learning management in schools.
4. Study the predictive power of school administrators' competencies affecting the new normal learning management in schools under Nakhon Phanom Primary Educational Service Area Office 1.

Literature Review

This study reviews the literature on the competencies of school administrators and new learning management in schools under the Nakhon Phanom Primary Educational Service Area Office 1, organized into key points as follows:

Competency of School Administrators

The concepts and definitions of competencies from scholars such as McClelland and Spencer describe attributes, knowledge, skills, and motivation that impact work performance. Competencies are important as tools for personnel development, selection, and performance evaluation.

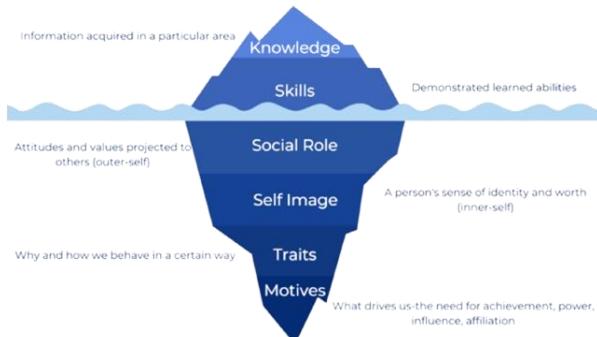


Figure 1: McClelland's Theory of Competencies at Work (McClelland, D. C., 1973)

New Normal Learning Management

Emphasizes adjusting the learning management process to align with modern times, such as using information technology, adapting curricula, and improving assessment methods. Administrators must possess leadership skills and foster collaboration among personnel to create a high-quality learning environment.

Components of Administrator Competency

There are six key aspects: knowledge, skills, attributes, motivation, organizational management, and organizational leadership. Effective management requires an understanding of management processes and strategic leadership.

This literature review helps to establish the conceptual framework for the research and supports the development of school administrators with comprehensive competencies to enhance the quality of learning in the modern era.

Research Methodology

Population

The population used in this research consists of school administrators and teachers from schools under the Nakhon Phanom Primary Educational Service Area Office 1 in the academic year 2024, totaling 2,721 individuals 226 school administrators and 2,495 teachers. The sample group used in this research consists of school administrators and teachers from schools under the Nakhon Phanom Primary Educational Service Area Office 1 in the academic year 2024, totaling 319 individuals 61 school administrators and 258 teachers. The determination of sample size and sample selection was conducted by the researcher using Boonchom Srisaart's percentage-based criterion. A sample size of 10% was selected, resulting in a sample group of 319 individuals.

Research Instruments

The instruments used were 2 aspects of five-rating scale questionnaires: (1) a questionnaire on competencies of school administrators with the Index of Item Congruence (IC) between .80-1.00, the discrimination between .54-.73, and the reliability of .98; and (2) a questionnaire on the new normal learning management in schools with the Index of Item Congruence (IC) between .60-1.00, the discrimination between .24-.71, and the reliability of .94. The statistics employed were percentage, mean, standard deviation, t-test (Independent Samples), One-way analysis of variance, Pearson's correlation coefficient, and multiple regression stepwise analysis.

Data collection

1. Request an official letter from the Graduate Studies Office, Faculty of Education, Nakhon Phanom University, to seek cooperation from school administrators and teachers in the sample group to respond to the questionnaire.
2. Deliver the questionnaires to the sample schools under the Nakhon Phanom Secondary Educational Service Area, totaling 110 schools and 319 copies. All 319 completed questionnaires were returned, accounting for 100%. The data collection was conducted via Google Forms, after which the questionnaires were verified for accuracy and analyzed further.

Data Analysis

After collecting the data from the questionnaires, the researcher analyzed the data using a statistical software package, selecting data analysis methods consistent with the research hypotheses as follows:

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

Section 2: Analysis and Comparison of Competencies of School Administrators: This section pertains to the analysis of the competencies of school administrators under the Nakhon Phanom Primary Educational Service Area Office 1. The questionnaire was designed in a 5 level rating scale formats, with scoring criteria and meanings defined by the researcher as follows: (Srisa-ard, B., 2017)

4.51 - 5.00: Indicates behavior at the highest level

3.51 - 4.50: Indicates behavior at a high level

2.51 - 3.50: Indicates behavior at a moderate level

1.51 - 2.50: Indicates behavior at a low level

- 1.50: Indicates behavior at the lowest level

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

Section 3: Analysis and comparison of new learning management in schools under the Nakhon Phanom Primary Educational Service Area Office 1, based on a 5-level rating scale with the following criteria: (Srisa-ard, B., 2017)

4.51 - 5.00: Indicates performance at the highest level

3.51 - 4.50: Indicates performance at a high level

2.51 - 3.50: Indicates performance at a moderate level

1.51 - 2.50: Indicates performance at a low level

- 1.50: Indicates performance at the lowest level

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

Section 4: Analyzing the relationship between the competencies of school administrators and new learning management in schools under the Nakhon Phanom Primary Educational Service Area Office 1 using Pearson's Correlation Coefficient. The interpretation of the correlation coefficients is as follows: (Srisa-ard, B., 2017)

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

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

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

Section 5: Analysis of the predictive power of school administrators' competencies that affect new learning management in schools under the Nakhon Phanom Primary Educational Service Area Office 1 using stepwise multiple regression analysis.

Research Finding

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

Table 1: Displays the mean, standard deviation, and interpretation of the competency behavior levels of school administrators under the Nakhon Phanom Primary Educational Service Area Office 1, both overall and categorized by specific aspects.

The Competency of School Administrators	Behavior Level			
	\bar{x}	S.D.	Interpretation	Ranking
1. Knowledge	4.40	.44	High	5
2. Skill	4.45	.33	High	3
3. Attribute	4.49	.35	High	1
4. Motivation	4.44	.32	High	4
5. Organizational Management	4.47	.35	High	2
6. Organizational Leadership	4.38	.42	High	6
Overall Mean	4.44	.29	High	

According to Table 1, the overall competencies of school administrators under the Nakhon Phanom Primary Educational Service Area Office 1 are at a high level ($\bar{x} = 4.44$). When considered by individual aspects, all aspects are at a high level ($\bar{x} = 4.38-4.49$). The aspect with the highest mean score is Aspect 3: Attribute ($\bar{x} = 4.38$), while the aspect with the lowest mean score is Aspect 6: Organizational Leadership Aspect ($\bar{x} = 4.38$).

Table 2: Displays the mean, standard deviation, and interpretation of the competency behavior levels of school administrators under the Nakhon Phanom Primary Educational Service Area Office 1, categorized by demographic characteristics, both overall and by specific aspects.

The Competency of School Administrators	Status								
	School Administrators			Teachers			Total		
	\bar{x}	S.D.	Interpretation	\bar{x}	S.D.	Interpretation	\bar{x}	S.D.	Interpretation
1. Knowledge	4.41	.53	High	4.39	.42	High	4.40	.44	High
2. Skill	4.48	.40	High	4.44	.31	High	4.45	.33	High
3. Attribute	4.46	.37	Highest	4.50	.34	High	4.49	.35	High
4. Motivation	4.42	.38		4.45	.31	High	4.44	.32	High
5. Organizational Management	4.51	.39	High	4.46	.35	High	4.47	.35	High
6. Organizational Leadership	4.41	.52		4.37	.40	High	4.38	.42	High
Total	4.45	.34	High	4.43	.27	High	4.44	.29	High

According to Table 2, the mean, standard deviation, and interpretation of the competency behavior levels of school administrators under the Nakhon Phanom Primary Educational Service Area Office 1, categorized by demographic characteristics, show that the overall behavior is at a high level ($\bar{X}=4.44$). When considered by specific aspects, all aspects are at a high level. The aspect with the highest mean score is the Attribute ($\bar{X}=4.49$), while the aspect with the lowest mean score is the Organizational Leadership ($\bar{X}=4.38$).

Table 3: Displays the mean, standard deviation, and interpretation of the competency behavior levels of school administrators under the Nakhon Phanom Primary Educational Service Area Office 1, categorized by school size, both overall and by specific aspects.

The Competency of School Administrators	School Size											
	Small			Medium			Large and Extra-Large			Total		
	\bar{x}	S.D.	Interpretation	\bar{x}	S.D.	Interpretation	\bar{x}	S.D.	Interpretation	\bar{x}	S.D.	Interpretation
1. Knowledge	4.38	.48	High	4.43	.39	High	4.31	.44	High	4.40	.44	High
2. Skill	4.49	.35	High	4.42	.31	High	4.37	.26	High	4.45	.33	High
3. Attribute	4.48	.35	High	4.49	.34	High	4.53	.37	Highest	4.49	.35	High
4. Motivation	4.44	.33	High	4.44	.32	High	4.47	.33	High	4.44	.32	High
5. Organizational Management	4.47	.34	High	4.45	.36	High	4.55	.38	Highest	4.47	.35	High
6. Organizational Leadership	4.35	.46	High	4.39	.38	High	4.41	.46	High	4.38	.42	High
Total	4.43	.30	High	4.44	.28	High	4.44	.28	High	4.44	.29	High

According to Table 3, the mean, standard deviation, and interpretation of the competency behavior levels of school administrators under the Nakhon Phanom Primary Educational Service Area Office 1, categorized by school size, show that the overall behavior is at a high level ($\bar{X} = 4.44$). When considered by specific aspects, all aspects are at a high level. The aspect with the highest mean score is the Attribute ($\bar{X} = 4.49$), while the aspect with the lowest mean score is the Organizational Leadership ($\bar{X} = 4.38$).

2. The results of the analysis of the level of new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1 are presented in a summary table as follows:

Table 4: Displays the mean, standard deviation, and interpretation of the level of new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1, both overall and categorized by specific aspects.

The New Normal Learning Management of School	Practicing Level			
	\bar{x}	S.D.	Interpretation	Ranking
1. Curriculum Streamlining	4.42	.42	High	2
2. Learning Unit Design	4.42	.38	High	3
3. Learning Management	4.38	.42	High	4
4. Learning Assessment and Evaluation	4.37	.45	High	5
5. Promotion and Development	4.43	.43	High	1
Overall Mean	4.40	.31	High	

According to Table 4, the level of new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1 is, overall, at a high level ($\bar{x} = 4.40$). When considered by specific aspects, all aspects are at a high level ($\bar{x} = 4.37 - 4.43$). The aspect with the highest mean score is the Promotion and Development ($\bar{x} = 4.43$), while the aspect with the lowest mean score is the Learning Assessment and Evaluation ($\bar{x} = 4.37$).

Table 5: Displays the mean, standard deviation, and interpretation of the level of new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1, categorized by demographic characteristics, both overall and by specific aspects.

The New Normal Learning Management of Schools	Status								
	School Administrators			Teachers			Total		
	\bar{X}	S.D	Interpretation	\bar{X}	S.D	Interpretation	\bar{X}	S.D	Interpretation
1. Curriculum Streamlining	4.42	.49	High	4.41	.40	High	4.42	.42	High
2. Learning Unit Design	4.46	.48	High	4.41	.35	High	4.42	.38	High
3. Learning Management	4.33	.42	High	4.39	.42	High	4.38	.42	High
4. Learning Assessment and Evaluation	4.41	.43	High	4.36	.46	High	4.37	.45	High
5. Promotion and Development	4.45	.37	High	4.43	.44	High	4.43	.43	High
Total	4.42	.29	High	4.40	.31	High	4.40	.31	High

According to Table 5, the mean, standard deviation, and interpretation of the level of practice in new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1, categorized by demographic characteristics, show that the overall practice is at a high level ($\bar{X}= 4.40$). When considered by specific aspects, all aspects are at a high level. The aspect with the highest mean score is the Promotion and Development ($\bar{X}= 4.43$), while the aspect with the lowest mean score is the Learning Assessment and Evaluation ($\bar{X}= 4.37$).

Table 6: Displays the mean, standard deviation, and interpretation of the level of new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1, categorized by school size, both overall and by specific aspects.

The New Normal Learning Management of Schools	School Size											
	Small			Medium			Large and Extra-Large			Total		
	\bar{x}	S.D.	Inter Interpretation	\bar{x}	S.D.	Inter Interpretation	\bar{x}	S.D.	Inter pretation	\bar{x}	S.D.	Inter Interpretation
1. Curriculum Streamlining	4.35	.44	High	4.46	.39	High	4.50	.43	High	4.42	.42	High
2. Learning Unit Design	4.40	.41	High	4.44	.34	High	4.40	.39	High	4.42	.38	High
3. Learning Management	4.26	.43	High	4.46	.39	High	4.61	.32	Highest	4.38	.42	High
4. Learning Assessment and Evaluation	4.31	.48	High	4.40	.43	High	4.55	.34	Highest	4.37	.45	High
5. Promotion and Development	4.36	.46	High	4.47	.41	High	4.58	.26	Highest	4.43	.43	High
Total	4.34	.32	High	4.44	.30	High	4.53	.27	Highest	4.40	.31	High

According to Table 6, the mean, standard deviation, and interpretation of the level of practice in new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1, categorized by school size, show that the overall practice is at a high level ($\bar{X} = 4.40$). When considered by specific aspects, all aspects are at a high level. The aspect with the highest mean score is the Promotion and Development ($\bar{X} = 4.43$), while the aspect with the lowest mean score is the Learning Assessment and Evaluation ($\bar{X} = 4.37$).

3. Relationship between the competency of school administrators and the new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1.

Table 7: Displays the relationship between the competency of school administrators and the new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1.

Variable	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅	Y
X ₁	1.00	.54**	.59**	.48**	.50**	.62**	.82**	.66**	.68**	.37**	.21**	.18**	.56**
X ₂		1.00	.69**	.50**	.49**	.45**	.77**	.55**	.50**	.33**	.18**	.13**	.45**
X ₃			1.00	.56**	.55**	.44**	.81**	.59**	.51**	.40**	.27**	.23**	.54**
X ₄				1.00	.47**	.51**	.74**	.49**	.53**	.31**	.18**	.19**	.45**
X ₅					1.00	.58**	.77**	.56**	.55**	.38**	.27**	.27**	.54**
X ₆						1.00	.79**	.69**	.70**	.27**	.06	.13*	.48**
X							1.00	.76**	.75**	.44**	.25**	.24**	.65**
Y ₁								1.00	.67**	.44**	.21**	.15**	.66**
Y ₂									1.00	.32**	.12*	.14*	.59**
Y ₃										1.00	.74**	.63**	.86**
Y ₄											1.00	.81**	.81**
Y ₅												1.00	.76**
Y													1.00

** Statistically significant at the .01 level

* Statistically significant at the .05 level

According to Table 7, the relationship between the competency of school administrators and the new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1 indicates that, overall, the competencies of school administrators were found to be positively and significantly correlated at the .01 level ($r_{xy} = 0.65$) with the new normal learning management of schools, showing a moderately high correlation. When considered by specific aspects, the relationships are ranked from highest to lowest.

4. The results of the analysis of the predictive power of school administrators' competency affecting the new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1 are presented in a summary table as follows:

Table 8: Results of the analysis of the predictive power of school administrators' competency affecting the new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1.

Variable	B	SE _b	Beta	t	Sig
Knowledge Competency (X ₁)	.21	.04	.29	5.34**	.00
Organizational Management Competency (X ₅)	.25	.05	.28	5.28**	.00
Attribute Competency (X ₃)	.19	.05	.21	3.72**	.00
R = .65 R ² = .42 R _{adj} = .42 SE _{est} = .24 F = 13.81 a = 2.67					

** Statistically significant at the .01 level

According to Table 8, the stepwise multiple regression analysis of the six competency aspects of school administrators indicates that three aspects can predict new normal learning management of schools under the Nakhon Phanom Primary Educational Service Area Office 1. These predictive variables, ranked by their Beta values from highest to lowest, are as follows: Knowledge Competency (X₁), Organizational Management Competency (X₅), and Attribute

Competency (X_3). These three predictive variables are statistically significant at the .01 level and collectively account for 42.22% of the variance ($R^2 = .42$).

The prediction equations can be written in both raw scores and standardized scores as follows:

Prediction Equation in Raw Scores:

$$Y' = 2.67 + .21X_1 + .25X_5 + .19X_3$$

Prediction Equation in Standardized Scores:

$$Zy' = .29Z_1 + .28Z_5 + .21Z_3$$

Discussion

The findings from the research on the competencies of school administrators that affect new learning management in schools under the Nakhon Phanom Primary Educational Service Area Office 1 were discussed based on the hypotheses as follows:

1. The study results show that the overall competency levels of school administrators under the Nakhon Phanom Primary Educational Service Area Office 1 are at a high level. When considered by specific aspects, all aspects are also at a high level. This may be due to the crucial role that school administrators' competencies play in driving the organization toward its objectives, demonstrating the ability to set the direction for school development in a way that is both accepted and practical to ensure quality and effective growth and adaptability to the social changes and learning environments of today. The findings align with the study by (Mookkharak, I. & Noichan, N., 2024) which is consistent with the research of (Kamlertthong, P., 2017), who investigated the competencies of school administrators under the Chanthaburi Primary Educational Service Area Office 1. The results indicated that the overall and aspect-specific competency levels of school administrators were high. Similarly, the research by (Treeraphakorn, P., 2021) on the competencies of administrators affecting the effectiveness of academic management in schools under the Secondary Educational Service Area Office 22 also showed that the overall and specific competencies of school administrators were at a high level. In addition, the findings correspond with the study by (Suwannapasri, P. et al, 2023), which investigated the competency framework of school administrators in managing innovative learning for teachers in private schools in Bangkok. The results revealed that the competency levels of school administrators in managing new learning approaches for teachers in private schools in Bangkok were at a high level in all aspects.

2. The study results on new learning management in schools under the Nakhon Phanom Primary Educational Service Area Office 1 show that both overall and aspect-specific levels are at a high level. This may be due to the continuous training and capacity-building programs provided by the Nakhon Phanom Primary Educational Service Area Office 1 for school administrators, along with the administrators' awareness of the importance of new learning management to enhance student quality in schools and keep up with changing trends. This aligns with the perspective of (Thanachan, P. et al, 2022), who stated that school administrators, regardless of school size, prioritize academic administration to ensure that schools can provide students with high-quality learning outcomes that meet national educational standards. Therefore, school administrators act as leaders in the operational processes, improving and developing teaching and learning activities through collaboration among school personnel to organize activities that foster learning and education for students. Effective coordination among all stakeholders ensures that the goals and objectives of the educational institution are achieved. This is consistent with the study by (Hongsamanut, w. et al, 2022) who researched the current needs and development guidelines for new learning management skills for teachers under the Nakhon Phanom Primary Educational Service Area Office 2. The findings indicated

that the overall development guidelines for new learning management skills for teachers were at the highest level.

3. The study results on the relationship between the competencies of school administrators and new learning management in schools under the Nakhon Phanom Primary Educational Service Area Office 1 show a moderately high positive correlation at the .01 level of statistical significance, in line with the stated hypothesis. This may be because the competencies of school administrators are crucial for promoting, supporting, and improving new learning management in schools, leading to the achievement of institutional goals with quality and fostering positive relationships. This finding aligns with the concept proposed by (Panlutan, N., 2016) who stated that competency is a behavioral attribute resulting from skills, knowledge, abilities, attitudes, and personal characteristics essential for successful performance and achieving organizational goals, including ethics, personality, physical characteristics, and other traits. The behaviors involved must correspond to the responsibilities of the respective position. Similarly, (Sutthatharn, T. & Suksodkheaw, V., 2014) conducted research on the competencies of school administrators and the quality of educational management in schools under the Nakhon Pathom Primary Educational Service Area Office 2, revealing a statistically significant correlation at the .01 level. This also aligns with the research of (Joomthong, & Raksanakorn, 2023), who studied the management competencies of school administrators affecting learning management in schools under the Nakhon Ratchasima Secondary Educational Service Area Office. Their findings showed a moderately high positive correlation at the .01 level of statistical significance. Additionally, the research of (Pummarin, J. & Tiacharoen, S., 2018) on the competencies of school administrators and 21st-century learning management in schools under the Secondary Educational Service Area Office 9 indicated a positive correlation at the .01 level of statistical significance. This is consistent with the findings of Prawalee, who studied the competencies of administrators affecting the effectiveness of academic management in schools under the Secondary Educational Service Area Office 22, which also showed a statistically significant positive correlation at the .01 level.

4. The analysis of the predictive power of school administrators' competencies affecting new learning management in schools under the Nakhon Phanom Primary Educational Service Area Office 1 identified three aspects that can predict new learning management in schools at the .01 level of statistical significance. These aspects are Knowledge Competency, Organizational Management Competency, and Attribute Competency. The multiple correlation coefficient (R) ranges from .44 to .69. Collectively, these three variables explain 42.22% of the variance in new learning management in schools ($R^2 = .42$), which aligns with the stated hypothesis. This may be because for a school to succeed in implementing new learning management, school administrators need to possess strong knowledge, organizational management skills, and attributes to drive effective management and learning development, thus leading the organization toward its goals. This aligns with the concept proposed by Suwimon, who stated that school administrators must manage education in alignment with the new normal by preparing for online learning in terms of equipment and technology, designing curricula that consider individual differences among students, and managing teaching and learning efficiently. Similarly, (Treepraphakorn, P., 2021) studied the competencies of administrators affecting the effectiveness of academic management in schools under the Secondary Educational Service Area Office 22 and found that the administrators' competencies were significant predictors of the effectiveness of academic management at the .01 level of statistical significance. This also aligns with the research by (Owan, V. J., 2019) who studied the competencies of school administrators and teacher performance in secondary schools in the

Calabar Education Zone of Cross River State, Nigeria. The findings indicated that the administrators' leadership and communication competencies were highly correlated with teachers' performance in areas such as assignment delivery, classroom attendance, and record-keeping.

Suggestion

1. It is recommended that further research be conducted on the competencies of school administrators that influence new learning management in other types of educational institutions under the supervision of the Nakhon Phanom Primary Educational Service Area Office 1, such as secondary schools, vocational education institutions, and special education centers.
2. It is recommended that research be conducted to investigate the current conditions, the desirable conditions, and development guidelines for the competencies of school administrators that influence new learning management in schools under the Nakhon Phanom Primary Educational Service Area Office 1 and other educational service areas. Such studies would help provide a more comprehensive understanding of how to enhance administrative competencies in alignment with the demands of modern educational practices.
3. Further research should focus on the competencies of school administrators that influence various aspects of school administration, in order to strengthen their capacity to manage and lead schools more effectively and efficiently. This would contribute to the overall improvement of educational administration and school development.

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

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Abstract

This research aims to 1) study and compare the school administrators' academic leadership classified by status and school size, 2) study and compare change management in schools classified by status and school size, 3) study and compare the relationship between school administrators' academic leadership and change management in schools, and 4) study the predictive power of school administrators' academic leadership affecting change management in schools under the Secondary Educational Service Area Office Nakhon Phanom. There were 277 samples including 64 school administrators and 213 teachers under the Secondary Educational Service Area Office Nakhon Phanom in academic year 2024, determined by Boonchom Srisa-ard's table (2017). The research instrument is a 5-level Likert scale questionnaire. The statistics used include percentage, mean, standard deviation, Pearson's correlation analysis, and stepwise multiple regression analysis. The research findings are as follows: (1) the overall school administrators' academic leadership was at the high level. (2) The overall change management in schools was at the high level. (3) The school administrators' academic leadership and change management in schools revealed high significant positive correlation at the .01 level. (4) There were 5 variables of school administrators' academic leadership that affected change management under the Secondary Educational Service Area Office Nakhon Phanom: Personnel development (X5), establishing relationships with teachers, students and community (X6), supervision (X4), vision, goal, and mission setting (X1) and Curriculum and teaching management (X2) can be predicted with statistical significance at the .01 level. They could be predicted up to 77 percent and the Standard Error of estimate is $\pm .14$.

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

Introduction

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

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

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

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

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

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

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

within educational institutions, ensuring that schools under the Secondary Educational Service Area Office Nakhon Phanom achieve optimal performance and sustainable success.

Literature Review

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

Definition of Academic Leadership

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

Importance of Academic Leadership

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

Components of Academic Leadership

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

Change Management in Schools

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

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

Research Methodology

Population

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

Research Instruments

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

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

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

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

Data collection

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

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

Data Analysis

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

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

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

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

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

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

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

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

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

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

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

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

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

Research Finding

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

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

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

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

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

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

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

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

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

**Significant at the .01 level

*Significant at the .05 level

According to Table 3, the comparison of academic leadership of school administrators under the Secondary Educational Service Area Office Nakhon Phanom categorized by school size (small, medium, large, and extra-large), shows no overall significant differences. However, when considering individual aspects: The academic atmosphere encouragement and establishing relationships with teachers, students, and community exhibit statistically significant differences at the .01 level. The curriculum and teaching management and

supervision show statistically significant differences at the .05 level. The vision, goals, and mission setting and personnel development reveal no significant differences across school sizes.

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

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

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

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

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

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

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

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

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

**Significant at the .01 level

*Significant at the .05 level

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

3. Results of the Correlation Analysis between Academic Leadership of School Administrators and Change Management in Schools under the Secondary Educational Service

Area Office Nakhon Phnom. The analysis revealed that overall academic leadership of school administrators has a positive and statistically significant correlation at the .01 level with change management in schools with a correlation coefficient of $r_{xy} = 0.88$, indicating a strong positive relationship.

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

Raw Score Prediction Equation:

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

Standardized Score Prediction Equation:

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

Discussion/Conclusion

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

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

1.1) Discussion on the Comparison of Academic Leadership of School Administrators by Status. The research findings indicate that the opinions on academic leadership of school administrators categorized by status (administrators and teachers) show no significant differences which contradicts the initial hypothesis. This may be attributed to the

fact that modern school administrators demonstrate appropriate leadership behaviors, fostering collaboration and cooperation among all stakeholders—teachers, students, parents, communities, and related organizations. Such collaboration enhances satisfaction among all parties, leading to improved educational management and increased institutional effectiveness. Moreover, these administrators are capable of developing personnel into future leaders with systematic creativity and enhancing students to become quality members of society amidst the rapid changes of the digital era. In today's educational context, digital learning plays a crucial role as digital tools serve as key instruments for both learners and teachers to access knowledge and create meaningful work efficiently. As a result, differences in perspectives are expected due to varying levels of exposure to and comfort with technology. This finding aligns with the study by Tassana Wannaprapa (2017) on the academic leadership of school administrators in Soi Dao District under the Chanthaburi Primary Educational Service Area Office 2. The study similarly found that the overall and individual aspects of academic leadership of school administrators were at a high level.

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

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

2.1) Discussion on the Comparison of Change Management in Educational Institutions by Status. The research findings indicate that the opinions on change management in educational institutions, categorized by status (administrators and teachers) show no

significant differences, which contradicts the initial hypothesis. This may be due to the fact that modern educational management is conducted in a systematic and inclusive manner. Collaborative planning and joint decision-making are emphasized to ensure that all stakeholders—administrators, teachers, and external partners—are actively involved. This inclusive approach strengthens the effectiveness of implementation and fosters mutual acceptance and shared responsibility in achieving the school's vision and goals. The process of collective participation—where stakeholders share insights, contribute ideas, and work together to implement and adapt to changes—has contributed to aligned perspectives among administrators and teachers regarding change management. This finding aligns with the definition provided by the Office of the Public Sector Development Commission (2008), which states that planning and actions aimed at reducing the negative impacts of change, while supporting adaptation and acceptance, and building new capabilities to meet goals, are essential for effective change management.

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

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

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

study reinforces that academic leadership is a key driver of successful change management enabling schools to adapt, improve, and achieve sustainable educational excellence.

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

Suggestion

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

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

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

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

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

leadership research must be sensitive to context while drawing insights from global practices to inform local application.

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

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

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Factors Influencing Engineering Student Engagement in Universities in Western Guangdong, China

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Abstract

This study aimed to identify significant factors affecting engineering student engagement in Western Guangdong, China. Additionally, it aims to identify the influence of six independent variables (teaching quality, course content, classroom environment, teacher-student interaction, peer support, and personal motivation) on dependent variables (student engagement). The research employed the Content Validity Index (CVI) for validity and a Cronbach's Alpha for reliability ($n=30$) of the factor items. Multiple linear regression (MLR) was used to identify the significant factors that affect engineering students' engagement. Four hundred thirty-four students from three target sample universities (Zhanjiang University of Science and Technology, Guangdong Ocean University, and Guangdong University of Petrochemical Technology) participated in this study; 17 questionnaires were deemed invalid due to data errors and random answers. The study revealed that teaching quality, classroom environment, and teacher-student interaction are significant factors in student engagement; there is no significant relationship between course content, peer support, personal motivation, and student engagement. This study endeavors to foster student engagement by exploring the factors that influence it in Western Guangdong, China.

Keywords: Student Engagement, Engineering, Universities

Introduction

Chinese universities face many challenges, like evaluations, restructuring, mergers, and competition for global students. There has been much research on higher education in China for the past 30 years. Most of this research focused on improving teaching and learning quality but only a little on student engagement. Recently, student engagement has been seen as a way to improve the quality of higher education. However, it is not widely used in teaching practice yet (Zhang et al., 2015). Student engagement is important for the quality of a university (Liang, 2019). Exploring student engagement helps universities improve teaching and helps policymakers reform higher education in China (Zhang, Hu & McNamara, 2015).

Research on engineering student engagement has increased in the past decade. More engineering students show a stronger interest in the field. Lichtenstein (2010) used the National Survey of Student Engagement (NSSE) to study 12,000 first-year and second-year engineering students. The study showed that engineering students are better at gaining practical skills like practicing engineering, working with others, using technology, analyzing problems, and solving real-world issues. Compared to other majors, engineering students often tutor others outside class and work in groups (Ball, 2011). Wilson et al. (2014) found that engineering students who were active in academic activities showed higher engagement. Engineering students spend more time preparing for classes but less on certain activities than other majors (Simmons et al., 2018). The outcomes of student engagement in engineering are still of interest to researchers.

The main problem is that higher education students in China must show high engagement levels. Research shows that Chinese students are generally less willing to engage in learning, and their disengagement increases as they progress through their studies (Li, 2020). Disengaged students often learn only surface knowledge. They tend to copy notes, focus on isolated facts and correct answers, and have lower learning outcomes (Kuh et al., 2006). Ing and Victorino (2016) studied engineering students and found that engagement is related to GPA. Students with higher engagement had higher grades, while those with lower grades were less engaged.

There are three main reasons for low student engagement in engineering: students need to understand their majors and learning goals clearly, teachers have impersonal attitudes toward students, and teaching methods and course content need to be updated. According to Liu et al. (2023), engineering students must be prepared with strong career adaptability and professional identity because science and technology in China are rapidly developing. Learning engagement helps improve these traits.

Studying student engagement among engineering students is crucial for improving their educational achievements and future career success. This research aims to identify the factors influencing the engagement of Chinese engineering students in higher education and develop a model to enhance their academic and professional outcomes.

Objective

The research objectives for this study are as follows:

1. To identify the factors influencing engineering students' engagement in higher education.
2. To determine the current levels of engagement and the factors that influence engagement among engineering students in universities in Western Guangdong, China.
3. To identify the significant factors influencing engineering student engagement in universities in Western Guangdong, China.
4. To propose a model to enhance engineering student engagement in universities in Western Guangdong, China.

Literature Review

Theoretical Framework

The school Engagement Framework (Fredricks et al., 2004) and Self-determination Theory (Deci & Ryan, 1985) were used in this study. 2004, Fredricks, Blumenfeld, and Paris created the school engagement framework. It was designed to understand and improve how students get involved in learning. Although the framework was made for school-level engagement, it can also be used to study Chinese engineering students in higher education. In China, engineering students have low engagement levels.

The school engagement framework includes three parts: behavioral, emotional, and cognitive engagement. These can help solve students' behavioral, psychological, and cognitive issues.

Behavioral Engagement: Behavioral engagement is about what students do, like attending class, participating in activities, completing assignments, and following rules. Students who are behaviorally engaged take their academic responsibilities seriously. Behavioral engagement is often the most visible form of engagement.

Emotional Engagement: Emotional engagement is about how students feel in class, including their interest, boredom, happiness, sadness, and anxiety. It also includes their interest in the subject, sense of belonging to the school, and motivation for learning. Emotionally engaged students are likelier to be interested in their learning and feel connected to their school.

Cognitive Engagement: Cognitive engagement involves students' mental efforts to understand their learning experiences. It includes critical thinking, problem-solving, participating in discussions, and applying learned skills to new situations. Cognitively engaged students are more deeply involved in learning and are more likely to succeed.

Engagement levels can vary. For example, behavioral engagement can range from just doing the work and following the rules to joining extra activities. Emotional engagement can range from a superficial liking to a deep identity and belonging to the university. Cognitive engagement can range from memorization to using strategies for deep understanding. All three dimensions are important and interact to affect a student's overall learning experience. This framework provides a comprehensive view of what contributes to student engagement and is used by researchers to assess and improve engagement.

Self-determination Theory (SDT) is a framework for understanding human motivation. It helps explain how our needs and motivations influence behavior. Edward Deci and Richard Ryan introduced it in the 1980s, and it is widely used in educational research. The main parts of SDT are psychological needs and intrinsic motivation. Deci (1975) suggested that intrinsic motivation is a key example of self-determined activities. SDT also highlights that a person's social environment is important for motivation. It helps motivation by providing choices, meaningful feedback, chances to improve, and supportive relationships.

There are three basic psychological needs in SDT: autonomy, competence, and relatedness. Autonomy: Autonomy refers to the need to feel like you have a choice in what you do. People want to act according to their values, preferences, and interests, not because of

outside forces. When people, including students, feel autonomous, they are more motivated and engaged. Competence: Competence refers to the need to feel capable and effective in what you do. People want to develop skills, feel a sense of mastery, and see themselves as competent. This makes them more motivated and persistent in their goals. Relatedness: Relatedness refers to the need for social connections and belonging. Feeling connected, supported, and understood by others contributes to well-being and motivation.

According to SDT, there are two types of motivation: intrinsic and extrinsic. Intrinsic Motivation: Intrinsic motivation refers to when people do an activity because they find it enjoyable or satisfying. They do it for its own sake, not because of external rewards or pressures. Extrinsic Motivation: Extrinsic motivation refers to people doing an activity for external rewards or avoiding consequences. Rewards can include money, praise, or social approval; consequences can include punishment or disappointment. SDT is used in this study to understand what (the content) and why (the process) drives the development of engineering student engagement.

Student Engagement

According to Kuh (2009), student engagement is the time students spend on tasks related to learning, teaching quality, and interaction with faculty. Barkley (2010) said student engagement is "the product of motivation and active learning." If one element is missing, engagement does not occur. Christenson et al. (2012) defined student engagement as active participation in school activities and commitment to educational goals. Many researchers have defined student engagement in different but related ways.

a. There are three dimensions of student engagement. Behavioral engagement focuses on students' effort and time in course activities and discussions (Manwaring et al., 2017). It is easier to measure because it can be seen. A meta-analysis found that behavioral engagement is linked to higher academic achievement, followed by cognitive and emotional engagement (Lei et al., 2018). Behavioral engagement includes participating in scientific, social, and co-curricular activities. Lane and Harris (2015) described behaviors of engaged students as listening, writing, and interacting with instructors and behaviors of disengaged students as being unresponsive and distracted. Nguyen, Cannata, and Miller (2018) found that students were more engaged when interacting with classmates and teachers. Behavioral engagement is divided into active, passive, and disengagement (Ball, 2011). A study of 276 students at a Taiwanese university showed that good group interaction led to high behavioral engagement (Lai, 2021).

Emotional or affective engagement is an intrinsic and psychological part of student engagement (Farnsworth et al., 2022). Taylor and Statler (2014) showed that emotionally engaged people learn more effectively. Pekrun and Perry (2014) found that positive emotions like curiosity promote learning, while negative emotions like boredom inhibit it. Maguire et al. (2017) suggested that emotional intelligence can enhance relationships and engagement. Kahu (2014) found that interest leads to happiness and increases behavioral and cognitive engagement through interviews with 19 undergraduates.

Cognitive engagement relates to motivation, such as goals and self-efficacy (Greene, 2015). Osman et al. (2014) said that cognitive engagement is shown by how students feel about the educational process and the strategies they use for tasks. Cognitive engagement helps students recognize their learning progress. Emotional and cognitive engagement are connected, but emotional engagement does not necessarily lead to higher cognitive engagement (Manwaring, 2017). There are commonalities and differences in cognitive processes across disciplines like education and engineering; for example, the study identified Extraverted Intuition as the highest frequency in both our groups; however, the two groups show significant differences in the use of Introverted Intuition and Introverted Thinking (Ball, 2011).

Research shows that students engaged in schoolwork are likelier to achieve high and continue their education (Finn & Zimmer, 2012; Fredricks et al., 2004). This means that the more engaged a student is, the better their academic achievement. Finn (1993) developed a participation-identification model to explain how engagement affects academic achievement, suggesting that disengaged behavior leads to poor academic performance. Wong et al. (2017) found that more engaged students have better outcomes. Additionally, there is a reinforcing relationship between engagement and learning outcomes. Increased engagement improves learning outcomes, which, in turn, boosts perception and engagement levels (Kahu, 2013). Zen (2022) showed that student engagement increased academic performance through project-based learning experiences. Guo (2023) studied second and fourth-year college students ($N = 966$) and found that engagement is important for learning outcomes. Afzal and Crawford (2022) also identified a significant link between engagement and performance in online learning using the SEM method.

Engaging learners is essential for positive academic and behavioral outcomes among university engineering students. Engagement (e.g., setting realistic goals, completing assignments, communicating with teachers, and maintaining high-class attendance) leads to more positive academic performance. Students who engage in class, complete their work and stay on task achieve high learning outcomes.

Conceptual Framework of the Study

Figure 1 shows the conceptual framework of this study. The conceptual framework for this study is shown as an Inputs-Process-Output (IPO) figure to depict the research process, which involves both qualitative and quantitative research. Input (I) refers to the theories and variables that form the basis of this research, including school engagement framework theory and self-determination theory; school engagement framework theory points to student engagement (DV), and self-determination theory points to the factors (IV). The process (P) refers to the methods and statistics used to obtain and analyze data, which includes five steps: the first step is literature synthesis and content analysis, the second step is instrument development, the third step is data collection, the fourth step is descriptive and inferential statistics, and the fifth step is model development and validation. The output (O) refers to the final product of this research, which is intended to be a statistical model to enhance engineering student engagement in the intended context, which is the purpose of this study.

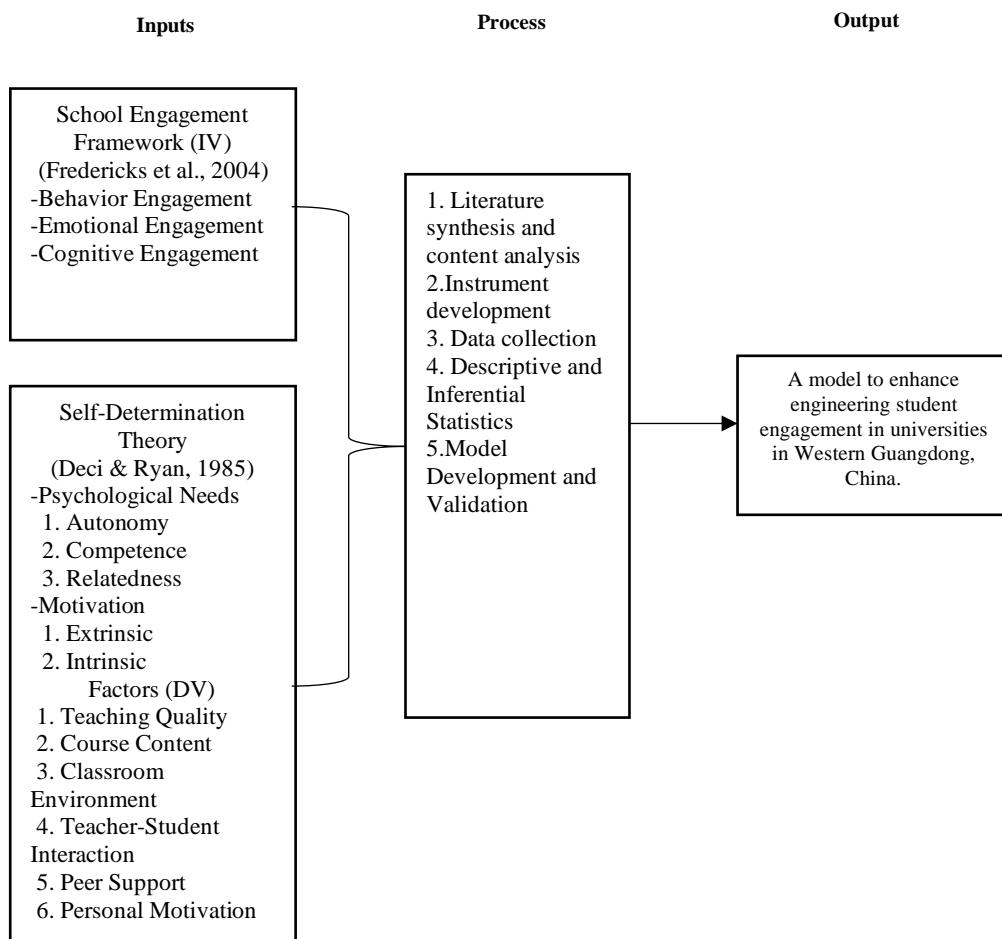


Figure 1: Conceptual Framework

Research Methodology

This study used an explanatory mixed-method approach to develop the research design. According to Creswell and Poth (2016), this approach creates or refines a research instrument, such as a survey or questionnaire, through quantitative and qualitative methods. This design was useful because the researcher aimed to develop an instrument related to the factors influencing student engagement in this context.

The research began with a qualitative phase. For this phase, the researcher used content analysis and literature synthesis to identify key constructs or factors affecting student engagement and to generate question items for the instrument. Both the constructs and the question items were used to evaluate content validity. The validated instrument was then tested for reliability in a pilot test. Once content validity and reliability were confirmed, the instrument collected data for the quantitative research phase.

This study distributed the instrument to the target population for the quantitative phase using the designated minimum sample size. Data analysis used descriptive and inferential statistics such as means, standard deviation, frequencies, and percentages. Multiple linear regression was used to determine the significant factors affecting student engagement in this context.

Population and Sample

Three universities with engineering majors were included in the study: Guangdong Ocean University, Guangdong University of Petrochemical Technology, and Zhanjiang University of Science and Technology. The stratified random sampling method was used in this study, and the minimum sample size was determined using the Krejcie & Morgan table. Based on a population size of 1,739, the minimum sample size is 313. Guangdong Ocean University has a total population of 192 engineering students, Zhanjiang University of Science and Technology has 935 engineering students, and Guangdong University of Petrochemical Technology has 612 engineering students. The population includes first-, second-, and third-year engineering students. Fourth-year students were not selected because they were about to graduate and might need to take the questionnaire seriously, leading to inaccurate or useless data. Table 1 shows the population and sample size.

Table 1: Population and Sample Size of the Study

University	No. of Engineering Students	Sample Size
Guangdong Ocean University	192	35
Zhanjiang University of Science and Technology	935	168
Guangdong University of Petrochemical Technology	612	110
Total	1,739	313

Research Instrument and Data Collection

Two sets of questions comprised the instrument. The first set of questions came from The University Student Engagement Inventory (USEI), developed by Maroco et al. (2016), which was used to measure levels of engineering student engagement. The USEI is a validated tool containing 15 items designed to measure three dimensions of student engagement: Behavioral Engagement (BE), Emotional Engagement (EE), and Cognitive Engagement (CE). The second set of questions was developed for the study. To measure the factors influencing engineering student engagement, items were developed, validated, and tested for reliability.

Data Analysis

Descriptive statistics were employed to determine the levels of engineering students' engagement. The analysis included common descriptive statistics such as frequencies, percentages, mean, and standard deviation (SD). The mean and SD were used to measure central tendency and variability. Frequencies and percentages were also calculated for the demographic data, providing a comprehensive overview of the sample characteristics.

Multiple Linear Regression was used to identify the significant factors. This statistical technique and Jamovi software were employed for data analysis and predictive modeling to explore and quantify the relationship between a dependent variable (the outcome or target variable) and two or more independent variables (predictor variables). In this study, the dependent variable was the level of student engagement, while the independent variables were the six factors.

Research Finding

Research Objective 1

Quantitative content analysis was carried out. This research method systematically identifies words, themes, or concepts through numerical techniques, the objective of which is to quantify their presence. From the original analysis, the findings were reduced to six factors said to affect student engagement. They comprise *teaching quality, course content, classroom environment, teacher-student interaction, peer support, and personal motivation*.

Research Objective 2

Table 2 shows the current level of engagement for the engineering students in the sample. Overall, they reported that their current level of student engagement was high (3.58). Three constructs, behavioral engagement, with a mean of 3.86 and SD of 0.816, and cognitive engagement, with a mean of 3.55 and SD of 0.842, were at a high level; emotional engagement, with a mean of 3.34 and SD of 0.847, was perceived as being at the moderate level.

Table 2: Respondents Reported Current Levels of Student Engagement (n = 417)

Student Engagement	Mean	S.D.	Interpretation
Behavioral Engagement	3.86	0.816	High
Emotional Engagement	3.34	0.847	Moderate
Cognitive Engagement	3.55	0.842	High
Overall	3.58	0.750	High

Table 3 shows the respondents reported the factors influencing student engagement. Furthermore, six factors were at a high level: teaching quality, with a mean of 3.65 and SD of 0.857; course content, with a mean of 3.72 and SD of 0.888; classroom environment, with a mean of 3.68 and SD of 0.847, teacher-student interaction, with a mean of 3.68 and SD of 0.844, peer support, with a mean of 3.73 and SD of 0.866, personal motivation, with a mean of 3.73 and SD of 0.901.

Table 3: Respondents Reported Levels of Factors Influencing Their Engagement (n=417)

Factors Variables	Mean	SD	Interpretation
Teaching quality	3.65	0.857	High
Course content	3.72	0.888	High
Classroom environment	3.68	0.847	High
Teacher-student interaction	3.68	0.844	High
Peer support	3.73	0.866	High
Personal motivation	3.73	0.901	High
Overall	3.70	0.814	High

Research Objective 3

Multiple linear regression was used to analyze the significant factors influencing engineering student engagement. The results indicated that teaching quality, classroom environment, and teacher-student interaction were significant for student engagement because of $*p<.05$. Course content, peer support, and personal motivation are not significant for student engagement because of $*p>.05$. The R is 0.871, the R-squared (R^2) is 0.758, this means in a multiple linear regression model with six factors (e.g. teaching quality, course content, classroom environment, teacher-student interaction, peer support and personal motivation) variables can account for 75.8% of the variability in student engagement. Table 3 shows a summary of the regression results on each of the factors.

Table 3: Summary of Results of Multiple Linear Regression on Factor Variables and Student Engagement

Predictor		Estimate	SE	t	p
1	Intercept	0.6521	0.0847	7.698	<.001
	TQ	0.4064	0.0557	7.298	<0.001
	CC	0.0492	0.0500	0.985	0.325
	CM	0.2281	0.0612	3.729	<0.001
	TSI	0.0359	0.0695	2.517	<0.001
	PS	0.1023	0.0522	1.961	0.051
	PM	0.0465	0.0431	1.079	0.281
b. Dependent Variable: <i>Student Engagement</i> , $*p<.05$					
c. TQ (Teaching Quality), CC (Course Content), CM (Classroom Environment), TSI (Teacher Student Interaction), PS (Peer Support), PM (Personal Motivation)					

Research Objective 4

Regarding the demographic variables, the type of university (public or private) influenced behavioral, emotional, and cognitive engagement significantly. Whether the major was the student's first choice was only significantly related to emotional engagement. For overall student engagement, only whether the major was the first choice was found to be significant. As for influencing factors, Teaching Quality and Classroom Environment were significantly related to all types of engagement (overall, behavioral, emotional, and cognitive). Peer Support was found to be significant for only behavioral engagement. For overall student engagement, the following were significant: Teaching Quality, Classroom Environment, and Teacher-Student Interaction. Multiple linear regression analyses evaluated how teaching quality, classroom environment, and teacher-student interaction could predict student engagement, as these three independent variables were significant to student engagement. The statistical model is depicted in Figure 2.

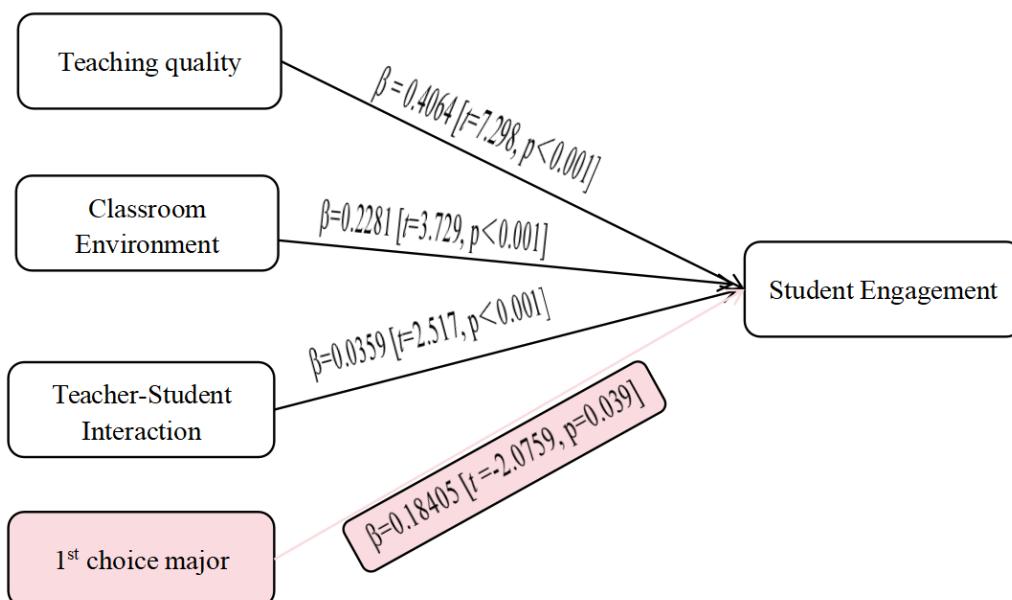


Figure 2: Model of Student Engagement for Engineering Students in Universities in Western Guangdong, China

The figure shows the beta coefficient, t-statistic, and p-values of the significant factors influencing engineering student engagement. The beta coefficient represents the degree of change in the dependent variable for every unit of change in the independent variable. A larger value indicates a stronger effect on the dependent variable. The t-statistic confirms the statistical significance of the relationship. The larger the t-statistic value, the more significant the relationship between the independent and dependent variables. The p-value, set at 0.05 for this study, is the threshold for which significance is measured. If the results are less than 0.05, then the result is considered statistically significant.

Three influencing factors, Teaching Quality, Classroom Environment, and Teacher-Student Interaction, are significant in student engagement. For Teaching quality ($\beta = 0.4064$ [$t = 7.298$, $p < 0.001$]), this shows that Teaching Quality has the most significant influence on Student Engagement. The second factor, Classroom Environment ($\beta = 0.2281$ [$t = 3.729$, $p < 0.01$]), has the second largest effect on Student Engagement. The third factor, Teacher-Student Interaction ($\beta = 0.0359$ [$t = 2.517$, $p < 0.001$]), is significant but has the least effect on Student Engagement out of the three factors. The demographic or nominal variable of the First Choice of Major ($\beta = 0.18405$ [$t = -2.0759$, $p = 0.039$]) is also significant with Student Engagement. The beta coefficient is positive, meaning the students are more engaged if the engineering major is the first choice. However, if the engineering major is not the first choice, the level of engagement decreases.

Discussion

This study examined student engagement in three areas: behavioral, emotional, and cognitive engagement. Overall, student engagement levels among engineering students in Western Guangdong were high, with behavioral engagement being the highest and cognitive engagement being the lowest.

The study found that behavioral engagement had a high average score of 3.86. This indicates that students were highly engaged behaviorally, working hard to get good grades, completing homework on time, and actively participating in group assignments. Students showed high levels of self-discipline, attended classes regularly, participated in university activities, focused on lessons, listened to teachers carefully, and engaged in discussions with teachers and peers when they did not understand the material. Research by Gul et al. (2021) supports this, showing that students often engage behaviorally through class participation, discussions, and speaking activities.

Emotional engagement was the lowest among the three dimensions, as also observed in the research by Bedenlier et al. (2020), where emotional disengagement was common. Students showed lower emotional engagement because they desired more interactive and enjoyable class experiences. Many students wanted to discuss career plans and work with teachers beyond coursework. The lack of fun or interest in classes and teachers focusing mainly on course content contributed to this lower emotional engagement. For students to become more emotionally engaged, they need a positive academic and emotional state, which motivates them to participate actively in learning activities. However, creating lively classroom activities poses a challenge for university teachers in Western Guangdong.

Students demonstrated a higher level of cognitive engagement. They excelled at assignments requiring integrating ideas, applying course materials to real life, and reviewing class notes to understand materials better. This high cognitive engagement was attributed to students asking questions, discussing with peers, and collaborating on engineering problems. Activities like making concept maps and summarizing enhance cognitive engagement by encouraging students to connect ideas and build their understanding. Engaging in discussions

and collaborative projects further increases cognitive engagement by reflecting, questioning, and evaluating ideas (Wu & Rau, 2020; Zepke & Leach, 2010).

This study found that teacher-student interaction significantly impacts student engagement. This finding is consistent with previous research by Xerri and Shacklock (2018), who noted that positive teacher-student relationships enhance student engagement. McDonnell et al. (1998) found frequent academic interactions with teachers are linked to higher student engagement. Similarly, Nyadanu et al. (2015) reported that teacher-student relationships are significantly related to student engagement. In addition, Zhang et al. (2015) found that interaction between students and course tutors is especially critical for students' engagement at university.

The reasons for this can be viewed from two perspectives. For teachers, strong interactions with students lead to greater investment in their students and the use of strategies that encourage deeper learning, which enhances student engagement in academic activities. Positive interactions with teachers encourage students to ask more academic questions, receive more feedback, reduce anxiety, and lessen their workload. When teachers and administrators cultivate positive interactions, students are likelier to perform better and achieve desired outcomes, such as improved learning and skills. These findings highlight the importance of re-examining teacher-student interactions, including those related to students' academic, personal, or professional development (Teoh et al., 2013).

The findings of this study showed no significant relationship between student engagement and peer support. Although peer support is often considered important, this study's results indicated otherwise. This aligns with the research by Jackling and Natoli (2011), who also found no significant link between student-student support and student engagement among Australian university students. However, it contrasts with Hakimzadeh and Ghorban (2016), who found significant positive correlations between peer support and student engagement in academic activities.

A possible explanation for this result is that university students are already independent adults who make decisions based on their knowledge, interests, and values rather than the influence of their peers. University students may need less emotional and cognitive peer support than adolescents and do not rely on peer support to enhance their engagement and attitudes toward academic activities.

Personal motivation is typically considered an important factor in student engagement, but this study found otherwise. This finding contrasts with Singh and Bolar (2022), who identified student motivation as a key factor in student work engagement among university students. Similarly, Li et al. (2022) demonstrated that in online learning environments, autonomy-supportive teaching and student intrinsic motivation positively influence student engagement. Interestingly, they found that controlling teaching motivations and student extrinsic motivation did not significantly impact student engagement.

The discrepancy in this study's results may be due to the limited sample size and the specific population selected, which reduced the power to detect significant differences. Therefore, employing more detailed methods to measure the relationship between personal motivation and student engagement may be necessary. Future studies could enhance their approach by including additional measures that stimulate students' intrinsic motivation or related variables such as self-efficacy and self-regulation.

Suggestion

Based on the study results, several strategies are recommended to improve teaching quality, as it greatly affects student engagement. First, universities should set up systems to ensure teaching quality, helping to boost student engagement. This can include regular reviews of teaching methods and feedback systems where students can share their thoughts on teaching effectiveness. Teachers should also use more student-centered teaching strategies, allowing students to actively participate in the learning process, which can increase their engagement. Techniques like flipped classrooms, problem-based learning, and personalized learning plans can make learning more interesting and engaging for students. Teachers should design their lessons to involve all students in discussions, communication, and group learning activities, encouraging them to engage with the material and each other, which helps deepen their understanding. Encouraging group projects and peer teaching can further boost student involvement.

Additionally, several important areas should be addressed to improve teaching quality and increase student engagement. Ensuring the curriculum is up-to-date and connected to industry standards and practices makes learning more relevant and meaningful. Creating an interactive classroom environment where students feel comfortable asking questions, discussing ideas, and working on projects can be achieved through innovative classroom setups and technology. Teachers should have ongoing professional development opportunities to learn new teaching methods and tools to improve their effectiveness and student engagement. Regular feedback from students allows teachers to adjust their methods and improve their teaching. Teachers should also reflect on their teaching to continually improve their approach.

Enhancing classroom environments is particularly important for engaging engineering students, who can benefit from hands-on and interactive learning experiences. Engineering educators should create a classroom setting that encourages experimentation and problem-solving. This can be achieved by adding more lab work, project-based assignments, and real-world engineering challenges into the curriculum. Technology such as simulations and virtual labs can provide students with practical experience without needing physical equipment. Classrooms should be arranged to promote collaboration, with flexible seating arrangements encouraging group work and discussions. Teachers can also create a positive and inclusive classroom atmosphere by encouraging communication and allowing students to voice their ideas and ask questions. This approach helps students feel valued and more willing to participate actively in class.

Ways to enhance classroom environments for engineering students include more hands-on activities like building models or doing experiments that help students understand concepts better by applying them to real-world situations. Project-based learning encourages students to work on solving real engineering problems and helps them develop critical thinking and problem-solving skills. Integrating technology, such as computer simulations and virtual labs, gives students practical experience and helps them engagingly learn complex topics. Classrooms can be arranged to support group work, with flexible seating arrangements and spaces for team discussions that encourage collaboration and communication among students.

Inviting engineers from different fields to speak to students about work and real-life situations or organizing visits to engineering companies can help students connect classroom learning to real-life applications. Providing students with regular feedback on their work and encouraging them to share their thoughts on lessons can help teachers understand what is useful and needs improvement.

Enhancing teacher-student interaction is essential since it significantly influences student engagement. To achieve this, universities can organize freshman seminars and form discussion groups led by experienced faculty members. These initiatives help students feel more connected to their teachers and peers, gradually building a supportive learning environment. Encouraging the creation of "resource groups" where teachers and students collaborate can also be effective.

Teachers can increase student engagement by providing efficient and timely written or oral feedback on academic performance. Teachers should also recognize students' emotional needs and offer support and guidance. This can include extending a helping hand and sharing ideas to help students overcome challenges. Teachers should provide additional time for emotional support, and counseling for students who experience high levels of anxiety or psychological issues. This support can significantly boost students' engagement and help them feel more comfortable participating in class.

In addition to these strategies, teachers can hold regular office hours and encourage students to attend one-on-one discussions. Using online platforms for virtual meetings and Q&A sessions can also facilitate easier communication between teachers and students. Teachers can adjust their instruction to better meet student needs by learning about students' interests and goals. These approaches can encourage stronger connections between teachers and students.

The following recommendations are suggested for future studies on student engagement in universities and colleges. First, researchers should use larger sample sizes and conduct comparative studies across different types of higher education institutions to identify best practices and effective strategies for improving engineering student engagement. This approach would yield more accurate and actionable data. Second, further studies should propose models based on different disciplinary contexts, as these contexts have unique characteristics that can lead to different results. Third, future research may benefit from using various qualitative methods, such as interviews, group discussions, and observations, to analyze complex issues in student engagement more effectively.

Researchers should also consider factors like professional development and the professional environment to identify other influences on student engagement, especially within China's national context. Finally, future researchers might explore student engagement in the context of negative employment prospects to understand how such conditions affect engagement levels.

The limitations of this study include a few points. First, the study results may only apply to some students because the sample size is limited and only includes respondents from three universities in western Guangdong. This could affect the ability to detect significant relationships, especially between factors like peer support, personal motivation, and student engagement. Second, the findings focus on engineering students, so they differ from students in other fields. Third, the study used content analysis and literature review to identify important factors, which means the research method needed to be narrower.

Future research should consider the broader social and economic environment, use larger and more diverse samples, and apply various research methods to improve the generalizability and accuracy of the findings.

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The Impact of ESG (Environmental, Social and Governance) Scores on Corporate Substantive and Strategic Green Innovation

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Abstract

In recent years, there has been a global increase in attention toward ESG (Environmental, Social, and Governance) policies, with different countries developing unique frameworks based on their national conditions and development stages. Concurrently, green innovation has emerged as a focal point for governments worldwide, leading to the establishment of green innovation policies as vital strategies for tackling climate change and promoting sustainable development. However, research on the effects of enterprise ESG scores—including E, S, and G scores—on substantive and strategic green innovation remains limited. This study empirically examines the impact of ESG scores on green innovation, substantive green innovation, and strategic green innovation in Chinese listed companies from 2007 to 2022. Findings reveal that a one standard deviation increase in ESG scores correlates with increases of approximately 38.24% in green innovation (gpat), 22.01% in substantive green innovation (ginpat), and 35.52% in strategic green innovation. ESG scores influence green innovation primarily through R&D expenditure, human capital, and information transparency. Additionally, the positive impact of ESG scores is amplified by higher asset-liability ratios, major shareholder influence, larger boards, and state ownership. Meanwhile, it was found that only the E-score significantly impacts green innovation, with effects evident within a 1 to 3-year lag, offering policy recommendations for enhancing corporate green innovation.

Keywords: Environmental, Social and Governance (ESG), Green Innovation, Substantive Green Innovation, Strategic Green Innovation, R&D Expense

Objective

1. To empirically test the impact of ESG scores on green innovation, substantive green innovation, and strategic green innovation.
2. To reveal the mechanisms by which ESG scores affect corporate green innovation, substantive green innovation, and strategic green innovation.

3. To assess the heterogeneous effects of ESG scores on corporate green innovation, substantive green innovation, and strategic green innovation under different scenarios, including asset liability ratio, first shareholder shareholding ratio, institutional investor shareholding ratio, board size, and property rights nature.

4. To assess the impact of individual E-scores, S-scores, and G-scores on corporate green innovation, substantive green innovation, and strategic green innovation.

5. To assess the long-term effects of ESG scores on corporate green innovation, substantive green innovation, and strategic green innovation.

Literature Review

In recent years, academics have conducted extensive research on ESG, focusing mainly on the drivers and economic consequences of corporate ESG ratings. In terms of the influencing factors of corporate ESG ratings, scholars have found that the institutional environment and corporate characteristics are important factors influencing ESG performance.

Sun, Zhou & Gan (2023) assert that green finance policies significantly enhance corporate ESG performance, while Yan et al. (2023) find that government environmental regulations also improve ESG outcomes (Lu & Cheng, 2023a). Research on green innovation influencing factors focuses on environmental regulations, financial development, corporate governance, and managerial characteristics (Tian et al., 2023; Xu et al., 2023). Government regulations are critical in driving green decisions (Castellacci & Lie, 2017; Lian et al., 2022; Mickwitz et al., 2008). Z. Huang et al. (2019) reports that green loans and subsidies positively impact green innovation. Wen et al. (2023) highlights that financial risk negatively affects green innovation by reducing relevant patent applications and limiting foreign direct investment. Amore & Bennedsen (2016) noted that ineffective corporate governance impedes green innovation, particularly in firms with lower institutional shareholdings and green patent stocks. Song & Yu (2018) highlighted that managers acknowledge the importance of green innovation for sustainable development and competitive advantage.

From the perspective of enterprises themselves, in addition to fulfilling their energy-saving and emission reduction responsibilities and complying with environmental protection laws and regulations, they should also increase their independent research and development and green innovation in energy-saving and emission reduction projects and promote the sustainable development of the green economy (Zhang et al., 2024). In the past few decades, the literature on green innovation has been continuously developing and expanding, as green products and applications have received widespread and necessary applications with the provision of environmental awareness and services. This study provides a systematic literature review of articles related to green innovation, with the aim of improving conceptual clarity and consistency, thereby advancing theory and research (Xu, Sun, & Kong, 2024).

A literature review on R&D human capital aims to provide a comprehensive analysis and summary of existing research on the concept, characteristics, and impact of human capital in research and development (R&D) activities (Xu & Li, 2023). Concept helps to clarify the definition and scope of R&D human capital, which typically refers to the knowledge, skills, experience, and abilities of individuals involved in R&D activities. At present, most scholars focus on studying the impact of information asymmetry on corporate financing, investment, mergers and acquisitions, innovation, and other aspects (Dierkens, 1991).

The asset-liability ratio is a crucial financial metric that impacts various aspects of a company's operations and performance (Zhao et al, 2024). Zhang, Li, and Wang (2024) discuss the concept of the liability asset, highlighting the importance of understanding the relationship

between assets and liabilities. Tang and Geng (2024) found that the asset-liability ratio has a significant negative relationship with investment expenditure in Chinese power listed companies, indicating that debt can constrain investment.

Controlling shareholders may play a role by influencing the first type of agency problem and the second type of agency problem, namely the "synergy of interests" effect or the "tunnel" effect (Ho, Huang, & Karuna, 2020). Institutional investors play a significant role in the financial markets, impacting various aspects of stock returns, volatility, and corporate governance (Wang & Luo, 2024).

Zhang, Li, and Long (2024) explore the relationship between institutional investor ownership and security price variability at earnings announcement dates. The literature on the big four audit firms covers various aspects related to audit quality, audit fees, client satisfaction, and the impact of audit firm size on audit outcomes (Abdelwahed, Abu-Musa, Moubarak, & Badawy, 2024). Tran and Tran (2023) found that client satisfaction plays a role in explaining cross-sectional variation in Big 6 audit fees. Suryani, Winarningsih, Avianti, Sofia, and Dewi (2023) highlighted the selectivity bias in audit fee studies, showing that large audit firms earn significantly higher fees than small firms.

Literature on board size and composition has been a subject of extensive research over the years (Treepongkaruna, Kyaw, & Jiraporn, 2024). Shah et al. (2024) discusses the size and composition of corporate boards of directors and their relationship with the organization and its environment.

The property rights of state-owned enterprises have a double-edged sword effect on their impact on companies (Sun, Cappa, Zhu, & Peruffo, 2023). On the one hand, state-owned enterprises have close connections with the government and banks, and can obtain policy support and bank loan support, thereby reducing the financial risk of state-owned enterprises (Su & Xue, 2023).

Research Methodology

This paper uses two indicators to measure ESG ratings: (1) ESG scores divided by 100 (esgs) and (2) ESG ratings (1-10) divided by 10 (esgr). In this article, the three sub-dimensions of ESG (environmental rating, social rating, and governance rating) are used instead of ESG scores for empirical testing. (3) The E scores (escore) are calculated by dividing the E scores by 100, (4) the S scores (sscore) are calculated by dividing the S scores by 100, and (5) the G scores (gscore) are calculated by dividing the G scores by 100.

This paper examines three mediating variables: R&D expense (rdc), R&D human capital (rdper), and information transparency (ittrans) (Balakrishnan, Blouin, & Guay, 2019; Shen & Hou, 2021). According to existing literatures, to eliminate the impact of firm size, R&D expense is calculated as R&D expenses divided by total assets (Shen & Hou, 2021). According to existing literatures, R&D human capital is the number of R&D persons divided by the total number of employees (Chemmanur, Kong, Krishnan, & Yu, 2019; Meng, Shi, & Wang, 2023). According to existing literatures, this paper uses the rating of information transparency of listed companies disclosed by Shenzhen Stock Exchange and Shanghai Stock Exchange to measure information transparency (ittrans) (Han, Tang, & Tang, 2020; S. Zhang, Zhang, Qiao, Li, & Li, 2022). Based on relevant literatures (Fosu, Yi, & Asiedu, 2024), this paper controls the following variables: fsize, debtr, mbr, roa, large, three, iisr, bsize, idr, four, same, soe, year, and industry (ind).

Based on the scientific and availability of data, this article intends to select Chinese listed companies from 2007 to 2022 as the sample. Excluding samples with missing values in certain variables such as ESG scores and green innovation, we obtained 33,637 firm-year matching samples.

The study used mainly includes correlation analysis, panel fixed effects regression, panel mediating effects regression, panel moderating effects regression for analyzing the data based on the research purposes.

Research Finding

1. Empirical Results of the Impact Mechanism Using R&D Personnel Capital (Rdper) ESG scores significantly influence R&D personnel capital and various green innovation measures (gpat, ginpat, gprpat), with R&D personnel capital serving as a partial mediator. Mediating effects were validated through Sobel, Goodman tests, and bootstrap analysis, supporting H3 at both the 1% and 5% levels.

Table 1: Empirical Results of the Impact Mechanism Using R&D Personnel Capital (Rdper)

	rdper	gpat	ginpat	gprpat
esgs	0.0195*** (3.101)	1.0903*** (16.792)	0.7340*** (13.333)	0.7744*** (14.795)
rdper		1.3132*** (23.317)	1.2404*** (25.978)	0.5845*** (12.875)
fsize	0.0085*** (12.610)	0.4122*** (59.410)	0.3399*** (57.784)	0.2860*** (51.131)
debtr	-0.0515*** (-15.598)	0.0965*** (2.822)	0.0141 (0.487)	0.1193*** (4.327)
mbr	-0.0988*** (-31.330)	-0.2123*** (-6.431)	-0.2526*** (-9.027)	-0.0592** (-2.223)
roa	-0.0989*** (-6.875)	-0.2511* (-1.690)	-0.3428*** (-2.721)	-0.0490 (-0.409)
large	-0.0188*** (-5.203)	-0.0304 (-0.813)	-0.0344 (-1.086)	0.0118 (0.392)
three	0.0042*** (2.896)	0.0750*** (5.050)	0.0396*** (3.150)	0.0586*** (4.898)
iisr	-0.0417*** (-15.805)	-0.0985*** (-3.602)	-0.0854*** (-3.685)	-0.0773*** (-3.508)
bsize	-0.0011*** (-3.209)	-0.0054 (-1.455)	-0.0015 (-0.484)	-0.0079*** (-2.672)
idr	0.0000 (0.083)	0.0009 (0.815)	0.0020** (2.162)	0.0009 (0.970)
four	0.0009 (0.406)	0.0770*** (3.402)	0.1351*** (7.044)	0.0368** (2.017)
same	0.0076*** (6.478)	0.0341*** (2.819)	0.0503*** (4.902)	0.0093 (0.952)
soe	-0.0012 (-0.992)	0.0846*** (6.551)	0.0906*** (8.275)	0.0341*** (3.271)

cons	-0.1287*** (-9.207)	-9.1301*** (-63.184)	-7.3850*** (-60.283)	-6.5299*** (-56.061)
ind / year	yes	yes	yes	yes
N	33,637	33,637	33,637	33,637
Adj-R2	0.4872	0.3622	0.3171	0.3225
F-value	678.9696	397.3130	324.9501	333.0644
Sobel test		Z=3.074, **	Z= 3.079, **	Z= 3.015, **
Goodman-1 (Aroian) test		Z= 3.071, **	Z= 3.077, **	Z= 3.006, **
Goodman-2 test		Z= 3.077, **	Z= 3.082, **	Z= 3.024, **
Proportion of total effect that is mediated		0.02295371	0.0319133	0.01450989
Ratio of indirect to direct effect		0.02349296	0.03296533	0.01472352
Bootstrap 1000 times test	r(ind_eff), Z=11.05, ***;r(dir_eff),Z= 8.49,***	r(ind_eff),Z=10.96,* **;r(dir_eff),Z=4.81 , ***	r(ind_eff),Z=10.66,* **;r(dir_eff),Z=8.42 , ***	

Note: *, **, and 1% in the table indicate correlation at the 10%, 5%, and 1% significance levels, respectively.

2. Empirical Results of the Impact Mechanism Using Information Transparency

The moderating effects of debt-to-asset ratio (debtr) and the largest shareholder's shareholding ratio (large) on the relationship between ESG scores (esgs) and corporate green innovation. There is a significant positive correlation between the interaction of esgs and debtr with green innovation metrics (gpat, ginpat, gprpat), indicating that higher debt levels amplify the positive impact of esgs on innovation (coefficients: 1.656, 1.292, 1.625). Similarly, columns (4)-(6) show that a higher shareholding ratio positively influences the effect of esgs on green innovation.

3. Results of Moderating Effect Models Using Iisr and Four

The moderating effects of external governance on the relationship between ESG scores (esgs) and corporate green innovation. There is a significant positive correlation between the interaction of esgs and institutional investor shareholding ratio (iisr) with green innovation metrics (gpat, ginpat, gprpat), indicating that higher institutional ownership enhances the positive impact of esgs (coefficients: 1.163, 0.976, 0.953). There is a positive correlation between esgs and green innovation when associated with one of the four major auditing firms,

4. Results of Moderating Effect Models Using Soe and Bsize

The impact of ESG scores (esgs) on corporate green innovation in relation to property rights and board size. There is a significant positive correlation between the interaction of esgs and state-owned enterprise status (soe) with green innovation measures (gpat, ginpat, gprpat), suggesting that state-owned enterprises benefit more from ESG scores (coefficients: 0.659, 0.540, 0.582). There is a positive correlation between esgs and green innovation as board size (bsize) increases (coefficients: 0.115, 0.102, 0.066), enhancing the positive effects of ESG scores.

The results of the firm fixed effects regression. Columns (1) to (3) show that esgs has a significant positive effect on gpat, ginpat, and gprpat at the 1% level. Columns (4) to (6) show the results of the firm-year clustering, indicating a significant positive effect of esgs at the 1% level.

Table 2: Results of Firm Fixed Effect Model and Firm-year Clustering Model

variable	(1)	(2)	(3)	(4)	(5)	(6)
	Firm fixed effect (reghdfe)			Firm and year clustering		
	gpat	ginpat	gprpat	gpat1	ginpat1	gprpat1
esgs	0.257*** (4.221)	0.022*** (3.384)	0.018*** (2.768)	1.395*** (5.890)	0.958*** (7.072)	0.915*** (3.951)
fsize	0.312*** (30.377)	-0.002** (-2.115)	-0.007*** (-6.553)	0.439*** (14.513)	0.356*** (12.629)	0.301*** (12.156)
debtr	0.049 (1.201)	0.010** (2.211)	0.013*** (3.059)	-0.078 (-0.892)	-0.114* (-1.802)	0.020 (0.277)
mbr	0.014 (0.418)	-0.014*** (-4.121)	-0.002 (-0.513)	-0.196** (-2.144)	-0.242*** (-3.487)	-0.037 (-0.528)
roa	0.011 (0.077)	-0.043*** (-2.786)	-0.003 (-0.202)	-0.356 (-1.296)	-0.360 (-1.480)	-0.158 (-0.848)
large	-0.205*** (-3.231)	-0.004 (-0.527)	-0.005 (-0.713)	-0.153 (-1.491)	-0.130 (-1.565)	-0.054 (-0.671)
three	0.042*** (2.922)	-0.003 (-1.641)	0.002 (1.254)	0.044 (1.515)	0.022 (0.969)	0.039 (1.635)
iisr	-0.068** (-2.568)	-0.004 (-1.336)	-0.004 (-1.295)	-0.081 (-1.360)	-0.080 (-1.610)	-0.058 (-1.409)
bsize	-0.000 (-0.043)	0.002*** (3.187)	0.000 (0.424)	-0.018* (-1.677)	-0.010 (-1.196)	-0.015* (-1.735)
idr	0.003** (2.238)	0.000** (2.282)	0.000** (2.013)	0.001 (0.337)	0.002 (1.011)	0.001 (0.461)
four	-0.160*** (-4.567)	0.007* (1.936)	-0.000 (-0.026)	0.053 (0.717)	0.122* (1.888)	0.021 (0.346)
same	-0.011 (-0.807)	0.003* (1.762)	-0.002 (-1.048)	0.060** (2.446)	0.071*** (3.527)	0.022 (1.223)
soe	0.015 (0.577)	0.003 (0.961)	-0.004 (-1.504)	0.042 (1.047)	0.063* (1.848)	0.009 (0.299)
cons	-6.317*** (-28.739)	0.072*** (3.038)	0.171*** (7.372)	-9.224*** (-13.737)	-7.444*** (-11.816)	-6.551*** (-12.291)
ind/year/firm	yes	yes	yes	yes	yes	yes
N	33,138	33,138	33,138	33,637	33,637	33,637
Overall R²	0.716	0.599	0.538	0.334	0.293	0.298

Note: *, **, and 1% in the table indicate correlation at the 10%, 5%, and 1% significance levels, respectively.

5. Results of Robustness Test

In order to solve the endogeneity problems such as missing variables and reverse causality in the model, this paper will use the two-stage model of instrumental variables, differential models, the panel random effect and OLS model, the substitution of independent and dependent variables, the firm-level fixed-effect model, and the double clustering model to test the robustness.

To address endogeneity issues, this study employs the Durbin-Wu-Hausman test, revealing significant endogeneity across all models ($\chi^2(1) = 64.72$ for gpat; $\chi^2(1) = 150.81$ for ginpat; $\chi^2(1) = 3.07$ for gprpat). The mean ESG score of industry peers (esgsyi) is used as an instrumental variable. First-stage results indicate a significant positive effect of esgsyi on ESG scores (coefficient = 0.964, t-value = 34.424). Second-stage regressions confirm significant positive impacts of ESG scores on green innovations (gpat: 2.466, ginpat: 1.426, gprpat: 1.905).

To mitigate omitted variable bias and time trends, this study employs differential regression models, using first-order differences (Δ) for dependent, independent, and control variables. Δ esgs positively affects Δ gpat at the 1% level (coefficient = 0.206, t-value = 3.039). This significant positive impact on Δ gpat. Δ esgs also positively influences Δ ginpat and Δ gprpat at the 1% level. The results of the panel random effects models and OLS models. Esrg has a significant positive effect on gpat, ginpat, and gprpat at the 1% level when using panel random models. Esrg has a significant positive effect on gpat, ginpat, and gprpat at the 1% level when using panel OLS models.

Egression analysis using the independent variable esgr instead of esgs. The results indicate that esgr has a significant positive effect on gpat, ginpat, and gprpat at the 1% level. Similarly, esgs has a significant positive effect on gpat1, ginpat1, and gprpat1 at the 1% level. To address the issue of standard error bias resulting from intra-group correlation, this study aims to employ double cluster regression analysis at both the firm and year levels. The results of the firm fixed effects regression, found that esgs has a significant positive effect on gpat, ginpat, and gprpat at the 1% level, also showed the results of the firm-year clustering, indicating a significant positive effect of esgs at the 1% level.

Discussion

This paper explores the impact of ESG (Environmental, Social, and Governance) scores on the green innovation activities of Chinese listed companies from 2007 to 2022. ESG scores have emerged as a significant metric for assessing a company's sustainability practices, encompassing environmental responsibility, social impact, and governance quality.

The growing importance of ESG scores is reflected in the way they influence corporate behavior, particularly in areas related to green innovation. Green innovation refers to the development and implementation of environmentally friendly processes, products, and technologies aimed at reducing a company's ecological footprint while enhancing long-term sustainability.

ESG scores are a comprehensive indicator of non-financial performance, integrating a company's environmental, social, and governance dimensions. In particular, the environmental aspect of ESG directly impacts a company's green innovation activities. High ESG scores signal strong environmental management practices, such as waste reduction, energy efficiency, and reduced carbon emissions, which create a conducive environment for innovation. Studies have shown that companies with robust environmental practices are more likely to invest in green technologies and sustainable business models (Chen et al., 2023). As

a result, ESG scores can act as a catalyst for companies to pursue innovations that align with environmental sustainability goals.

Governance, another key component of ESG, also plays a pivotal role in driving green innovation. Good governance practices, including board diversity, transparent decision-making, and long-term strategic planning, provide the necessary structure for companies to pursue sustainable innovation. When corporate governance is strong, decision-makers are more likely to prioritize long-term environmental and social outcomes alongside financial performance (Wang et al., 2023). This forward-thinking governance encourages investment in green technologies and innovation, fostering a culture of sustainability that permeates the entire organization.

Moreover, market recognition of ESG performance incentivizes companies to enhance their green innovation efforts. Investors, customers, and regulators are increasingly placing value on companies with high ESG scores, recognizing them as leaders in sustainability. For instance, higher ESG scores are often associated with lower risks and greater financial stability, making companies more attractive to socially conscious investors (Fang et al., 2023). As companies seek to improve their ESG ratings to attract investment, they are compelled to innovate in areas like energy efficiency, renewable energy, and sustainable supply chains. This market-driven motivation creates a positive feedback loop, where enhanced ESG performance leads to increased green innovation, which in turn bolsters ESG scores.

Additionally, the regulatory environment in China has become increasingly supportive of ESG-focused activities, further amplifying the impact of ESG scores on green innovation. Since the mid-2000s, Chinese regulators have introduced several policies aimed at promoting corporate environmental responsibility and reducing the country's carbon footprint (Li et al., 2023). These regulations have created both opportunities and pressures for Chinese listed companies to adopt sustainable practices and innovate in ways that comply with these evolving standards. Companies with higher ESG scores are typically better positioned to meet regulatory requirements, as they are more likely to have already integrated environmental considerations into their business models.

Furthermore, the social dimension of ESG also indirectly influences green innovation by shaping public perceptions and consumer behavior. Companies that score highly on social metrics—such as fair labor practices, community engagement, and customer satisfaction—tend to cultivate a more positive brand image, which can translate into competitive advantages (Hong et al., 2024). This favorable market position can provide additional resources for companies to invest in green innovation, as consumer demand for sustainable products and services continues to rise. ESG scores serve as a critical indicator of non-financial performance and directly influence the green innovation potential of Chinese listed companies. By fostering environmental awareness, strengthening governance practices, and enhancing market recognition, ESG scores encourage companies to adopt and invest in green technologies. The interplay between ESG performance and green innovation creates a virtuous cycle where sustainability-driven practices enhance corporate competitiveness and long-term value creation. This highlights the growing importance of ESG as a driver of green innovation in China's evolving corporate landscape.

The study results distinguish between substantive green innovation, which entails significant technological advancements, and strategic innovation, focused on optimizing existing processes. It highlights the relationship between ESG scores, institutional investor shareholding, and green innovation, emphasizing that higher ESG scores attract more investments and enhance innovation capabilities. Additionally, it addresses the influence of

the largest shareholder's stake on green innovation decisions. The findings suggest that state-owned enterprises generally excel in ESG ratings due to their social responsibilities, while private enterprises are increasingly recognizing the importance of ESG performance in driving sustainable development and competitive advantage.

Substantive green innovation tends to be more capital-intensive, requiring significant investment in research and development (R&D) to achieve technological breakthroughs. This type of innovation is often pursued by companies with higher ESG scores, as these firms are better positioned to attract institutional investors who prioritize sustainability. Institutional investors, such as pension funds and socially responsible investment firms, tend to favor companies with strong ESG performance due to the long-term value and reduced risk associated with sustainable practices (Wang et al., 2023). By channeling more capital into companies with high ESG ratings, these investors enable firms to engage in more ambitious, long-term innovation projects aimed at achieving significant environmental benefits (Rahman et al., 2023). The influx of capital also provides these companies with the resources needed to take risks and innovate in ways that may not yield immediate financial returns but are crucial for long-term sustainability.

On the other hand, strategic green innovation is often adopted by firms looking to make incremental improvements to existing operations. While these changes may not be as radical as those seen in substantive innovation, they are still essential for improving a company's environmental performance. Strategic green innovation typically involves optimizing processes like energy consumption, waste management, and supply chain operations. Companies with moderate ESG scores may prioritize this type of innovation, as it allows them to enhance their environmental impact without the same level of resource commitment required for substantive innovations (Li et al., 2023). Importantly, even these incremental changes can help companies improve their ESG scores over time, creating a feedback loop where enhanced ESG performance attracts more investment, which in turn fosters further innovation.

The study also highlights the relationship between ESG scores, institutional investor shareholding, and green innovation. Companies with higher ESG scores tend to attract more institutional investors, who are increasingly integrating ESG factors into their investment decisions. These investors not only provide the capital necessary for innovation but also pressure companies to maintain or improve their ESG performance (Fang et al., 2023). The alignment of investor expectations with corporate sustainability goals creates a dynamic where firms are incentivized to continually innovate in order to meet both environmental targets and investor demands.

Another critical factor influencing green innovation decisions is the role of the largest shareholder's stake. The findings suggest that companies with a dominant shareholder, especially in the case of state-owned enterprises (SOEs), are more likely to excel in ESG performance. This is largely due to the additional social responsibilities that SOEs often carry, such as contributing to national sustainability goals and meeting stringent regulatory requirements (Chen et al., 2023). SOEs, particularly in China, are under greater scrutiny to lead by example in terms of environmental and social governance, which translates into higher ESG scores and more substantive green innovation activities.

In contrast, private enterprises are increasingly recognizing the strategic importance of ESG performance in driving sustainable development and competitive advantage. While private firms historically may have been more focused on short-term financial performance, the growing importance of ESG factors in market valuations and investor preferences is shifting their focus toward long-term sustainability. As private enterprises improve their ESG

practices, they become more competitive, not only in attracting investment but also in appealing to environmentally conscious consumers (Zheng et al., 2023). This shift is particularly evident in sectors like manufacturing and technology, where innovation in sustainable practices is becoming a key differentiator in the marketplace.

The ownership structure also plays a significant role in green innovation decisions. SOEs, with their long-term strategic outlook and greater access to state resources, tend to prioritize substantive green innovations. Private companies, on the other hand, may initially focus more on strategic innovations to gradually improve their ESG scores and position themselves for future growth. However, as ESG performance becomes a more critical factor in competitive markets, even private companies are beginning to invest in more substantive forms of green innovation to stay ahead of regulatory changes and market expectations (Huang et al., 2022).

Conclusion

This paper empirically examines the influence of ESG scores on green innovation, substantive green innovation, and strategic green innovation in Chinese listed companies from 2007 to 2022. The results indicate a significant positive impact of ESG scores on these forms of innovation, with a one standard deviation increase leading to a 38.24% rise in green innovation (gpat), a 22.01% increase in substantive green innovation (ginpat), and a 35.52% increase in strategic green innovation. The mechanisms of impact reveal that ESG scores enhance green innovation through R&D expenditure, human capital, and information transparency. Additionally, the positive effects are stronger in companies with higher asset-liability ratios, larger boards, and greater institutional ownership. Notably, only the E-score significantly affects green innovation, while the S-score and G-score do not. The ESG score positively influences innovation with a lag of 1 to 3 years, providing essential policy recommendations for enhancing corporate green innovation.

In summary, the findings of this study suggest that ESG scores are a critical driver of both substantive and strategic green innovation, with institutional investor shareholding playing a key role in fostering innovation capabilities. The influence of the largest shareholder's stake, particularly in state-owned enterprises, highlights the role of ownership structure in green innovation decisions. State-owned enterprises generally lead in ESG performance due to their broader social responsibilities, while private enterprises are rapidly catching up, recognizing the importance of ESG in securing long-term sustainability and competitive advantage. This evolving landscape of corporate governance and sustainability underscores the growing importance of integrating ESG into corporate strategies to drive both innovation and financial performance.

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The Application of Combination Training Method on The Speed Endurance Level in Physical Education for Freshmen Students in China

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Abstract

This study aimed to compare speed endurance before and after using the Combination Training Method in Physical Education for the Freshmen in China, and investigate student satisfaction with this method. A mixed-method approach was used, and means and standard deviation were calculated by the computer software. The research combined literature review, questionnaires, and statistical analysis, focusing on 30 male Freshmen of physical education major from H College in Hunan Province. The students underwent a four-week Combination Training program designed to improve speed endurance.

The physiological and biochemical indices of the students before and after the experiment, along with their track and field performance, were analyzed. The results showed that: 1) Lactate clearance increased from 11.17% to 17.23%, compared to the pre-test rate of 1.44%; 2) Maximal heart rate decreased from 172 to 166 beats per minute, and heart rate recovery improved from 18% to 26.51% after 3 minutes; 3) Maximal anaerobic power of the lower extremities rose from 11.01 w/kg to 12.22 w/kg, with average power also improving from 8.46 w/kg to 8.85 w/kg; and 4) Track and field performance improved significantly in 100m, 800m, 1500m, triple jump, javelin, and shot put.

The conclusions were: 1) The Combination Training Method effectively improved lactate clearance, reducing fatigue and injury risk; 2) It accelerated heart rate recovery, aiding faster energy recovery after intense training; 3) It enhanced anaerobic capacity in athletes; 4) This method was a fast, scientific, and effective way to boost speed endurance.

Keywords: Combination Training Method, Speed Endurance Level, Physical Education

Introduction

Physical education students who specialized in track and field typically possess a relatively good ability to sustain fast running, maintain speed endurance, and demonstrate strong muscular strength. Their performance was generally stable, but when they reached a certain plateau or bottleneck, improvement tend to be slow and there were no significant advancements in a short period. The daily training regimen of track and field students usually relies on traditional single training methods, which was the primary reason for the slow progress in their performance (Ramos, 2021).

Fiorenza (2019) and other scholars, while researching the effects of combining various individual training methods on the special strength training of athletes engaged in jumping

sports within track and field, concluded that even when these athletes' physical abilities reach a plateau, performance could be improved by combining multiple training methods and techniques. This approach helped enhance the precision of movements, leading to improved sports performance.

As athletes face performance plateaus, it became imperative to innovate and incorporate varied training approaches. The research underscored the importance of combining different training techniques to address the limitations of traditional single-method training.

The overall trend in speed endurance quality training had experienced two distinct phases, transitioning gradually from an initial focus on aerobic metabolic capacity training to a more integrated approach that combines aerobic and anaerobic metabolism and the corresponding functional capacity conversion training (Cheng, 2018).

This research aimed to scientifically integrate various single training methods and apply them to the daily training routines of athletes. By tailoring each training method to the athletes' individual physical conditions, physiological situations, and the characteristics of their specific specialties, the goal was to develop a scientifically sound training program. Employing a Combination of different single training methods was expected to yield more significant results with less effort. The training program would be systematically applied to training sessions, allowing for the timely detection of issues during training experiments. This enabled the modification and adjustment of the training program to continually improve its effectiveness. Ultimately, the research seek to develop an optimal training program tailored to enhance the speed and endurance quality of track and field students (Haugen, 2019).

The purpose of this research was to thoroughly investigate and summarize a Combination Training Method that effectively enhanced speed and endurance through scientific analysis and practical testing. By doing so, it aimed to optimize the specific implementation of the Combination Training Method according to the unique demands of athletics. This tailored approach was expected to improve the speed and endurance quality of students selected for athletics, using a systematic application of various scientific training Combinations in the field of sports education and training (Reilly, 2018). The research seek to provide a comprehensive evaluation and verification of the Combination Training Method's effectiveness, thereby offering new insights and strategies for improving athletic training programs.

This was very conducive to enriching the overall training method theory system of athletics, and providing scientific theoretical references for coaches to guide the training of students who were specially selected for athletics in the future. In this research, for the need to improve the quality of speed and endurance, the development of a targeted Combination of training methods of quality training; for track and field events, the Combination of training method contained a quantitative research of training single, explored practical, effective, targeted Combination of training methods, and effectively improve the level of speed and endurance of track and field students selected (Lee & Yoon, 2020).

Research Questions

1. Was there an improvement in speed endurance level training in Freshmen after the implementation of the Combination Training Method?
2. Would the Freshman students be satisfied with the Combination Training Method in Physical Education?

Literature Review

Studies Related to The Combination Training Method

The mono-training method does not mean that the athlete only uses a single item of practice in training, it was the development of only one indicator of physical fitness in a single training session or over a period of time, and the different training methods used for this physical fitness were not fully understood to be for the sole purpose of developing a single indicator, but rather for the purpose of the athlete's continuous training and development of this quality (Kormos & Csizer, 2014).

This training method was characterized by the scientific and reasonable arrangement of several relevant and effective single training methods together, complementary advantages, the proportion of training intensity size distribution should be appropriate, as well as a reasonable arrangement of rest time, so as to allow athletes to comprehensively and reasonably achieve the desired results.

Combined training was an organic combination of various training methods, based on reasonable and effective training methods, the interval between two groups of training to provide metabolic recovery was the basis of the training program, the training means to be selected depending on the situation, in order to achieve the overall effect of the training effect of the scientific training methods. and other two scholars in the study of short and medium-distance events in the theory of the strength training of the outstanding athletes found that another feature of the combined training methods In the use of the Combination Training Method, one of the single training intensity was not large, the intensity was based on the overall planning of a reasonable distribution, was arranged according to a reasonable proportion of the combination of the overall intensity of the medium intensity and higher intensity, in line with the intensity of the competition demand.

Benefits of The Combination Training Method

Combination training, often referred to as concurrent training, involves the integration of both strength and endurance exercises within the same training regimen. This method offers a variety of benefits, making it a popular choice for athletes and fitness enthusiasts alike. Here were some key benefits of combination training:

Improved Overall Fitness. Combination training enhances both aerobic and anaerobic capacities. By incorporating both endurance and strength elements, individuals could achieve a well-rounded fitness profile, improving cardiovascular health, muscle strength, and endurance simultaneously.

Enhanced Muscle Strength and Cardiovascular Health. Regular strength training increases muscle mass and strength, while endurance exercises improve heart and lung capacity. When combined, these benefits lead to improved heart health, better circulation, and stronger muscles, providing a comprehensive approach to fitness.

Efficient Use of Time. For individuals with limited time for exercise, combination training allows them to maximize their workouts by addressing multiple fitness goals in a single session. This efficiency could lead to better adherence to fitness routines and more consistent progress.

Increased Caloric Burn and Weight Management. Engaging in both types of exercise could increase the total number of calories burned during a workout. Strength training boosts the metabolic rate by increasing muscle mass, while endurance exercises burn a significant number of calories, contributing to effective weight management and fat loss.

Reduced Risk of Injury. Balancing different types of exercise could reduce the risk of overuse injuries associated with repetitive motion. Strength training could fortify muscles and connective tissues, making them more resilient to the stresses of endurance exercises.

Improved Metabolic Health. Combination training had been shown to improve various markers of metabolic health, including insulin sensitivity and lipid profiles. This could reduce the risk of developing chronic diseases such as type 2 diabetes and cardiovascular disease.

Enhanced Athletic Performance. For athletes, integrating both strength and endurance training could lead to improved performance in their specific sports. Strength training could enhance power and speed, while endurance training could improve stamina and recovery.

Greater Flexibility in Training. Combination training allows for a more varied and enjoyable exercise routine. This variety could keep workouts interesting and engaging, reducing the likelihood of boredom and burnout.

Balanced Body Composition. Combining strength and endurance exercises helps in achieving a balanced body composition. While strength training promotes muscle growth, endurance training helps in reducing excess body fat, leading to a leaner physique.

Cognitive Benefits. Regular exercise, particularly when combining different types, had been linked to improved cognitive function and mental health. The varied demands of combination training could stimulate brain function and help reduce symptoms of anxiety and depression.

Research Methodology

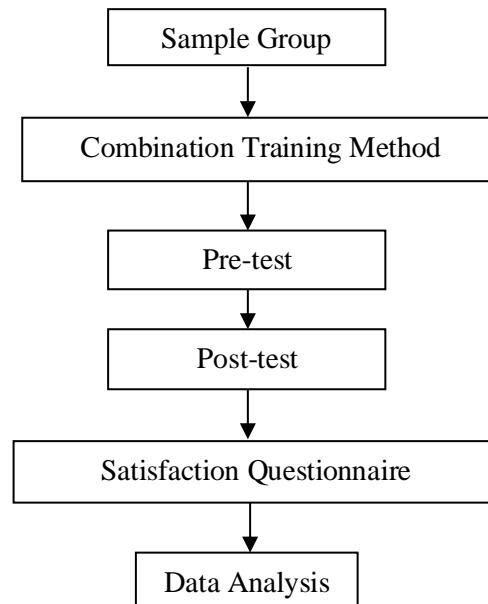


Figure 1: Research design of the research

Collecting data instruments were the equipment used in research. In order to collect information for the research topics in this research, lesson plans, achievement tests, and a satisfaction questionnaire were utilized. The sample group consisted of 30 students during the duration of the research. The next section discusses the research instruments that were utilized in this research to accomplish the goals.

The researcher designed the Likert Schle questionnaire with the scale including 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree, respectively.

Population and Sample

The two best majors at the H College of Physical Education and Sports Science were Physical Education and Sports Training. Both majors were "first-class" undergraduate construction sites in Hunan Province. The research's target population comprised 613 students ranging in year from freshman to senior, with roughly 121 of them being freshmen.

By using a clustered random sampling technique, the sample group consisted of a group of 30 students were all male Freshmen students, their basic information: age, height, weight, years of exercise were as followed:

Table 1: Basic Information

Name	Age	Heigh(cm)	Weight(kg)	Years of exercise
NO.1	19	176	68	5
NO.2	20	176	70	4
NO.3	20	172	60	5
NO.4	20	183	75	4
NO.5	20	178	71	5
NO.6	18	173	70	3
NO.7	20	177	68	5
NO.8	20	182	80	5
NO.9	20	175	67	5
NO.10	21	180	78	5
NO.11	19	187	73	4
NO.12	20	183	72	5
NO.13	19	174	67	4
NO.14	21	178	70	5
NO.15	21	178	67	5
NO.16	19	176	71	4
NO.17	19	187	78	4
NO.18	20	183	70	5
NO.19	19	174	67	4
NO.20	20	179	70	3

Table 1: Basic Information

Name	Age	Heigh(cm)	Weight(kg)	Years of exercise
NO.21	20	187	71	5
NO.22	18	178	70	4
NO.23	20	173	68	5
NO.24	20	183	80	4
NO.25	20	174	67	5
NO.26	21	178	78	5
NO.27	19	178	73	4
NO.28	20	176	71	4
NO.29	18	173	70	3
NO.30	20	177	68	3
Ȳ	19.75	178.55	70.6	4.45

Data Analysis

The researcher applied two different methods to analyze the data, each aligned with the two research objectives. The researcher utilized quantitative data derived from pre-test and post-test scores, as well as the results of the questionnaire to assess student performance in the area of speed endurance before and after training using the combination training method. SPSS was utilized to analyze the data and assess the improvement in the students' physical performance.

Table 2: The Range of Mean Score Interpretation

Mean Score Range	Perceptions Level
4.21-5.00	Highest
3.41-4.20	High
2.61-3.40	Moderate
1.81-2.60	Low
1.00-1.80	Lowest

Source: Moidunny, 2009

Research Finding

The fundamental requirement of the training of trainees using the combination training method was to be able to improve the trainee's speed and endurance quality in a short period of time. In the course of each training, in principle, the development of the athlete's various special abilities should be the main focus, and the training methods and the amount of loads set were all designed to satisfy the special abilities. Specialized deepening emphasizes that the muscular system and the motor nervous system could be highly coordinated, as well as could make reasonable use of the elastic potential energy of muscle fibers, and with the trainee highly skilled technical movement system. But from the motor nervous system and muscle system and so on many different aspects to analyze, they would go to ask for time, which makes the trainee using a combination of training methods must follow the process of

systematic science, but also had to take into account the principle of physiological adaptive mechanism and the principle of human body recovery mechanism, to sum up the above athletes followed the principle of deepening the specialization and at the same time followed the principle of integration and balancing.

Table 3: Blood Lactate Test Data

Name	Pre-test blood lactate	Post-test blood lactate	Different
NO.1	16.79	14.78	2.01
NO.2	13.93	12.26	1.67
NO.3	14.84	13.06	1.78
NO.4	13.41	11.80	1.61
NO.5	13.3	11.70	1.6
NO.6	15.35	13.51	1.84
NO.7	16.6	14.61	1.99
NO.8	13.33	11.73	1.60
NO.9	11.66	10.26	1.40
NO.10	12.8	11.26	1.54
NO.11	13.97	12.29	1.68
NO.12	14.79	13.02	1.77
NO.13	13.48	11.86	1.62
NO.14	15.27	13.44	1.83
NO.15	14.88	13.09	1.79
NO.16	13.12	11.55	1.57
NO.17	11.47	10.09	1.38
NO.18	12.27	10.80	1.47
NO.19	13.97	12.29	1.68
NO.20	13.57	11.94	1.63
NO.21	12.61	11.10	1.51
NO.22	13.12	11.55	1.57
NO.23	13.99	12.31	1.68
NO.24	13.87	12.21	1.66
NO.25	11.28	9.93	1.35
NO.26	10.87	9.57	1.30
NO.27	11.48	10.10	1.38
NO.28	9.57	8.42	1.15
NO.29	13.57	11.94	1.63
NO.30	14.28	12.57	1.71
\bar{X}	13.45	11.83	1.61

Table 4: Heart Rate Indicator Test Data

Name	Pre-test heart rate	Post-test heart rate	Different
NO.1	179	158	21
NO.2	160	141	19
NO.3	175	154	21
NO.4	168	148	20
NO.5	184	162	22
NO.6	169	149	20
NO.7	156	137	19
NO.8	180	158	22
NO.9	180	158	22
NO.10	171	150	21
NO.11	176	155	21
NO.12	179	158	21
NO.13	169	149	20
NO.14	168	148	20
NO.15	168	148	20
NO.16	166	146	20
NO.17	163	143	20
NO.18	167	147	20
NO.19	175	154	21
NO.20	162	143	19
NO.21	156	137	19
NO.22	160	141	19
NO.23	168	148	20
NO.24	180	158	22
NO.25	169	149	20
NO.26	165	145	20
NO.27	168	148	20
NO.28	167	147	20
NO.29	166	146	20
NO.30	158	139	19
\bar{X}	169	149	20

Table 5: Lower Extremity Anaerobic Power Index Test Data

Name	Pre-test lower extremity anaerobic power index	Post-test lower extremity anaerobic power index	Different
NO.1	9.69	8.53	1.16
NO.2	10.9	9.59	1.31
NO.3	11.91	10.48	1.43
NO.4	10.44	9.19	1.25
NO.5	13.94	12.27	1.67
NO.6	9.42	8.29	1.13
NO.7	12.88	11.33	1.55
NO.8	9.87	8.69	1.18
NO.9	9.96	8.76	1.20
NO.10	13.12	11.55	1.57
NO.11	12.24	10.77	1.47
NO.12	11.37	10.01	1.36
NO.13	12.19	10.73	1.46
NO.14	10.72	9.43	1.29
NO.15	11.77	10.36	1.41
NO.16	12.28	10.81	1.47
NO.17	12.57	11.06	1.51
NO.18	10.3	9.06	1.24
NO.19	11.49	10.11	1.38
NO.20	11.18	9.84	1.34
NO.21	11.48	10.10	1.38
NO.22	11.93	10.50	1.43
NO.23	10.17	8.95	1.22
NO.24	9.64	8.48	1.16
NO.25	8.36	7.36	1.00
NO.26	9.6	8.45	1.15
NO.27	9.28	8.17	1.11
NO.28	9.59	8.44	1.15
NO.29	10.17	8.95	1.22
NO.30	10.11	8.90	2.21
\bar{X}	10.95	9.65	1.36

Table 6: Upper Extremity Anaerobic Power Index Test Data

Name	Pre-test upper extremity anaerobic power index	Post-test upper extremity anaerobic power index	Different
NO.1	650	572	78
NO.2	472	415	57
NO.3	472	415	57
NO.4	605	532	73
NO.5	497	437	60
NO.6	428	377	51
NO.7	575	506	69
NO.8	422	371	51
NO.9	561	494	67
NO.10	577	508	69
NO.11	490	431	59
NO.12	654	576	78
NO.13	678	597	81
NO.14	508	447	61
NO.15	594	523	71
NO.16	432	380	52
NO.17	487	429	58
NO.18	432	380	52
NO.19	534	470	64
NO.20	585	515	70
NO.21	469	413	56
NO.22	487	429	58
NO.23	472	415	57
NO.24	605	532	73
NO.25	497	437	60
NO.26	428	377	51
NO.27	575	506	69
NO.28	422	371	51
NO.29	561	494	67
NO.30	469	413	56
\bar{X}	521	459	63

Table 7: Pre-Test Athletics Specialized Test Data

Name	100m	800m	1500m	Triple jump	Javelin	Shot-put
NO.1	12.26	2.19	4.43	12.25	35	10.15
NO.2	12.35	2.18	4.35	12.03	30	9.53
NO.3	12.09	2.19	4.38	12.21	33	9.32
NO.4	12.42	2.23	4.35	11.95	28	9.13
NO.5	12.26	2.21	4.41	12.33	26	10.15
NO.6	12.26	2.16	4.37	12.25	31	10.18
NO.7	12.45	2.16	4.38	12.08	31	9.57
NO.8	12.31	2.23	4.29	12.18	27	10.35
NO.9	12.03	2.16	4.35	12.03	28	11.05
NO.10	12.09	2.19	4.38	12.21	33	9.32
NO.11	12.42	2.23	4.35	11.95	28	9.13
NO.12	12.43	2.19	4.39	12.26	31	10.15
NO.13	12.26	2.22	4.38	12.26	31	9.58
NO.14	12.42	2.23	4.35	11.95	28	9.13
NO.15	12.26	2.22	4.28	11.88	30	10.15
NO.16	12.31	2.17	4.46	12.18	27	9.32
NO.17	12.27	2.18	4.42	12.25	26	10.15
NO.18	12.35	2.19	4.35	11.95	31	10.18
NO.19	12.26	2.18	4.38	12.26	31	9.54
NO.20	12.09	2.13	4.41	12.31	29	10.35
NO.21	12.26	2.19	4.35	12.25	28	10.32
NO.22	12.42	2.23	4.38	12.26	31	10.15
NO.23	12.42	2.23	4.35	12.03	28	11.05
NO.24	12.26	2.22	4.28	12.21	33	9.32
NO.25	12.31	2.17	4.46	11.95	28	9.13
NO.26	12.43	2.19	4.35	12.26	31	9.58
NO.27	12.26	2.22	4.28	12.03	28	11.05
NO.28	12.42	2.23	4.46	11.95	28	9.13
NO.29	12.26	2.22	4.41	11.88	30	10.15
NO.30	12.26	2.22	4.38	11.95	28	9.13
\bar{X}	12.30	2.20	4.37	12.12	29	9.85

Table 8: Post-Test Athletics Specialized Test Data

Name	100m	800m	1500m	Triple jump	Javelin	Shot-put
NO.1	11.87	2.12	4.29	12.40	36	10.53
NO.2	11.95	2.11	4.21	12.18	31	9.89
NO.3	11.70	2.12	4.24	12.36	34	9.67
NO.4	12.02	2.16	4.21	12.10	29	9.48
NO.5	11.87	2.14	4.27	12.48	27	10.53
NO.6	11.87	2.09	4.23	12.40	32	10.57
NO.7	12.05	2.09	4.24	12.23	32	9.93
NO.8	11.91	2.16	4.15	12.33	28	10.74
NO.9	11.64	2.09	4.21	12.18	29	11.47
NO.10	11.70	2.12	4.24	12.36	34	9.67
NO.11	12.02	2.16	4.21	12.10	29	9.48
NO.12	12.03	2.12	4.25	12.41	32	10.53
NO.13	11.87	2.15	4.24	12.41	32	9.94
NO.14	12.02	2.16	4.21	12.10	29	9.48
NO.15	11.87	2.15	4.14	12.03	31	10.53
NO.16	11.91	2.10	4.32	12.33	28	9.67
NO.17	11.87	2.11	4.28	12.40	27	10.53
NO.18	11.95	2.12	4.21	12.10	32	10.57
NO.19	11.87	2.11	4.24	12.41	32	9.90
NO.20	11.70	2.06	4.27	12.46	30	10.74
NO.21	11.87	2.12	4.21	12.40	29	10.71
NO.22	12.02	2.16	4.24	12.41	32	10.53
NO.23	12.02	2.16	4.21	12.18	29	11.47
NO.24	11.87	2.15	4.14	12.36	34	9.67
NO.25	11.91	2.10	4.32	12.10	29	9.48
NO.26	12.03	2.12	4.21	12.41	32	9.94
NO.27	11.87	2.15	4.14	12.18	29	11.47
NO.28	12.02	2.16	4.32	12.10	29	9.48
NO.29	11.87	2.15	4.27	12.03	31	10.53
NO.30	11.87	2.15	4.24	12.10	29	9.48
\bar{X}	11.90	2.13	4.23	12.27	30	10.22

Collect and organize the experimental data of the experimental subjects, and analyze and process the experimental data by using SPSS 27.0 and Excel. In the process of pre- and post-testing of the experiment, the obtained students' index test scores were effectively

Table 9: Test Scores of Blood Lactate Indicators

Blood Lactate Indicators	Pre-test		Post-test	
	\bar{X}	S.D.	\bar{X}	S.D.
Immediate post-exercise blood lactate values	14.41	1.92	14.21	1.81
Blood lactate value after exercise in 15-min	12.80	2.32	12.71	2.18

counted and analyzed by means of SPSS27.0 application calculation and tabulation, etc. The data were expressed as mean + standard deviation ($\bar{X} \pm S.D.$).

The blood lactate related indexes were selected by reviewing the information related to speed endurance, combining the opinions of coaches and experts, and taking into account the actual situation, and finally picking out the values of blood lactate concentration in the immediate post-exercise period, and the value of blood lactate concentration in the 15-min post-exercise period.

Table 10: Test Scores of Heart Rate Indicators

Heart Rate Indicators	Pre-test		Post-test	
	\bar{X}	S.D.	\bar{X}	S.D.
Maximum heart rate	172	8	171	8
Heart rate after exercise in 3-min	140	8	140	7

The heart rate related indexes were selected by reviewing the information related to speed endurance, combining the opinions of coaches and experts with the actual situation, and finally picking out the values of the maximum heart rate and the 3-minute post-exercise heart rate.

Table 11: Test Scores of Upper Limb Anaerobic Power

Upper Limb Anaerobic Power	Pre-test		Post-test	
	\bar{X}	S.D.	\bar{X}	S.D.
Maximum Anaerobic Power	525.5	77.8	535.4	72.1
Average Anaerobic Power	277.4	20.0	275.8	19.4

The anaerobic power related indexes were selected by reviewing the information related to speed endurance and combining the opinions of coaches and experts, and finally picking out the values of maximal power of the upper limb, average power of the upper limb, maximal power of the lower limb, and average power of the lower limb.

Table 12: Test Scores of Upper Limb Anaerobic Power

Lower Limb Anaerobic Power	Pre-test		Post-test	
	\bar{X}	S.D.	\bar{X}	S.D.
Maximum Anaerobic Power	11.01	1.39	11.12	0.72
Average Anaerobic Power	8.46	0.77	8.52	0.85

In conclusion, according to Pre-test and Post-test, there was no significant difference between the participants in the test in terms of physical indicators and sports performance, indicating that they belonged to the same level and met the basic requirements of the experiment.

At the beginning of each training session, the subjects should arrive at the training ground 15 minutes in advance to warm up. In the training process, there were two auxiliary staff to assist in the training, and the training movements and contents were strictly controlled and responsible to ensure that the majority of the players could successfully complete the training contents.

Thinking from a psychological point of view, “interest was a psychological characteristic of human beings when they acquire knowledge of a certain kind and learn, and interest was the best tutor for students”. For physical education, interest was “a signpost to guide people to engage in physical exercise, but also for students to be strong and healthy to better engage in the foundation of learning, when students had a strong interest in a subject, they would certainly be very serious and hard to learn this course until the subject had greater progress, the development of interest was a process, mainly divided into three stages: Interest development was a process, which was divided into three stages: finding interesting, generating interest, and tendency to interest, therefore, in the sprinting course, teachers should first let students feel interesting, and then stimulate their interest in learning, and in the process of cultivating interest in learning, they could improve the students' motivation to learn and independent initiative, and through the learning process, the students' attitude towards learning also changes from I could learn, to I would learn”. Whether the teaching could be

successful, the teaching effect was good or bad, and students' interest in learning had a close correlation. Therefore, students' interest in learning was especially important in this experiment. The learning interest of the two groups of students in the combination training method pre and post-test was shown in the table below:

Table 13: Statistical of Students' Learning Interest

Items	Scores					X^2
	5	4	3	2	1	
	Sample Number					
I liked the learning process of the combination training method.	20	8	2	0	0	26.323
I was interested in the results of the combination training method.	20	10	0	0	0	5.719
The combination training method improved my physical fitness.	23	7	0	0	0	9.769
I took the initiative to ask questions during the learning process of the combination training method.	20	9	1	0	0	3.071
I consulted information and research problems in the process of learning the combination training method.	21	9	0	0	0	24.45

“The ability to discover, analyze and solve problems was a comprehensive ability, and its core objective was to cultivate students' ability of creative thinking, specifically including the ability of experimental investigation and observation, the ability of experimental investigation and research and the ability to ask questions, the ability to use the scientific method to solve practical problems, etc., people want to solve a problem, then they need to analyze and solve the problem through the reasons for the problem. Explore, think about the process of the problem occurs, find the root cause to discover the problem, so as to analyze and solve the problem, in this process, respectively, using the human ability to discover the problem, analyze the problem and solve the problem, and in the solution of sprinting problems, it was the same”. When teachers use the combination teaching method to teach, they had to “let students go to active problem solving, in a freer learning environment, students could take the initiative to discover problems, analyze problems, explore and communicate problems, find out the answers by searching for relevant teaching materials and contents, so as to solve the problems”.

Table 14: Statistical of Students' Ability to Discover, Analyze, And Solve Problems

Items	Scores					X ²
	5	4	3	2	1	
	Sample Number					
I asked my teacher for guidance in solving problems in the process of learning the combination training method.	22	8	0	0	0	26.458
I would take the initiative to research after class to solve the unsolved problems in class.	19	10	1	0	0	11.257
I could use what I had learned to solve problems in the process of learning the combination training method.	21	9	0	0	0	18.600
I could find my own mistakes and try to solve them in the process of learning the combination training method.	23	7	0	0	0	15.434
I could take the initiative to make plans in the process of learning the combination training method.	20	9	1	0	0	12.972
I could reflect on the learning process in the combination training method learning process, and summarize the learning experience.	23	7	0	0	0	22.125

The reasons were as follows: students' ability to discover, analyze and solve problems was cultivated through continuous thinking in learning, and the combination teaching method creates a thinking situation for students by creating a situation, so that students could continuously think in the teaching situation, improve their ability to discover, analyze and solve problems in the situation, and express their own views on problem solving in a group, and then combine with other people in the group to solve problems. Through the group, express their views on problem solving, and then combined with the views and suggestions of other people in the group, and finally find a solution to the problem, in this teaching process, the students through the teacher to create a scenario to find problems, problem solving, in the scenario through the framework of their own knowledge to find problems, problem solving, and finally through the group way to the problem to explore and exchange". In teaching, the use of video uploaded to the microblogging group, each person could download and watch their own or others' mastery of technical movements, the second class in the classroom when the group discussion and exchange, report on their own analysis of the situation, and put forward solutions.

Physical education was "a discipline with strong practicality, students majoring in physical education would have some unique personality traits compatible with this discipline due to their long-term engagement in physical education. Compared with students of other majors, students majoring in physical education were extroverted, cheerful, sociable, and had strong teamwork and collaboration ability, and students majoring in physical education would usually go to the sports games and related events when they were held. would go to participate in them, and they communicate and compete with each other either as opponents or teammates, and the experiences of these competitions also paint a strong picture of their character traits".

Table 15: Statistical of Students' Sense of Cooperation and Communication

Items	Scores					X^2
	5	4	3	2	1	
	Sample Number					
I was very willing to share the joy of harvesting with my classmates in the learning process of the combination training method.	20	9	1	0	0	18.318
In the group discussion, I was serious and actively participate in the discussion to increase the spirit of cooperation among classmates.	22	8	0	0	0	6.857
In group discussions, I normally actively communicated with my classmates.	24	5	1	0	0	10.522
I liked to communicate with my classmates in the research of combination training method.	19	11	0	0	0	11.779
I normally shared my views on the combination training method with my teachers and classmates.	21	8	1	0	0	5.567
I would do my best to win in the group competition of the combination training method.	25	5	5	0	0	21.258
The combination training method helped me to develop my own training level.	24	6	0	0	0	5.69

It could be seen that: of the seven questions in the questionnaire on students' cooperative communication and innovation ability, the analyzed \bar{X} of questions 1, 3, 4 and 6 were all less than 4.50, which indicates that there was a significant difference and statistically significant; the analyzed \bar{X} of questions 2, 5 and 7 were all greater than 5.30, which makes the difference non-significant and needs to be further analyzed. It shows that the combination teaching method was effective in improving students' ability in cooperative communication and creativity.

"Knowledge application ability was relative to both knowledge production and innovation ability and skill application ability. Knowledge production and innovation ability was the main ability to carry out cognitive practice, the core of which was based on the problem orientation of knowledge logic, solving the cognitive problems such as faults, gaps and updating in the chain of knowledge, while knowledge application and innovation ability was based on professional knowledge and skills, able to creatively solve complex and changing practical problems. On the basis of professional knowledge and skills, it was the ability to creatively solve complex and changing practical problems. Physical education belongs to the activity course, which was a subject with the basic attributes of activity course with the basic features of physical practice, and physical education had the characteristics of strong practicability, and it was a comprehensive course form combining the theory and practice".

Table 16: Statistical of Students' Ability of Specialized Knowledge and Apply It

Items	Scores					Items
	5	4	3	2	1	
	Sample Number					
After the training of the combination training method, my physical fitness was improved.	29	1	0	0	0	9.634
My physical fitness was improved through the combination training method.	22	8	0	0	0	12.398
My training endurance was improved through the combination training method.	25	5	0	0	0	15.023
My running speed was improved through the combination training method.	23	7	0	0	0	10.482
My heart rate level was increased as a result of the combination training method.	22	8	0	0	0	9.725
My ability to study endurance was improved as a result of the combination training method.	23	7	0	0	0	21.861
My ability to study speed was improved through a combination of training methods.	26	4	0	0	0	18.872
After training with the Combined Training Method, my study of endurance was improved.	23	7	0	0	0	15.328
My ability to study speed was improved as a result of the combination training method.	27	3	0	0	0	17.571

It could be seen that: in the nine topics of the questionnaire on the application of specialized knowledge, all the test results had a \bar{X} less than 5.00, indicating a significant difference and statistical significance. It shows that the combination training teaching method had a good effect on improving students' ability to apply specialized knowledge. The reasons were analyzed as follows.

According to the classroom teaching process of the combination training teaching method, the content to be studied was assigned to the students in the form of posing questions, and the students collected relevant information outside the classroom and put forward the corresponding requirements (such as consulting the reference books related to the study) the next day in class to discuss the content of the study in small groups, and finally check the effect of the student's discussion by the following way: arranging the classroom time for each group to Show the results, followed by students and teacher questions and discussion, and finally the teacher commented on the explanation, this mode of learning greatly exercise the skills of students to collect information, but also cultivate the students to summarize, summarize the ability, in the period of the display, the questions, discussion and to the teacher's comments, could prompt the students to recognize their own strengths and weaknesses, and to further improve their practical ability.

Discussion/Conclusion

The combination training method significantly improves the blood lactate clearance rate, heart rate recovery, anaerobic work capacity, and overall speed endurance among athletes, especially track and field students. This method involves structured phases: initial general endurance, followed by a phase focused on enhancing speed endurance, and culminating in a maintenance stage. Within these stages, different training techniques are applied—short-distance interval training targets lactate tolerance, while long-distance repetitions support both lactate and aerobic energy systems. The strategic use of aerobic and anaerobic exercises supports quicker heart rate recovery, improved endurance, and faster lactate elimination, reducing post-training fatigue.

Studies confirm that combination training increases both upper and lower body anaerobic power and allows athletes to sustain high-intensity activities longer. After a four-week experimental period, students showed statistically significant improvements in blood lactate clearance rates and heart rate recovery compared to a control group. Heart rate metrics, including recovery rate and maximal heart rate reduction, indicated better physiological adaptations, likely due to increased parasympathetic activity.

Furthermore, combination training is advantageous for the 800-meter race and other speed-endurance events, which demand both speed and endurance qualities. This training program aligns with the physiological needs of athletes for speed endurance, effectively improving both aerobic and anaerobic capacities through targeted exercises, such as high-intensity interval running and strength-enhancing circuits. However, limitations in the study (e.g., sample size and geographic scope) suggest that more extensive research could provide a comprehensive understanding of its effects across varied demographics and athletic disciplines.

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Integrating Digital Transformation Strategies in Innovation Management for Sustainable Business Development

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Abstract

This study explored the impact of digital transformation strategies on sustainable business development, emphasizing the moderating role of organizational culture and the mediating effect of innovation capabilities. The research highlights that effective digital transformation positively influences business sustainability by enhancing financial performance, market expansion, and environmental responsibility. Organizational culture was identified as a critical factor that can either facilitate or hinder the successful implementation of digital transformation initiatives. Moreover, innovation capabilities are shown to bridge the gap between digital strategies and sustainable outcomes, acting as a crucial mediator. The study employed a mixed-methods approach, combining quantitative data analysis with qualitative insights to provide a comprehensive understanding of these relationships. Key findings suggested that for businesses to thrive in the digital era, a holistic approach that integrates technology, culture, and innovation is essential. The thesis concludes with practical recommendations for business managers and policymakers, emphasizing the need for adaptive strategies and supportive organizational cultures. Future research directions were suggested, focusing on longitudinal studies, cross-industry comparisons, and the exploration of emerging technologies in digital transformation. This study contributed to the growing body of knowledge on digital transformation and its role in achieving long-term business sustainability.

Keywords: Digital Transformation Strategies, Sustainable Business Development, Organizational Culture, Innovation Capabilities

Introduction

In recent years, digital transformation has emerged as a critical strategic imperative for businesses across various sectors. Digital transformation refers to the integration of digital technologies into all areas of business operations, fundamentally altering how companies operate and deliver value to their customers. This shift is driven by the rapid evolution of technology, changing consumer expectations, and the need for organizations to remain competitive in an increasingly digital world.

Digital transformation supports sustainability initiatives by enabling businesses to monitor and reduce their environmental impact. Technologies such as IoT and blockchain facilitate better tracking of resource usage and supply chain transparency, contributing to more sustainable practices (Mougiakos, 2023). By adopting digital solutions, companies can not only enhance their operational efficiency but also align with global sustainability goals and regulatory requirements, the importance of digital transformation in modern business cannot be overstated. It offers opportunities for improved efficiency, innovative business models, enhanced customer experiences, and greater sustainability. As digital technologies continue to advance, businesses must embrace transformation to remain competitive and achieve long-term success.

Innovation management plays a pivotal role in achieving sustainable development by enabling organizations to create and implement solutions that address economic, environmental, and social challenges. The intersection of innovation management and sustainable development is increasingly recognized as a critical factor in driving long-term organizational success and contributing to broader societal goals (Nidumolu, Prahalad, & Rangaswami, 2009).

The relationship between innovation management and sustainable development is integral to achieving long-term success and addressing global challenges. By focusing on sustainable innovation and integrating environmental and social considerations into innovation processes, organizations can drive significant progress towards sustainable development while enhancing their competitive edge in the marketplace.

Digital transformation strategies are increasingly recognized as crucial drivers of long-term business growth. By leveraging advanced technologies and integrating digital solutions into business operations, organizations can achieve substantial improvements in performance, competitiveness, and market positioning (Rogers, 2022).

According to a report by McKinsey & Company (2021), organizations that embrace digital transformation can realize up to a 20% reduction in operational costs and a 30% improvement in productivity. For improving operational efficiency, digital transformation strategies enable businesses to innovate and adapt more effectively to changing market conditions. The adoption of digital technologies such as artificial intelligence (AI), big data, and the Internet of Things (IoT) provides organizations with new capabilities for product and service innovation (Brynjolfsson & McElheran, 2021).

Digital transformation also supports long-term growth by enhancing customer engagement and experience. Digital tools and platforms allow businesses to interact with customers more effectively, providing personalized experiences and building stronger relationships. A study by Accenture (2023) indicates that companies with advanced digital capabilities are better positioned to understand customer preferences and deliver tailored solutions, leading to increased customer loyalty and market share. Enhanced customer engagement through digital channels also enables companies to gather valuable feedback and continuously improve their offerings (Goes, 2022).

All in all, the impact of digital transformation strategies on long-term business growth is profound. By improving operational efficiency, fostering innovation, enhancing customer engagement, and enabling market expansion, digital transformation positions organizations for sustained success in a competitive and rapidly changing business environment.

Objective

1. To explore the impact of digital transformation strategies on sustainable business development.
2. To analyze the moderating effect of organizational culture.
3. To study the mediating role of innovation capabilities.

Research Hypotheses

H1: Digital transformation strategies positively influence sustainable business development.

H2: Organizational culture moderates the relationship between digital transformation strategies and sustainable business development, such that a supportive organizational culture strengthens this relationship.

H3: Innovation capabilities mediate the relationship between digital transformation strategies and sustainable business development, such that digital transformation strategies enhance innovation capabilities, which in turn positively affect sustainable business development.

Literature Review

The Concept of Digital Transformation

Digital transformation is a multifaceted process that involves the integration of digital technologies into all areas of a business, fundamentally changing how organizations operate and deliver value to customers. It is not merely about adopting new technologies, but also about rethinking business models, organizational structures, and processes to fully leverage the potential of digital innovations (Vial, 2021). This concept has gained significant attention in recent years as businesses across various industries recognize the need to adapt to the rapidly evolving digital landscape.

The concept of digital transformation also extends to the reconfiguration of organizational structures and processes. It involves the creation of agile and flexible business models that can respond quickly to changes in the market environment (Teece, 2020). Digital transformation strategies often prioritize customer-centricity, data-driven decision-making, and cross-functional collaboration to drive innovation and competitive advantage (Goes, 2022). As such, successful digital transformation is closely linked to an organization's ability to innovate and adapt to new opportunities and challenges.

In summary, the concept of digital transformation encompasses a broad range of activities and strategies aimed at integrating digital technologies into all aspects of a business. It requires not only technological adoption but also a fundamental rethinking of business models, organizational culture, and processes. As businesses continue to navigate the complexities of the digital age, digital transformation remains a critical area of focus for achieving long-term success and sustainability.

Classification and Application of Various Digital Transformation Strategies

Digital transformation strategies can be broadly classified into several categories based on their focus, technological applications, and organizational goals. These strategies are designed to leverage digital technologies to improve business processes, enhance customer experiences, and create new business models. Understanding the classification and application

of these strategies is crucial for organizations aiming to navigate the complexities of digital transformation effectively.

1. Technology-Driven Strategies.
2. Customer-Centric Strategies.
3. Process-Oriented Strategies.
4. Innovation-Focused Strategies.
5. Data-Driven Strategies.
6. Organizational Culture and Change Management Strategies.

These strategies emphasize the importance of aligning digital transformation efforts with the organization's culture and managing the change process effectively. Successful digital transformation requires not only technological adoption but also a shift in organizational culture to embrace innovation, agility, and continuous learning. Change management strategies focus on engaging employees, fostering a culture of collaboration, and ensuring that the workforce is equipped with the necessary digital skills (Kane, Palmer, Phillips, Kiron, & Buckley, 2020).

The Role of Organizational Culture

Organizational culture refers to the shared values, beliefs, norms, and practices that shape the behavior and decision-making processes within an organization. It acts as a guiding framework that influences how employees interact with each other, approach their work, and respond to external challenges (Alvesson & Sveningsson, 2015). Organizational culture is often seen as the "personality" of an organization, reflecting its unique identity and affecting its overall performance (Schneider, Ehrhart, & Macey, 2021).

Organizational culture can also be understood through its observable and unobservable elements. Observable elements include rituals, symbols, language, and physical layout, while unobservable elements encompass underlying assumptions, beliefs, and values (Hogan & Coote, 2014). The combination of these elements creates a distinct organizational culture that influences employee behavior and organizational outcomes (Cameron & Quinn, 2021).

Impact of Organizational Culture on Performance, the type of organizational culture present within a company can significantly influence its overall performance, employee engagement, and ability to achieve strategic goals (Denison, Nieminen, & Kotrba, 2014). For instance, a strong alignment between organizational culture and business strategy can enhance innovation, customer satisfaction, and financial performance (Lee & Yu, 2021). Conversely, a misalignment may lead to resistance to change, decreased employee morale, and suboptimal performance (Kumar & Pansari, 2016).

Research has shown that organizational culture can also play a critical role in the successful implementation of digital transformation strategies, particularly in fostering an environment that is conducive to change and innovation (Vogelsang, Liere-Netheler, Packmohr, & Hoppe, 2019). A culture that supports continuous learning, adaptability, and open communication is more likely to successfully navigate the challenges of digital transformation and sustain long-term business growth (Yun, Lee, & Ahn, 2020).

The Way Organizational Culture Influences the Implementation of Digital Transformation Strategies

Organizational culture plays a critical role in determining the success or failure of digital transformation initiatives. The process of digital transformation often requires significant changes in technology, processes, and even business models, all of which are deeply influenced by the underlying culture of an organization (Vial, 2021). A supportive and adaptable organizational culture can facilitate the smooth implementation of digital transformation strategies, while a resistant or misaligned culture can hinder progress and lead to suboptimal outcomes (Kane, Palmer, Phillips, Kiron, & Buckley, 2021).

To overcome cultural barriers to digital transformation, organizations can adopt several strategies. Organizational culture is a critical factor in the successful implementation of digital transformation strategies. A supportive culture that values innovation, agility, and collaboration can significantly enhance the effectiveness of digital initiatives, while cultural barriers such as resistance to change and organizational silos can impede progress. By aligning organizational culture with digital transformation goals and addressing potential cultural barriers, organizations can create an environment that fosters successful and sustainable digital transformation (Hsu, Lee, & Chuang, 2020).

The Role of Innovation Capabilities in Organizations

Innovation capabilities are essential for organizations seeking to maintain competitive advantage and adapt to changing market conditions. These capabilities enable firms to introduce new products, improve processes, and develop new business models that drive growth and efficiency (Girotra, Terwiesch, & Ulrich, 2010).

Driving Competitive Advantage: Organizations with strong innovation capabilities are better positioned to create unique value propositions and differentiate themselves from competitors (Teece, 2021). By leveraging these capabilities, firms can innovate continuously and respond proactively to market changes (Hossain, 2021).

Enhancing Organizational Performance: Effective innovation capabilities contribute to improved organizational performance by optimizing operations, reducing costs, and increasing revenue through new products and services (Zhao, Lu, & Wang, 2022). These capabilities are linked to better financial performance, customer satisfaction, and market share (Matzler, Veider, & Kathan, 2015).

Facilitating Strategic Adaptation: Innovation capabilities support strategic adaptation by enabling organizations to reconfigure their resources and processes in response to external pressures and opportunities (Eisenhardt & Martin, 2000). This adaptability is crucial for long-term sustainability and success in dynamic environments (Kahn, 2022).

The Relationship Model Between Research Variables

In exploring the impact of digital transformation strategies on sustainable business development, it is crucial to understand how these strategies interact with various organizational factors. The proposed research model integrates digital transformation strategies, sustainable business development, organizational culture, and innovation capabilities. This model helps in formulating hypotheses that can be tested empirically. The relationship model is supported by various studies in the literature:

Digital Transformation and Sustainable Business Development: Research indicates that digital transformation strategies lead to improvements in operational efficiency and sustainability metrics, positively impacting overall business development (El-Gohary, 2022; Westerman et al., 2021).

Organizational Culture: The role of organizational culture in influencing the success of digital transformation efforts has been well-documented. A positive culture facilitates the adoption of new technologies and supports sustainable practices (Cameron & Quinn, 2021; O'Reilly & Tushman, 2013).

Innovation Capabilities: Innovation capabilities are critical in leveraging digital transformation for sustainable outcomes. Effective innovation processes enable organizations to harness digital tools and create value that contributes to long-term sustainability (Teece, 2021; Hossain, 2021).

This research model and the associated hypotheses provide a structured approach to examining how digital transformation strategies impact sustainable business development, with an emphasis on the roles of organizational culture and innovation capabilities. The hypotheses formulated for this study provide a framework for investigating how digital transformation strategies, organizational culture, and innovation capabilities interact to influence sustainable business development. These hypotheses aim to test the direct and indirect effects of digital transformation on sustainability, moderated by organizational culture and mediated by innovation capabilities.

Research Methodology

The research design is a critical component of any study, guiding the methods and procedures for collecting and analyzing data. In this study, a quantitative research design is employed. The choice of a quantitative design is informed by the need to measure the impact of digital transformation strategies on sustainable business development and to evaluate the moderating and mediating effects of organizational culture and innovation capabilities, respectively.

Quantitative research is often associated with deductive reasoning, where the research begins with a theory or hypothesis and then designs a research strategy to test it (Bryman, 2016). The study utilizes a cross-sectional survey design, which involves collecting data at a single point in time to describe and assess relationships among the variables of interest (Fowler, 2014). The questionnaire is structured into several sections, each corresponding to the specific constructs being measured:

Digital Transformation Strategies: This section includes items that assess the extent to which firms adopt advanced digital technologies, restructure business processes, and implement digital tools. The questions are adapted from existing validated scales, such as those proposed by Vial (2019) and Verhoef et al. (2021). The Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), is used to gauge respondents' perceptions and experiences.

Sustainable Business Development: Questions in this section measure the company's performance in terms of financial outcomes, market expansion, environmental responsibility, and social impact. The items are based on the sustainable development performance scale suggested by Bansal (2005) and Epstein and Roy (2001), ensuring that multiple dimensions of sustainability are captured.

Organizational Culture: This section uses the Organizational Culture Assessment Instrument (OCAI) to determine the type of culture prevalent in the organization, such as clan, adhocracy, market, or hierarchy cultures (Cameron & Quinn, 2006). The questions are designed to reflect the values, beliefs, and norms that influence the implementation of digital transformation strategies.

Innovation Capabilities: The final section assesses the organization's ability to generate, adopt, and implement new ideas and innovations. The questions are derived from the

innovation capability scale developed by Lawson and Samson (2001), focusing on both incremental and radical innovations.

The questionnaire is pre-tested through a pilot study with a small sample of respondents from the target population to identify and correct any issues related to wording, structure, and timing.

In addition to the questionnaire, semi-structured interviews are conducted with selected industry experts, including business managers and digital transformation leaders. The interview outline is designed to explore in-depth perspectives on how digital transformation strategies are implemented, the role of organizational culture, and the impact on sustainable business development.

The interview questions are open-ended, allowing respondents to elaborate on their experiences and insights. The outline includes the following key themes:

Understanding Digital Transformation: Interviewees are asked to describe their experiences with digital transformation within their organizations, focusing on the strategies they have implemented and the challenges they have faced.

Role of Organizational Culture: Questions explore how organizational culture has influenced the adoption and success of digital transformation initiatives. Interviewees are encouraged to discuss the cultural attributes that have supported or hindered these processes.

Innovation and Sustainability: The interview also delves into how digital transformation strategies have impacted the organization's innovation capabilities and sustainable development. Interviewees provide examples of how innovation has been fostered through digital initiatives and how this has contributed to long-term business growth and sustainability.

Based on company population, the minimum acceptable sample size is 384. In order to increase the accuracy of the findings and generalizability of the conclusions, this study conducted a questionnaire study on the staff employees of the company. A total of 450 questionnaires were distributed and 397 valid questionnaires were returned.

Snowball sampling technique was used to identify and select employees of Company A as participants in this study. Initially, a number of employees who met the inclusion criteria were identified through industry contacts and publicly available databases. These employees were contacted and invited to participate in this study. The study used descriptive statistical analysis, correlation and regression analysis and structural equation modeling (SEM) analysis in the process of data analysis.

Research Finding

Demographic Statistics Study

As described in Table 1 above, the 397 respondents in this study consisted of 226 males (56.9%) and 171 females (43.1%) as shown in Table 1.

Table 1: Demographic of Respondents by Gender

Group	Number	Percentage
Male	226	56.9
Female	171	43.1
Total	397	100.0

As shown in Table 2, the 397 respondents in this study were 78 or 19.6% under the age of 25, 150 or 37.8% between the ages of 26 and 35, 98 or 24.7% between the ages of 36 and 45, 39 or 9.8% between the ages of 46 and 55, 21 or 5.3% between the ages of 56 and 65, and 11 or 2.8% above the age of 66.

Table 2: Demographic of Respondents by Age

Group	Number	Percentage
Below 25(inclusive)	78	19.6
26-35	150	37.8
36-45	98	24.7
46-55	39	9.8
56-65	21	5.3
66(inclusive) or above	11	2.8
Total	397	100.0

As shown in Table 3, among the 397 respondents in this study, 46 respondents (11.6%) have junior high school (including) or below education, 63 respondents (15.9%) have high school (vocational) education, 174 respondents (43.8%) have university/specialized education, 114 respondents (28.7%) have graduate (including) or above education.

Table 3: Demographic of Respondents by Academic Qualifications

Group	Number	Percentage
Junior high school (including) or below	46	11.6
High School (vocational)	63	15.9
University/specialized	174	43.8
Graduate (including) or above	114	28.7
Total	397	100.0

As shown in Table 4, among the 397 respondents of this study, there are 236 employees are junior staffs (59.4%), 121 employees are executives (30.5%), and 29 employees are Supervisors (7.3%), 11 employees are senior Supervisors (Manager or above) (2.8%).

Table 4: Demographic of Respondents by Position

Group	Number	Percentage
Junior staff	236	59.4
Executives	121	30.5
Supervisors	29	7.3
Senior Supervisors (Manager or above)	11	2.8
Total	397	100.0

Linear Regression Test Results

In the regression analysis of the effect between Digital Transformation Strategy and Sustainable Business Development, as can be seen from Table 5 and Table 6, the adjusted R-square is 0.218. Digital Transformation Strategy (independent variables) explains 21.8% of the variance in Sustainable Business Development (dependent variable). In the test of variance, the F-value is 111.201 and the significance p-value is .000b less than 0.01, which means that the regression model is highly significant at the 0.01 level and the model is usable and meaningful.

Table 5: Model summary

Models	R	R side	Adjusted r-square	Standard estimation error
1	.469 a	.220	.218	.71444

a. Predictive variable: (constant), Digital Transformation Strategy

Table 6: ANOVA

Models		Sum of squares	Degree of freedom	Mean Square	F	Sig
1	Return	56.760	1	56.760	111.201	.000b
	Residuals	201.617	395	.510		
	Total	258.377	396			

a. Sustainable Business Development

b. Predictor: (constant), Digital Transformation Strategy

Table 4-7 showed, after the analysis of coefficients, it was found that the unstandardized coefficient of Digital Transformation Strategy is 0.438, standardized coefficient is 0.469 and p-value is 0.000, which indicates that there is a significant positive correlation between Digital Transformation Strategy and Sustainable Business Development.

Table 7: The Impact of Digital Transformation Strategy on Sustainable Business Development

Models		Unstandardized coefficients		Beta	t	Sig
		B	Standard error			
1	(constant)	2.215	.153		14.439	.000
	Digital Transformation Strategy	.438	.042	.469	10.545	.000

a. Sustainable Business Development

Regulatory Effect Test Results

After the hierarchical regression analysis of the post-centering data, the significant level of the coefficient of the interaction term of the post-centering independent variable (Digital Transformation Strategy) with the moderator variable (Organizational Culture Assessment Instrument) can be seen according to Table 8. In this case, the significance level of the coefficient of the interaction term between the independent centered variable and the moderator variable is 0.214, which is greater than 0.05, indicating that the coefficient is not significant. Organizational learning does not significantly moderate the relationship between Digital Transformation Strategy and Sustainable Business Development.

Table 8: Hierarchical Regression Analysis Between Digital Transformation Strategy and Sustainable Business Development

Models	Unstandardized coefficients		Standardized coefficients	t	Sig
	B	Standard error	Beta		
1	(constant)	3.787	.036	105.626	.000
	Za	.438	.042		
2	(constant)	3.823	.046	83.346	.000
	Za	.418	.045		
	Zac interaction item	-- 048	.038	-- 060	-1.246 .214
a. Sustainable Business Development					

Mediation Effect Test Results

In the regression analysis of the impact of Digital Transformation Strategy on Innovation Capability, as shown in Table 9, the model summary shows a significance p value of less than 0.01, which means that the regression model is very significant at the 0.01 level, the model is usable and meaningful. In the regression analysis of the impact of Digital Transformation Strategy on Innovation Capability, it can see in the model summary in Table 9 that the significance p value of Digital Transformation Strategy on Innovation Capability is less than 0.01.

Table 9: The impact of Digital Transformation Strategy on Innovation Capability

Models	Unstandardized coefficients		Standardized coefficients	t	Sig
	B	Standard error	Beta		
1	(constant)	2.200	.176	12.531	.000
	Digital Transformation Strategy	.315	.048		
a. Dependent variable: Innovation Capability					

In the regression analysis of the impact of Innovation Capability on Sustainable Business Development, Table 10 model summary shows that the Innovation Capability has a significant p value of less than 0.01 for Sustainable Business Development; The absolute value of the coefficient of Digital Transformation Strategy for Sustainable Business Development in Model 2 is greater than that of Digital Transformation Strategy for Sustainable Business Development in Model 1, innovation Capability mediates between Digital Transformation Strategy and Sustainable Business Development.

Table 10: Regression Analysis Model summary

Models		Unstandardized coefficients		Beta	t	Sig
		B	Standard error			
1	(constant)	2.215	.153		14.439	.000
	Digital Transformation Strategy	.438	.043	.469	10.545	.000
2	(constant)	1.809	.177		10.195	.000
	Digital Transformation Strategy	.380	.043	.407	8.867	.000
	Innovation Capability	.184	.042	.196	4.284	.000
a. Sustainable Business Development						

Discussion

The study explored the relationships between Digital Transformation Strategy, Innovation Capability, and Sustainable Business Development within the context of a specific organizational setting. Several key findings emerged from the analysis, which contribute to the understanding of these constructs in the contemporary business environment.

First, the analysis revealed a significant positive correlation between Digital Transformation Strategy and Sustainable Business Development. The results indicated that the implementation of a robust digital transformation strategy significantly enhances an organization's ability to achieve sustainable business outcomes. Specifically, the regression analysis showed that Digital Transformation Strategy explains 21.8% of the variance in Sustainable Business Development, with a significant F-value ($p < 0.01$), demonstrating the critical role of digital initiatives in driving sustainable practices within organizations. This finding aligns with recent literature suggesting that digital transformation is pivotal for achieving long-term sustainability in businesses (Verhoef et al., 2021; Vial, 2019).

Second, the study examined the mediating role of Innovation Capability between Digital Transformation Strategy and Sustainable Business Development. The results indicated that Innovation Capability partially mediates this relationship, suggesting that the ability of an organization to innovate is a crucial mechanism through which digital strategies impact sustainable outcomes. This finding is supported by prior research, which emphasizes the importance of innovation as a driver of sustainable business practices (Lawson & Samson, 2001; Terziovski, 2010).

Moreover, the study tested the moderating role of Organizational Culture on the relationship between Digital Transformation Strategy and Sustainable Business Development. However, the results indicated that Organizational Culture does not significantly moderate this relationship. This finding suggests that while organizational culture is important, its influence may not be strong enough to alter the impact of digital strategies on sustainability outcomes. This contrasts with some previous studies that have highlighted the moderating effect of culture on organizational change and strategy implementation (Cameron & Quinn, 2021; Eccles, Ioannou, & Serafeim, 2021).

In conclusion, the study provides valuable insights into the interplay between digital transformation, innovation, and sustainability. It highlights the importance of digital strategies and innovation capabilities in achieving sustainable business development, while also suggesting that organizational culture may play a less significant role in moderating these relationships. These findings contribute to the broader literature on digital transformation and sustainability, offering practical implications for organizations seeking to enhance their sustainable practices through digital and innovative initiatives.

This study contributes significantly to the existing literature on digital transformation, innovation management, and sustainable business development by providing a comprehensive analysis of the interrelationships between these constructs. Several major contributions and theoretical implications emerge from the findings:

Integration of Digital Transformation and Sustainability Literature: One of the primary theoretical contributions of this research is the integration of digital transformation strategies within the broader context of sustainable business development. While prior studies have explored digital transformation and sustainability independently, this study bridges the gap by empirically examining how digital transformation strategies can directly influence sustainable business outcomes. This integration enriches the theoretical discourse by demonstrating that digital transformation is not merely a technological upgrade but a strategic pathway toward achieving sustainability in business operations (Verhoef et al., 2021; Vial, 2019).

Elucidation of Innovation Capabilities as a Mediator: The study provides empirical evidence supporting the role of innovation capabilities as a mediator in the relationship between digital transformation strategies and sustainable business development. By highlighting the mediating effect, this research extends the understanding of how digital transformation strategies lead to sustainable outcomes through the enhancement of an organization's ability to innovate. This finding is consistent with the dynamic capabilities' framework, which posits that organizations must continuously develop their innovation capabilities to maintain competitive advantage in a rapidly changing environment (Teece, 2021).

Reevaluation of Organizational Culture's Moderating Role: Contrary to some previous studies that have suggested a significant moderating effect of organizational culture on strategy implementation (Cameron & Quinn, 2021), this research found that organizational culture does not significantly moderate the relationship between digital transformation strategies and sustainable business development. This finding prompts a reevaluation of the existing theoretical models that emphasize the moderating role of culture, suggesting that the impact of digital transformation on sustainability may be more direct and less contingent on cultural factors than previously thought. This contribution encourages future research to explore other potential moderators or to reconsider the conditions under which culture may exert a more substantial influence.

Theoretical Implications for Strategic Management: The findings have broader theoretical implications for strategic management, particularly in the context of resource-based and capability-based views of the firm. By demonstrating the critical role of digital

transformation and innovation capabilities in driving sustainable development, the study contributes to the understanding of how firms can leverage their resources and capabilities to achieve long-term strategic goals. This aligns with the resource-based view, which asserts that the development and deployment of valuable, rare, inimitable, and non-substitutable (VRIN) resources, such as digital strategies and innovation capabilities, are essential for sustained competitive advantage (Bennett, N., & Lemoine, 2014).

In summary, this study not only advances theoretical knowledge in the fields of digital transformation, innovation management, and sustainability but also offers a nuanced understanding of the complex interactions between these constructs. The major contributions and theoretical significance highlighted in this research provide a solid foundation for future studies and offer valuable insights for practitioners aiming to align their digital strategies with sustainable business practices.

Limitations of the Research

Limited Generalizability: One of the primary limitations of this study is the restricted generalizability of the findings. The research was conducted within a specific context, focusing on Shanxi Coal Enterprise A. As a result, the findings may not be entirely applicable to other industries or regions.

Cross-Sectional Design: This study employed a cross-sectional design, which captures data at a single point in time. While this design is useful for identifying relationships between variables, it does not allow for the examination of changes over time or the determination of causality.

Self-Reported Data: The reliance on self-reported data from participants is another limitation. Self-reported data can be subject to biases, such as social desirability bias, where respondents may provide answers, they believe are more socially acceptable rather than reflecting their true opinions or behaviors.

Measurement Constraints: The study used specific scales to measure digital transformation strategies, sustainable business development, organizational culture, and innovation capabilities. While these scales were selected based on their reliability and validity in previous studies, they may not fully capture the complexity of these constructs.

Limited Exploration of Moderating and Mediating Variables: Although this study examined the moderating role of organizational culture and the mediating role of innovation capabilities, other potential moderators and mediators were not explored. Factors such as leadership style, regulatory environment, and technological readiness could also influence the relationship between digital transformation and sustainable business development.

Cultural and Contextual Factors: The cultural and contextual factors specific to the region and industry studied may have influenced the findings. For instance, the organizational culture of Shanxi Coal Enterprise A may differ significantly from that of companies in other regions or sectors.

These limitations highlight areas where further investigation is needed and suggest that future research could adopt a more comprehensive approach to studying digital transformation and sustainable business development.

Suggestion

Based on the findings of this study, several practical recommendations can be made for business managers seeking to enhance their organizations' sustainable business development through effective digital transformation strategies and innovation capabilities.

Policymakers play a crucial role in shaping the environment within which businesses operate, particularly in the context of digital transformation and sustainable development. The findings of this study suggest several key areas where policymakers can make impactful interventions.

These recommendations highlight the critical role that policymakers play in facilitating digital transformation and sustainable business practices. By implementing supportive policies, governments can help create an environment where businesses can thrive in the digital age while contributing to broader societal goals.

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