Journal of Business Administration and Languages (JBAL)
Thai-Nichi Institute of Technology
Vol.12 No.2 July - December 2024

ISSN 2774-0609 (Online)

JOURNAL OF BUSINESS ADMINISTRATION AND LANGUAGES

วารสารบริหารธุรกิจและภาษา

สถาบันเทคโนโลยีไทย-ญี่ปุ่น
ปีที่ 12 ฉบับที่ 2 กรกฎาคม - ธันวาคม 2567

วารสารบริหารธุรกิจและภาษา

Journal of Business Administration and Languages (JBAL)

ปีที่ 12 ฉบับที่ 2 กรกฎาคม – ธันวาคม 2567 Vol. 12 No. 2 July - December 2024

ISSN (Online) 2774–0609

ความเป็นมา

ด้วยสถาบันเทคโนโลยีไทย-ญี่ปุ่น มีนโยบายสนับสนุนการเผยแพร่บทความจากผลงานวิจัยที่มีคุณภาพ เพื่อเป็นประโยชน์ในการพัฒนาความรู้แก่สังคม โดยเฉพาะภาคธุรกิจและอุตสาหกรรม จึงได้จัดทำวารสารวิชาการ คือ วารสารบริหารธุรกิจและภาษา (เดิมชื่อ วารสารสถาบันเทคโนโลยีไทย-ญี่ปุ่น : บริหารธุรกิจและภาษา)

วัตถุประสงค์

1. เพื่อส่งเสริมและเผยแพร่ผลงานวิจัยสาขาบริหารธุรกิจและภาษาที่มีคุณภาพ
2. เพื่อเป็นสื่อกลางในการแลกเปลี่ยนองค์ความรู้ทางการวิจัยในสาขาบริหารธุรกิจและภาษา
3. เพื่อพัฒนาศักยภาพทางการวิจัยสาขาบริหารธุรกิจและภาษา

ที่ปรึกษา

รองศาสตราจารย์รังสรรค์ เลิศในสัตย์

ขอบเขตเนื้อหา

บทความวิจัยทางด้านบริหารธุรกิจและภาษา ได้แก่ บริหารธุรกิจ อุตสาหกรรมการผลิต มนุษยศาสตร์ สังคมสาสตร์ ภาษาศาสตร์ การศึกษา การศึกษาระหว่างวัฒนธรรม การสอนภาษา บริหารการศึกษา และสาขาอื่น ๆ ที่เกี่ยวข้อง

กำหนดออกเผยแพร่

วารสารตีพิมพ์เผยแพร่ราย 6 เดือน (ปีละ 2 ฉบับ)

- ฉบับที่ 1 มกราคม – มิถุนายน
- ฉบับที่ 2 กรกฎาคม – ธันวาคม

เจ้าของ

สถาบันเทคโนโลยีไทย-ญี่ปุ่น (Thai-Nichi Institute of Technology : TNI)

1771/1 ถนนพัฒนาการ แขวงสวนหลวง เขตสวนหลวง กรุงเทพฯ 10250

1771/1 Pattanakarn Rd., Suanluang, Bangkok 10250

การติดต่อกองบรรณาธิการ

1771/1 ถนนพัฒนาการ แขวงสวนหลวง เขตสวนหลวง กรุงเทพฯ 10250

Tel. 0-2763-2600 (Ext. 2704, 2752, 2782)

Website : https://so06.tci-thaijo.org/index.php/TNIJournalBA

E-mail : JBAL@tni.ac.th

บทบรรณาธิการ

ขอแสดงความยินดีกับนักวิจัยทุกท่านที่บทความได้ผ่านการประเมินจากผู้ทรงคุณวุฒิ และได้รับการตีพิมพ์ในวารสารบริหารธุรกิจและภาษา (JBAL) เล่มปีที่ 12 ฉบับที่ 2 นี้ ทุกบทความมีเนื้อหาที่มีคุณภาพและมีประโยชน์อย่างยิ่ง ทั้งในด้านวิชาการและด้านวิจัย เป็นข้อมูลสำหรับนักวิชาการท่านอื่น ๆ จักได้ใช้อ้างอิง และพัฒนางานวิจัยของตนเองต่อไป

วารสารวิชาการที่รวบรวมบทความวิจัยด้านภาษาและสังคมศาสตร์ รวมถึงด้านบริหารธุรกิจ ไว้ในเล่มเดียวกันนั้นมีน้อยมากในประเทศไทย ดังนั้นวารสาร JBAL จึงเป็นแหล่งรวมข้อมูลวิจัยดังกล่าว ที่จะเป็นประโยชน์ในการบูรณาการความรู้และการนำไปใช้ประโยชน์ ทั้งด้านการเรียนการสอน การวิจัย และการพัฒนาสู่การใช้งานจริง

มาตรฐานของวารสาร JBAL ได้รับการรับรองของ TCI (Thai-Journal Citation Index Centre) จึงได้รับความสนใจจากนักวิจัยทั้งในประเทศและจากนานาชาติมากขึ้น ปัจจุบัน JBAL ยังอยู่ในกลุ่ม TCI 2 แต่ทางกองบรรณาธิการได้ร่วมกันดำเนินการเพื่อผลักดันวารสารเข้าสู่ TCI 1 ให้ได้ในโอกาสต่อไป

ทางกองบรรณาธิการหวังว่า บทความที่ได้รับการตีพิมพ์ในวารสารฉบับนี้จะเป็นประโยชน์ต่อผู้อ่านทุกท่านในการอ้างอิงเพื่อการวิจัยและพัฒนาต่อไป

รองศาสตราจารย์ ดร.รัตติกร วรากูลศิริพันธุ์
บรรณาธิการ

Editorial Message

Congratulations to all researchers whose articles have passed the peer review and were published in the Journal of Business Administration and Languages (JBAL), Volume 12, Issue 2. All articles published in this issue have best quality contents and are extremely useful in academic and research aspects. The details in all published articles in this issue is useful for other scholars to use as a reference in their research works.

An academic journal that collects research articles in language and social sciences, including business administration in the same publication are very few in Thailand. Therefore, JBAL is a journal of such research information which will be useful in integrating knowledge and utilization.

JBAL has received the standard of recommendation from TCI (Thai-Journal Citation Index Centre), therefore it received more attention from both national and international researchers to submit their research articles to JBAL. Currently, JBAL is still in the TCI 2, but the editorial team has worked together in order to promote it to achieve TCI 1 at the next opportunity.

The editorial team hope that all articles that were published in this journal will be beneficial to all readers for citation to their research and development.

Assoc. Prof. Dr. Ruttikorn Varakulsiripunth
Editor-in-Chief

วารสารบริหารธุรกิจและภาษา

Journal of Business Administration and Languages (JBAL)

สารบัญ

Developing Propositions on Firm Capabilities, Business Network, Knowledge Management Practices and Dynamic Capabilities in the Thai Textile Industry

Rachata Rungtrakulchai[1] Tanyaporn Kanignant[2*]

[1]*Faculty of Business Administration, Thai-Nichi Institute of Technology, Bangkok, Thailand*
[2*]*Faculty of Information Technology, Thai-Nichi Institute of Technology, Bangkok, Thailand*

*Corresponding Author: E-mail Address: tanyaporn@tni.ac.th

Received: 5 November 2024; Revised: 6 December 2024; Accepted: 11 December 2024
Published online: 26 December 2024

Abstract

The Thai textile and garment industry faces challenges such as declining competitiveness, productivity limitations, and supply chain instability. This research investigates the factors influencing dynamic capabilities in this industry through a multiple-case study analysis of Thai textile and garment companies. The study reviews the relationships between firm capabilities, knowledge management practices, business network, and dynamic capabilities. By analyzing these companies' experiences, the research aims to establish an operational framework and research approach for exploring the relationship between firm capabilities, knowledge management practices, business networks, and dynamic capabilities. Five Propositions were hypothetically developed. Managers can make informed decisions about resource allocation, prioritize capability development initiatives, and strategically. The findings of the proposed research framework will provide insight for managers to make decisions about resource allocation, prioritize capability development initiatives, and strategically manage network partnerships to enhance their firm's dynamic capabilities.

Keywords: Business network, Dynamic capabilities, Firm capabilities, Knowledge management, Textile

I. INTRODUCTION

The textile and garment industry is key manufacturing sector for Thai economy, but its significance has declined in recent years. This decrease can be attributed to various challenges, including decreased competitiveness in production and marketing relative to neighboring countries, difficulties in enhancing productivity for medium and small producers, instability within domestic supply chains, and shifts in consumption and production patterns resulting from the COVID-19 pandemic.

Sirada Siribenchapruek (2022) mentioned in her study that Thailand's textile and garment industry is structured into three key segments. The first part is man-made fiber production, which serves as the upstream sector. This segment leverages the country's petrochemical factories, providing essential raw materials for synthetic fiber production. In contrast, natural fibers like cotton and linen are primarily imported from the United States and China due to Thailand's limited cultivation capacity, resulting in a shortfall of raw materials for industrial use.

The second component is yarn and textile spinning, classified as the midstream industry. This process involves transforming both man-made fibers and imported natural fibers into yarn through spinning, followed by weaving fabrics and applying bleaching, dyeing, or printing techniques before the materials advance to the downstream sector.

Finally, the production of other textiles and apparel constitutes the downstream industry, encompassing the manufacture of a diverse range of end products. This includes functional and technical textiles designed for specific applications, such as medical textiles and materials for various industries, as well as household textiles and clothing. Together, these segments illustrate the complexity and interdependence of Thailand's textile and garment industry.

In the past, the textile and garment industry was one of the most important economic sectors. However, its importance has declined due to three challenges: (1) lower competitiveness than other regional producers, especially for downstream and midstream products, according to the suspension of tax privileges and higher labor costs than other regional countries; (2) limitations on productivity enhancements, as most entrepreneurs are SMEs and small businesses with limited capital and limited use of technology; and (3) stability of the domestic textile and garment supply chain, due to a declining share of the global market (Patton, 2015)

For broader perspective, the textile and garment industry is a key pillar of global trade, fashion, functionality, and innovation. Driven by evolving consumer preferences, technological advances, market trends and companies' dynamic capabilities, it offers numerous opportunities (Priyanka, 2024).

The purpose of this research is to explore how firm capabilities influence dynamic capabilities in textile industry in Thailand. The next part will be research objectives, followed by literature reviews, research framework, research methodology, and the discussion at the end.

II. RESEARCH OBJECTIVES

1. To review the conceptualization of firm capabilities which relate to dynamic capabilities.

2. To develop the propositions for studying the relationship between firm capabilities, knowledge management practices and business network and dynamic capabilities.

3. To develop the operationalization and research framework for investigating the relationship between firm capabilities, knowledge management practices and business network and dynamic capabilities.

III. LITERATURE REVIEWS

The dynamic capabilities framework has been studied for decades, examining how private enterprises create and capture wealth in rapidly changing technological environments (Teece, Pisano, & Shuen, 1997; Zahra & George, 2002). Past literatures suggested that a firm's competitive advantage comes from unique processes for coordination, shaped by its specific assets—such as difficult-to-trade knowledge and complementary resources—and its evolutionary paths (Day, 1994; Kozlenkova, Samaha, & Palmatier, 2014). Ultimately, the framework highlights that generating wealth in such environments relies heavily on refining internal technological, organizational, and managerial processes (Morgan, Slotegraaf, & Vorhies, 2009).

A. Theoretical Background

This research is grounded in the Resource-Based View (RBV) of the firm, a prominent theory in strategic management that emphasizes the role of a firm's internal resources and capabilities in achieving a sustained competitive advantage (Barney, 1991). The RBV posits that resources must be valuable, rare, inimitable, and non-substitutable (VRIN) to contribute to a competitive advantage. Building upon this foundation, this study delves into the dynamic capabilities' perspective, which focuses on a firm's ability to integrate, build, and reconfigure its resources and capabilities to adapt to changing environments (Teece et al., 1997).

The Resource-Based View (RBV) has evolved significantly since its emergence in the 1980s. Early contributions by Miller (1960), Wernerfelt (1984), and Barney (1991) established the foundation, emphasizing the importance of valuable, rare, inimitable, and non-substitutable (VRIN) resources for achieving competitive advantage (Barney, 1991; Miller, 1960; Wernerfelt, 1984). The RBV shifted the focus of strategic management from external industry factors to internal firm resources and capabilities.

Over time, the RBV has been expanded and refined. The Knowledge-Based View (KBV) emerged, highlighting the strategic role of knowledge (Grant, 1996; Nonaka & Takeuchi, 1995). Dynamic capabilities addressed the need for firms to adapt and reconfigure resources in response to change (Teece et al., 1997). The relational view broadened the perspective to include inter-firm relationships and networks (Dyer & Singh, 1998). These developments have enriched the RBV and broadened its applications across various fields.

Today, RBV research continues to explore new frontiers, such as the micro-foundations of capabilities, sustainability, the digital age, and value creation. While challenges remain in measuring RBV constructs and addressing dynamic environments, the theory remains a cornerstone of strategic management, providing valuable insights into how firms can leverage their internal resources to achieve sustained competitive advantage.

B. Dynamic Capabilities

Tidd, Bessant, and Pavitt (2005) and Teece et al. (1997) provided the definition of dynamic capabilities as a firm's ability to integrate, build, and reconfigure internal and external competencies to respond to rapidly changing environments, ultimately fostering new and innovative competitive advantages despite existing path dependencies and market positions. This encompasses the firm's capacity to generate, develop, and implement new ideas, products, or processes that create value for both the firm and its customers.

Dynamic capabilities, as conceptualized by Teece et al. (1997), are the higher-order organizational processes that enable firms to adapt and reconfigure their resources and ordinary capabilities in response to changing environments. These capabilities are not merely a static set of skills, but rather the mechanisms through which firms integrate, build, and reconfigure their existing resources and capabilities to maintain a competitive edge (Eisenhardt & Martin, 2000). This continuous process of sensing, seizing, and reconfiguring allows firms to not only survive but thrive in dynamic markets (Teece et al., 1997). For example, a firm with strong R&D capabilities (a firm capability) can leverage those capabilities to develop new products that meet emerging customer needs (sensing and seizing). However, it is the firm's dynamic capability to reconfigure its production processes and reallocate resources to support the launch of those new products that ultimately leads to sustained competitive advantage (Wang & Ahmed, 2007). In this way, dynamic capabilities build upon and extend existing firm capabilities to ensure ongoing adaptation and success.

C. Innovation Capabilities

There was number of literatures defined Innovation Capabilities, for example; “the ability to continuously transform knowledge and ideas into new products, processes, and systems that create value for the customer and the firm.” (Tidd et al., 2005), “a set of organizational processes and routines that enable firms to generate new ideas, select promising ones, and implement them into new products, services, and processes.” (Wang & Ahmed, 2007), or “organizational processes designed to create, develop and transform technological capabilities into new products, processes and services.” (Lawson & Samson, 2001). For these literatures, Innovation Capabilities can be summarized as a firm's ability to generate, develop, and implement new ideas, products, or processes that create value for the firm and its customers. Innovation capabilities involve a combination of creativity, problem-solving, experimentation, and knowledge management (Teece et al., 1997; Zahra & George, 2002). They enable firms to stay ahead of competitors, adapt to changing market conditions, and drive growth. Therefore, based on this literature review, we can define innovation capabilities as the organizational processes and routines that enable a firm to continuously generate, develop, and implement new ideas, products, processes, and services to create value for the customer and the firm. These capabilities involve the transformation of knowledge and ideas into tangible outcomes, and are influenced by the firm's ability to learn, adapt, and reconfigure its resources in response to a changing environment.

E. Marketing Capabilities

Previous literature defined Marketing Capabilities as “complex bundles of skills and accumulated knowledge, exercised through organizational processes that enable firms to coordinate activities and make use of their assets.” (Day, 1994), “the processes that deploy resources and integrate market knowledge to understand and satisfy customer needs.” (Morgan et al., 2009), “dynamic, firm-specific processes that transform marketing resources into superior market performance.” (Kozlenkova et al., 2014), or “the ability to perform marketing activities effectively and efficiently.” (Homburg, Theel, & Hohenberg, 2020) Based on these definitions, therefore, Marketing Capabilities can be defined as Marketing capabilities are the integrated processes and skills that allow a company to effectively understand and respond to its market by conducting market research, adapting to change, using resources wisely, and ultimately creating value for both the customer and the company.

Market Capabilities includes the ability to conduct market research, develop effective branding strategies, create compelling advertising campaigns, and build strong customer relationships. Marketing capabilities also involve the ability to adapt to changing market conditions, identify new opportunities, and differentiate the firm's products or services from competitors (Day, 1994). For examples, Market research, branding, advertising, customer relationship management, customer service, sales force effectiveness, pricing strategy, distribution channels

F. Operational Capabilities

Operational capability can be described by Hayes and Wheelwright (1984) that it is a firm's ability to efficiently manage core operations, encompassing supply chain management, production efficiency, quality control, and cost management. It involves coordinating activities from raw material procurement to product delivery, producing goods at minimal cost and waste, ensuring products meet customer expectations, and controlling expenses across the organization. Operational Capabilities can be also defined as "the specific set of abilities, processes, and routines that a firm regularly uses to transform inputs into outputs." (Wu, Melnyk, & Flynn, 2010), which emphasized the transformative aspect and the recurring nature of these capabilities within a firm's operations.

To assess operating capabilities, firms should measure performance against key priorities—cost, quality, delivery, flexibility, and innovation—relative to competitors (Nand, Singh, & Bhattacharya, 2014; Narasimhan & Das, 2001)

Knowledge Management Practices

Nonaka and Takeuchi (1995) defined knowledge management as the process of "creating, sharing, and using knowledge to enhance organizational performance." They emphasize the dynamic and social nature of knowledge creation, highlighting the importance of tacit knowledge and its conversion into explicit knowledge (Nonaka & Takeuchi, 1995). Gold, Malhotra, and Segars (2001) define knowledge management practices as "the organizational routines and processes that facilitate the acquisition, creation, storage, transfer, and utilization of knowledge." This definition emphasizes the role of organizational routines and processes in enabling effective knowledge management (Gold, Malhotra, & Segars, 2001). Knowledge management supports seizing opportunities by enabling firms to identify and leverage relevant knowledge to develop new products, services, and processes. By sharing knowledge and best practices, firms can quickly mobilize resources and respond to emerging opportunities (Grant, 1996). Sharing knowledge across departments and teams enhances communication and coordination, enabling firms to reconfigure their resources more effectively (Davenport & Prusak, 1998). Firms could apply knowledge to solve problems, improve processes, and develop new offerings is essential for seizing opportunities and adapting to changing market conditions (Alavi & Leidner, 2001)

G. Business Network

The term "business network" is often used interchangeably with other terms such as "strategic network," "strategic alliance," and "alliance network.". Previous literature defined business network as "a set of relationships among firms." This simple definition highlights the core idea of interconnectedness between organizations" (Gulati, 1998). Gulati, Nohria, and Zaheer (2000) defined strategic networks as "the pattern of relationships that a firm has with other firms." They emphasize the importance of the network structure and the firm's position within the network in determining its access to resources and opportunities (Gulati, Nohria, & Zaheer, 2000). Dyer and Singh (1998) introduce the "relational view," emphasizing that resources are embedded within interfirm relationships. They argue that business networks can be a source of competitive advantage when they enable firms to access and leverage resources that they wouldn't be able to access individually (Dyer & Singh, 1998).

For this study, base from the mentioned literatures, the definition of business network can be defined as "A business network is a web of interconnected relationships between companies, individuals, and other organizations within a specific industry or market." These relationships, which can be formal or informal, involve the exchange of resources, information, and influence, and can be a source of competitive advantage by providing access to resources and facilitating learning and adaptation. The structure of the network and a firm's position within it are crucial in determining its access to opportunities and its ability to reconfigure resources and co-evolve with other firms in the network. This interconnectedness allows firms to sense and seize opportunities, contributing to the development of their dynamic capabilities and ultimately, their success in dynamic markets.

Measuring business networks involves assessing the quantity and quality of connections a firm has with other businesses, individuals, and organizations. This includes analyzing the network's size, density, and a firm's position within it (Gulati, 1998; Gulati et al., 2000). It also involves examining the strength, type, and resources exchanged within those relationships (Dyer & Singh, 1998). Ultimately, the impact of the business network on a firm's innovation, finances, market position, and adaptability should be evaluated (Lavie, 2006). Data for this analysis can be gathered through surveys, interviews, social network analysis tools, and archival data.

H. Building Dynamic Capabilities Upon Firm Capabilities

Dynamic capabilities, as Teece et al. (1997) articulated, represent a firm's capacity to adapt and reconfigure its resources and competencies to navigate a changing environment. They are not merely a static set of skills, but rather the processes that enable a firm to *integrate*, *build*, and *reconfigure* its existing capabilities to maintain a competitive edge. Essentially, dynamic capabilities are about strategically leveraging and modifying existing firm capabilities to respond to new challenges and opportunities.

Think of firm capabilities as the foundation—the essential skills and knowledge a company possesses. These might include operational efficiency, marketing prowess, or innovative product development (Dosi, Nelson, & Winter, 2000). Dynamic capabilities, then, are the architectural plans that allow a company to reshape that foundation. They enable a firm to sense shifts in the market (perhaps using its marketing capabilities), seize new opportunities (by leveraging innovation capabilities), and reconfigure its operations (drawing on operational capabilities) to meet those evolving demands (Eisenhardt & Martin, 2000). This continuous process of sensing, seizing, and reconfiguring allows firms to not only survive but thrive in dynamic markets.

For example, a firm with strong R&D capabilities (a firm capability) can leverage those capabilities to develop new products that meet emerging customer needs (sensing and seizing). However, it is the firm’s dynamic capability to reconfigure its production processes and reallocate resources to support the launch of those new products that ultimately leads to sustained competitive advantage (Wang & Ahmed, 2007). In this way, dynamic capabilities build upon and extend existing firm capabilities to ensure ongoing adaptation and success.

IV. RESEARCH FRAMEWORK

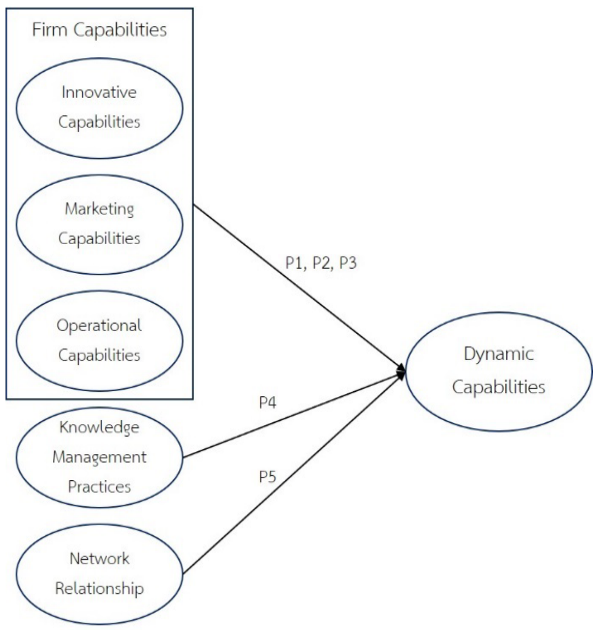


Figure 1: Research framework

Figure 1 illustrates conceptualized based on the Resource-Based View (RBV) approach, with a focus on how different types of firm capabilities contribute to the development of dynamic capabilities. For the research framework, the research propositions are developed to describe the relationships between constructs in the research model.

Proposition 1: Innovative capabilities are positively associated with the development of dynamic capabilities within a firm.

Innovative capabilities, which involve generating new ideas, experimenting, and adapting to technological changes (Lawson & Samson, 2001; Tidd et al., 2005), are essential for firms to sense and seize new opportunities. This continuous process of exploration and learning enhances a firm's ability to adapt and reconfigure its resources and strategies, which are key aspects of dynamic capabilities (Teece et al., 1997). By fostering a culture of innovation, firms become more adept at identifying and responding to changes in the environment, ultimately strengthening their dynamic capabilities.

Proposition 2: Marketing capabilities are positively associated with the development of dynamic capabilities within a firm.

Marketing capabilities, with their emphasis on understanding customer needs and market trends (Day, 1994), are crucial for sensing changes in the external environment. By effectively deploying market research, branding, and customer relationship management, firms can gather valuable insights into customer preferences, competitor actions, and emerging opportunities. This market knowledge enhances their ability to seize opportunities and reconfigure their offerings to maintain a competitive advantage, reflecting the core processes of dynamic capabilities (Morgan et al., 2009).

Proposition 3: Operational capabilities are positively associated with the development of dynamic capabilities within a firm.

Operational capabilities, which focus on efficiency, quality, and responsiveness in delivering products or services (Wu et al., 2010), provide a strong foundation for dynamic capabilities. Firms with strong operational capabilities can quickly adapt and reconfigure their processes and resources to meet new demands and challenges. This operational flexibility enables them to seize opportunities and respond effectively to changes in the market, which are essential aspects of dynamic capabilities (Roscoe, Cousins, & Lamming, 2019).

Proposition 4: Knowledge management practices are positively associated with the development of dynamic capabilities within a firm.

Knowledge management practices facilitate the creation, sharing, and utilization of knowledge within the organization (Grant, 1996; Nonaka & Takeuchi, 1995). This knowledge is crucial for sensing changes in the environment, identifying new opportunities, and reconfiguring resources to adapt to those changes. By effectively managing knowledge, firms can enhance their organizational learning, which is a key driver of dynamic capabilities.

Proposition 5: Strong network relationships are positively associated with the development of dynamic capabilities within a firm.

Strong network relationships provide firms with access to external resources, knowledge, and opportunities (Gulati, 1998). This access enhances their ability to sense changes in the environment, seize new opportunities through collaboration, and reconfigure their resources by leveraging their network partners (Dyer & Singh, 1998). By participating in business networks, firms can learn from others, gain access to new markets, and adapt more quickly to changing conditions, all of which contribute to the development of dynamic capabilities.

Table 1 provides a concise overview of the key constructs in your research framework, along with their definitions, important considerations for measurement, and relevant citations.

Table 1: Firm capabilities

Construct	Definition	Key Considerations	Citations
Innovative Capabilities	The organizational processes and routines that enable a firm to continuously generate, develop, and implement new ideas, products, processes, and services to create value for the customer and the firm.	- Focus on both product and process innovation - Consider the role of knowledge creation and learning - Assess the firm's ability to adapt and respond to technological changes	Lawson and Samson (2001) Tidd et al. (2005) Wang and Ahmed (2007)
Marketing Capabilities	The processes that deploy resources and integrate market knowledge to understand and satisfy customer needs.	- Emphasize customer focus and market orientation - Consider the integration of marketing resources and activities - Assess the firm's ability to adapt to market changes and build strong customer relationships	Day (1994) Vorhies and Morgan (2005) Morgan, et al. (2009)
Operational Capabilities	The firm's ability to consistently and reliably perform activities that transform inputs into outputs to meet customer requirements.	- Focus on efficiency, effectiveness, and quality - Consider the role of process improvement and resource integration - Assess the firm's ability to meet customer demands and adapt to operational challenges - Firms should measure performance against key priorities—cost, quality, delivery, flexibility, and innovation—relative to competitors	Wu, Melnyk, and Flynn (2010) Roscoe et al. (2019) Narasimhan and Das (2001); Nand et al. (2014)
Knowledge Management Practices	The processes and systems a firm uses to create, capture, share, and apply knowledge.	- Emphasize knowledge creation, sharing, and utilization - Consider the role of technology and organizational culture - Assess the impact of knowledge management on innovation and firm performance	Grant (1996) Nonaka and Takeuchi (1995)
Business Network	The pattern of relationships that a firm has with other firms, involving the exchange of resources, information, and influence.	- Consider the type, strength, and diversity of relationships - Assess the impact of network position and structure - Evaluate the role of trust and collaboration within the network	Gulati (1998) Dyer and Singh (1998)
Dynamic Capabilities	The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.	- Focus on the processes of sensing, seizing, and reconfiguring - Assess the firm's ability to adapt and transform in response to environmental changes - Consider the role of organizational learning and strategic flexibility - Key elements include creativity, problem-solving, experimentation, and knowledge management, which drive value creation for the firm and its customers.	Teece et al. (1997) Eisenhardt and Martin (2000) Tidd et al. (2005)

V. RESEARCH METHODOLOGY

This research employs a case study analysis approach to determine the relationships between firm capabilities, knowledge management practices, network relationships, and the development of dynamic capabilities. Yin (2014) defines case study analysis as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." This methodology allows for an in-depth exploration of real-world cases, providing rich contextual insights into how firms leverage their resources and connections to adapt and thrive in dynamic environments (Yin, 2014). In addition, the case study approach emphasizes the importance of studying phenomena with the nature of firms' behaviors.

The research will involve purposefully selecting a small number of companies from a single industry and of varying sizes and performance levels. In this case study research, the sampling technique employed could be purposive sampling. This technique is widely used in qualitative research when the goal is to select cases that are particularly informative and relevant to the research question (Patton, 2015). A sample size of 3 companies is proposed. This is a common sample size for multiple-case studies, allowing for in-depth analysis of each case while also enabling cross-case comparisons.

Data collection will utilize a multi-faceted approach, including semi-structured interviews with key informants, analysis of company documents, and potentially on-site observations. This triangulation of data sources will ensure a comprehensive understanding of each case.

The collected data will be analyzed using qualitative techniques such as coding, categorization, and thematic analysis, first examining each case individually and then comparing and contrasting findings across cases. This rigorous analysis will uncover patterns and relationships between firm capabilities, knowledge management practices, network relationships, and the development of dynamic capabilities, while considering the unique context of each company.

Through this in-depth case study approach, the research aims to provide valuable insights into the factors that contribute to organizational agility and adaptability. The findings will have implications for both academic understanding of dynamic capabilities and practical guidance for managers seeking to enhance their firms' ability to navigate and succeed in today's ever-changing business landscape.

VI. DISCUSSION

This research offers valuable theoretical insights by demonstrating how diverse firm capabilities, including innovation, marketing, operations, and knowledge management, collectively contribute to the development of dynamic capabilities. It also emphasizes the crucial role of external network relationships in fostering organizational agility. By integrating these elements, the study refines the Resource-Based View and advances dynamic capabilities theory, providing a more comprehensive understanding of the antecedents and drivers of dynamic capabilities.

For research methodology, case study analysis provides a powerful method for testing the research propositions by enabling in-depth data collection from multiple sources and offering a rich contextual understanding of how firm capabilities, network relationships, and dynamic capabilities interact within real-world companies. Through within-case and cross-case analysis, researchers can identify patterns, build explanations, and refine propositions based on empirical evidence. This iterative process ensures that the propositions are grounded in real-world observations and contribute to a deeper theoretical understanding of the relationship between these constructs.

Essentially, case studies allow researchers to move beyond abstract theorizing and delve into the complexities of how firms actually operate and adapt. By analyzing multiple cases, comparing and contrasting their experiences, and drawing evidence-based conclusions, this research can develop contributions that offer valuable insights for both academics and practitioners in the field of strategic management.

The findings of this research offer practical guidance for managers. By understanding the interconnectedness of various capabilities and network relationships, managers can make informed decisions about resource allocation, prioritize capability development initiatives, and strategically manage network partnerships to enhance their firm's dynamic capabilities. This knowledge empowers managers to navigate change, seize opportunities, and ultimately achieve a sustained competitive advantage.

Future research can build upon this framework by empirically testing the proposed relationships, exploring moderating factors, and conducting longitudinal studies to examine the long-term impact of dynamic capabilities on firm performance. Further investigation into specific capabilities and cross-cultural comparisons can provide even deeper insights into the complexities of organizational adaptation and competitive advantage in a dynamic global environment.

REFERENCES

Alavi, M., & Leidner, D. E. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly, 25*(1), 107–136. doi: 10.2307/3250961

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120.

Davenport, T. H., & Prusak, L. (1998). *Working Knowledge: How Organizations Manage What They Know*. Boston, MA: Harvard Business School Press.

Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing, 58*(4), 37–52.

Dosi, G., Nelson, R. R., & Winter, S. G. (2000). *The Nature and Dynamics of Organizational Capabilities.* New York, NY: Oxford University Press.

Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *The Academy of Management Review, 23*(4), 660–679.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they?. *Strategic Management Journal*, *21*(10-11), 1105–1121.

Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, *18*(1), 185–214. doi:10.1080/07421222.2001.11045669

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, *17*(S2), 109–122.

Gulati, R. (1998). Alliances and networks. *Strategic Management Journal, 19*(4), 293–317.

Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal, 21*(3), 203–215.

Hayes, R. H., & Wheelwright, S. C. (1984). *Restoring our Competitive Edge: Competing Through Manufacturing*. New York, NY: John Wiley & Sons.

Homburg, C., Theel, M., & Hohenberg, S. (2020). Marketing excellence: Nature, measurement, and investor valuations. *Journal of Marketing, 84*(4), 1–22. doi:10.1177/0022242920925517

Kozlenkova, I. V., Samaha, S. A., & Palmatier, R. W. (2014). Resource-based theory in marketing. *Journal of the Academy of Marketing Science, 42*(1), 1–21.

Lavie, D. (2006). The competitive advantage of interconnected firms: An extension of the resource-based view. *The Academy of Management Review, 31*(3), 638–658.

Lawson, B., & Samson, D. (2001). Developing innovation capability in organisations: A dynamic capabilities approach. *International Journal of Innovation Management, 5*(3), 377–400.

Miller, W. (1960). The theory of the growth of the firm by Edith Tilton Penrose. [Review of the book *The Theory of the Growth of the Firm,* by E. T. Penrose]. *Business History Review, 34*(4), 508–509. doi:10.2307/3111440

Morgan, N. A., Slotegraaf, R. J., & Vorhies, D. W. (2009). Linking marketing capabilities with profit growth. *International Journal of Research in Marketing, 26*(4), 284–293.

Nand, A. A., Singh, P. J., & Bhattacharya, A. (2014). Do innovative organisations compete on single or multiple operational capabilities?. *International Journal of Innovation Management, 18*(3), 1–17.

Narasimhan, R., & Das, A. (2001). The impact of purchasing integration and practices on manufacturing performance. *Journal of Operations Management, 19*(5), 593–609.

Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford, England: Oxford University Press.

Patton, M. Q. (2015). *Qualitative Research & Evaluation Methods: Integrating Theory and Practice* (4th ed.). London, England: SAGE Publications.

Priyanka. (2024). The textile industry in 2024: Market, trends, challenges and outlook. *Textiles & Garments Newsletter, 9,* 3–6. Retrieved from https://www.cacci.biz/wp-content/uploads/2024/07/2024-01-Textiles-Garments-IX.pdf

Roscoe, S., Cousins, P. D., & Handfield, R. (2019). The microfoundations of an operational capability in digital manufacturing. *Journal of Operations Management, 65*(8), 774–793.

Sirada Siribenchapruek. (2022). How can Thai textiles continue to be sustainable? (in Thai). *FAQ Focused and Quick,* (195), 1–10. Retrieved from https://www.bot.or.th/content/dam/bot/documents/th/research-and-publications/research/faq/FAQ_195.pdf

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533.

Tidd, J., Bessant, J., & Pavitt, K. (2005). *Managing Innovation: Integrating Technological, Market and Organizational Change* (3rd ed.). Chichester, England: John Wiley.

Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews, 9*(1), 31–51.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal, 5*(2), 171–180.

Wu, S. J., Melnyk, S. A., & Flynn, B. B. (2010). Operational capabilities: The secret ingredient. *Decision Sciences, 41*(4), 721–754.

Yin, R. K. (2014). *Case Study Research: Design and Methods* (5th ed.). Thousand Oaks, CA: Sage.

Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review, 27*(2), 185–203.

Developing Translation and Interpretation Services: Insights from Benchmarking Thai University Service Units

Todsaporn It-ngam[1*] Rapeephan Kunprayoonsawat[2]

[1*,2]*Language Institute, Burapha University, Chon Buri, Thailand*

*Corresponding Author. E-mail address: todsaporn@go.buu.ac.th

Received: 15 May 2024; Revised: 21 August 2024; Accepted: 30 August 2024
Published online: 26 December 2024

Abstract

This qualitative study explores the potential of X University, a pseudonym for a Thai public university located in Chon Buri province, to establish a Center of Excellence in Translation and Interpretation for the Eastern Economic Corridor (EEC) and nearby communities. The objective is to develop strategies for the Center to become a pivotal agency in improving translation and interpretation quality within the EEC. Data collection involved semi-structured interviews with directors and staff from four university-based service units and one professional association in Thailand, analyzed through content analysis. Through comprehensive benchmarking of these units, the research identifies key strategic, performance, process, and product dimensions that influence the effectiveness and efficiency of translation and interpretation services. The findings reveal the critical roles of a skilled translator and interpreter network, flexible administrative structures, and the integration of academic and non-degree programs in addressing market demands. The absence of formal interpreter services at the studied centers highlights a unique opportunity for X University to distinguish itself and enhance translation services in the EEC. These insights contribute to a broader understanding of how translation and interpretation impact local and global economies by facilitating international business, enhancing cross-cultural communication, and improving the quality of life through better healthcare, legal, and business interactions.

***Keywords*:** Benchmarking, Eastern economic corridor, Interpretation, Translation, University service units

I. INTRODUCTION

Translation and interpretation are terms that may be used interchangeably in many contexts, yet they differ both theoretically and practically. Several studies (Millán & Bartrina, 2013; Newmark, 1988) state that translation involves converting text from one language to another in written form and includes multiple influencing factors. Interpretation, on the other hand, involves the oral transfer of meaning between languages to facilitate communication among speakers of different languages, which may occur consecutively or simultaneously. Pöchhacker (2016) notes that immediacy is perhaps the most distinct difference between interpretation and translation. Although these two fields differ in some respects, their primary purposes are nearly identical: both serve as mediums and bridges, connecting people from different countries with diverse languages and cultures. They play a crucial role in overcoming language barriers, fostering intercultural understanding, and contributing to economic growth (Kumari, 2019; Millán & Bartrina, 2013; Ojeda & Muñoz, 2019).

In Thailand, translation and interpretation also play the significant role in economic development. This is because translation facilitates effective communication between Thais and foreigners, enhancing efficiency in daily life and business activities. For instance, in public services, healthcare, legal proceedings, and community relations, translation acts as a bridge across language barriers, ensuring accuracy and cultural appropriateness in communication, reducing social issues, enhancing economic opportunities. Additionally, it promotes mutual understanding and equality within Thai society (Auschala Chalayonnavin, 2019; Yamamoto, 2019).

The demand for translation and interpreting services in Thailand has increased across various business sectors (Netima Burapasiriwat, 2020; Tongtip Poonlarp, 2016; Tongtip Poonlarp & Nattharath Leenakitti, 2016). For instance, in the manufacturing industry, there is a growing need for translators to facilitate communication for foreign executives (Ratchanee Piyathamrongchai, 2018). Additionally, the expansion of the MICE (Meetings, Incentive Travel, Conventions, Exhibitions) sector has significantly enhanced the importance of interpreting and translation services (Auntiga Phung-nga, Thanawut Limpanitgul, Pimphun Sujarinphong, & Wanvipha Hongnaphadol, 2016). In the tourism sector, translation plays a crucial role in accommodating international tourists (Korawan Phromyaem, 2022; Puttachart Limsiriruengrai, 2022). The rising demand for translation and interpreting services in Thailand corresponds with the economic expansion in both the industrial and service sectors.

To drive the country's economy, the government has designated the Eastern Economic Corridor (EEC), covering three provinces: Chon Buri, Rayong, and Chachoengsao. The objective is to modernize the country in preparation for the next decade, aiming to link the country's economy with the areas within the EEC region attracting a significant number of international companies, foreign investors, and multinational organizations to the area (Eastern Economic Corridor (EEC), 2019). This leads to cross-cultural interactions and business transactions. Consequently, there is an increasing demand for translation and interpretation to facilitate communication between Thais and foreigners, including businessmen, tourists, and expatriates with specific purposes such as medical treatment, conferences and seminars, and long-term residency in this area. Hence, excellent translation and interpretation services in the EEC area must address both the quality of language translation and the translators' knowledge of industries, tourism, and services, including cultural information.

Although the demand for translation and interpretation is increasing in the EEC area, there are still significant gaps in meeting these needs. To the best of the researchers' knowledge, there is currently a limited number of professional translators and interpreters with knowledge of the Eastern region context. This is evident from the limited number of translation and interpretation service units within educational institutions in Chon Buri, Rayong, and Chachoengsao provinces, which include both public and private universities, totaling 20 (Ministry of Higher Education, Science, Research and Innovation, 2020). Only one university, X University (a pseudonym for a Thai public university located in Chon Buri), has an official translation center providing academic services to the community. However, according to the information on the center's website, even X University's translation center cannot be considered excellent because it does not offer interpretation services and other components. It is foreseen that challenges may be posed for businesses, organizations, and individuals seeking accurate and culturally sensitive language services due to the lack of translation and interpretation service centers in this area. Furthermore, various activities may be hindered due to the absence of high-quality language services.

Therefore, it is crucial to establish a Center of Excellence in Translation and Interpretation, especially at X University as the main university in the EEC and the Eastern region (MGR Online, 2020). This research adopts the benchmarking method following Stapenhurst's guidelines (2009), comparing and studying the leading university-based translation and interpretation centers in Bangkok and nearby areas.

The objective of this research is to establish strategies to make the Center of Excellence in Translation and Interpretation in the Eastern region a key agency in bridging gaps and enhancing the quality of language translation in the EEC area. However, while this research has a specific focus on the Eastern region, there is currently a lack of studies comparing the operations of leading translation units in Thailand. The findings from this research can be used as guidelines for developing the potential of translators and interpreters, as well as elevating the standards of the translation and interpretation industry at the national level.

II. LITERATURE REVIEWS

A. Benchmarking

Benchmarking refers to a method of assessing and improving an organization's performance by comparing itself with the best organizations (Stapenhurst, 2009). This comparison might involve processes such as process benchmarking, key performance indicator (KPI) benchmarking, and practice benchmarking, where an organization compares its own business processes, performance indicators, and practices with industry leaders or the best companies at the same level. The goal of benchmarking is to identify areas for improvement and develop plans to adopt best practices, leading to enhanced efficiency, competitiveness, productivity, and profitability. This comparison enables organizations to pinpoint areas or aspects that require improvement and implement strategies for future enhancement in productivity and profitability.

1) Types of Benchmarking: In this research, benchmarking is categorized by objectives, including product benchmarking, strategy benchmarking, performance benchmarking, and process benchmarking (Akarapong Untong & Mingsarn Kaosa-ard, 2014; Akera Ratchavieng, Suriya Wachirawongpaisarn, Patamanun Hirantirawat, Anan Sillapee, & Phongsak Phakamach, 2022).

Product benchmarking involves comparing one's organizational products with those of industry leaders or top companies. The goal is to identify attributes that maximize customer satisfaction, pinpoint market strengths and weaknesses, and develop strategies to enhance product performance and competitiveness.

Strategy benchmarking entails studying and analyzing one's organizational strategies against those of other similar or related industry entities. This aims to gain insights and understand effective strategies that can improve one's organizational strategies, often used by long-established organizations.

Performance benchmarking assesses and improves one's organizational performance against industry standards and competitors. It focuses on identifying areas for improvement and setting performance goals by comparing with industry leaders and best practices, ultimately providing data to pinpoint potential weaknesses and establish realistic improvement targets.

Process benchmarking evaluates internal organizational processes against those of other organizations to identify the most efficient and effective methods to achieve desired outcomes. This may involve analyzing aspects like cost, time, quality, resource utilization, and customer satisfaction, helping organizations identify problems, inefficiencies, or areas needing enhancement, leading to improved performance and innovation.

2) Benchmarking Process Steps: The benchmarking process can vary in complexity. For instance, Robere (2000) suggests a 10-step process, which includes: (1) selecting the process to be improved, (2) forming a team, (3) identifying the companies or units to benchmark against, (4) collecting and analyzing data from these entities, (5) identifying performance gaps and strengths, (6) studying the company's systems, (7) communicating findings at all levels, (8) setting performance goals, (9) developing and implementing an action plan, monitoring progress, and (10) re-evaluating and repeating the benchmarking process as necessary.

However, these steps can be simplified into a three-step process according to (Stapenhurst, 2009):

3) Objective Setting and Criteria Establishment: Determine the benchmarking objectives and standards, such as cost reduction, increased productivity, or improved customer satisfaction in the industry sector.

4) Data Collection and Analysis: Recruit benchmarking partners, collect relevant data, and conduct a detailed analysis.

5) Implementation of Insights: Use the analysis results to guide process improvements or to make decisions about selecting the best processes to implement.

B. Service User's Needs

To develop strategies for advancing translation and interpretation centers in the EEC area, in addition to benchmarking with the leading centers, it is crucial to understand the needs of the service users. Translation and interpretation services can be categorized into two types based on the employment nature: (1) the needs for services through intermediaries, such as university translation and interpretation centers and interpretation agencies, and (2) the needs for in-house translators and interpreters, such as factory interpreters.

1) Needs for Services via Intermediaries: In the current job market, most translators and interpreters operate as freelancers (Risku, Pein-Weber, & Milosevic, 2016). Although freelancers may work directly with clients, they often work through intermediaries, such as document translation companies and interpreter providers. These agencies secure translation or interpretation jobs from clients and then subcontract freelancers to complete the tasks, charging clients an additional fee over the freelancers' compensation. Direct client engagement typically costs less as it involves only the freelancers' fees.

Despite limited studies on client expectations from translation and interpretation agencies, a study in Austria by Risku et al. (2016) found that clients expect agencies to provide accurate and timely translations. Clients expect translators to have expertise in specific fields, native proficiency in the target language, and the ability to adhere to specified formats and terminologies. Additionally, clients value ongoing communication with translators to address questions and clarify doubts during the translation process. These expectations are likely applicable to interpretation services as well.

2) Needs for In-house Translators and Interpreters: Employing full-time translators and interpreters might involve dedicated positions or roles combined with other tasks. The latter is often found in industrial factories, (Tongtip Poonlarp, 2016; Tongtip Poonlarp & Nattharath Leenakitti, 2016) where employers generally prioritize language skills over specialized knowledge or other skills.

However, these employees typically perform more interpreting than document translation (Netima Burapasiriwat, 2020; Wannida Yuenyong, 2019). Sansoen Sattavorn (2020) found that in-house language translators play primary roles such as interpreting in various company scenarios, including meetings and escorting clients, as well as translating documents. Their secondary roles include additional tasks assigned by supervisors that are unrelated to their interpreter positions, such as design and sales tasks. Therefore, in addition to strong language skills, employers may also value additional qualifications including proficiency in English and other additional languages, computer skills, and soft skills like teamwork, creativity, and problem-solving abilities.

III. RESEARCH METHODOLOGY

This study employed a benchmarking process targeting four leading university translation and interpretation centers. Qualitative content analysis (Krippendorff, 2018) was used as a methodology to collect information from the centers' websites, which included general data such as history, mission, services, and pricing. These data were then compared with each other and used to prepare for asking more detailed questions in the semi-structured interviews with the directors and staff of the centers. The guideline questions for the semi-structured interview are listed in table 1. Additionally, a focus group discussion was conducted with executives from a professional translation and interpretation association in Thailand, referred to as "Association T" (a pseudonym). The term 'focus group discussion' was used to differentiate this data collection process from the semi-structured interviews, highlighting its flexibility (Krueger & Casey, 2009). According to Krueger and Casey, focus group discussions are more flexible, allowing participants to feel more comfortable, respected, and free to express their opinions without being judged. The main purpose of the discussion with Association T was to complement the semi-structured interviews with the university-based service centers, which do not provide interpretation services. The discussion focused on identifying the best ways for the new center to provide interpretation services in the EEC region.

The centers, pseudonymously named Center A, B, C, and D, were selected based on their public service provision, longstanding experience, and willingness to provide information (as presented in table 2). Centers A, B, and C are recognized leaders associated with undergraduate and graduate programs in translation and interpretation. Center D, while also offering translation and interpretation services, is more akin to a language school and is not affiliated with any academic translation or interpretation programs. Despite their designation, all four centers primarily provide translation services, with insufficient data available on interpretation services.

Three executives from Association T, all experts in translation and interpretation, were invited to participate due to their experience and willingness to provide in-depth information about interpretation. This involvement was crucial as initial data collection revealed that the information from the four centers was inadequate for interpretation-related insights. The focus group discussion aimed to collaboratively define appropriate types of interpretation services, service process models, pricing, and compensation rates, along with other considerations.

Table 1: Guideline questions

Categories	Questions
A. Strategies	1. What is the vision of the center? 2. What is the mission of the center? 3. What is the history of the center? 4. How does the center achieve continuous fame and success?
B. Performance	1. What are the short-term and long-term plans of the center? 2. What are the performance indicators of the center? 3. What are the center's performance outcomes?
C. Process	1. What is the organizational structure of the center? 2. How are the workflows of each service at the center structured? 3. What specific technologies or equipment does the center use?
D. Product	1. What are the products and services of the center? 2. Who are the center's customers? 3. How does the center evaluate and maintain customer satisfaction? 4. How does the center improve the quality of its products and services?

Table 2: Details of the subjects

Subjects*	Details
Center A	This center, part of the Faculty of Arts, has provided translation services for over 35 years, covering Thai, English, Chinese, Japanese, Korean, and more. Faculty members perform translations. The center also offers master's programs and training in translation and interpreting.
Center B	This center, part of the Faculty of Liberal Arts, offers document translation services in Thai and various foreign languages, including English, French, Danish, and German. Established for over 20 years, it conducts translator and interpreter training and administers professional certification exams. Faculty members perform translations.
Center C	This center, part of the Academic Service Center at a university's Language Research Institute, offers document translation in Thai and 30 languages, including Southeast Asian languages. Faculty and external experts perform translations. The center also offers a master's program, training, and publishes textbooks in translation.
Center D	This center is a unit under the Faculty of Humanities at a university, established for over 30 years. It provides foreign language training and document translation services in languages such as English, Chinese, Korean, Japanese, and others. Translations are carried out by faculty members from the Faculty of Humanities.
Association T	This association is a legally registered professional organization established 30 years ago. Its members include translators, interpreters, publishers, and related organizations. The association's activities include training in translation and interpreting, as well as translation competitions. However, the association does not provide document translation or interpreting services.

**Pseudonyms*

The data collection and analysis procedures, adapted from Krippendorff (2018), are outlined as follows:

1) Define Research Questions: Evaluate and compare translation and interpretation services at four university centers, focusing on strategy development for the Eastern Economic Corridor (EEC).

2) Select Data Sources: Data gathered from websites of university centers (Centers A, B, C, and D) and semi-structured interviews and focus groups with center staff and executives from Association T.

3) Sampling: Selected Centers A, B, C, and D based on their program integration and willingness to provide information, alongside three executives from Association T for their industry expertise.

4) Define Units of Analysis: Analyzed textual data from websites and transcripts from interviews and focus groups, focusing on history, mission, services, and pricing.

5) Develop Categories and Coding Schemes: Created categories and a coding scheme based on guideline questions to systematically analyze responses.

6) Pilot Testing: Conducted a pilot test with two researcher coders to refine coding categories and ensure consistency.

7) Coding: Applied detailed manual coding to website content and interview transcripts.

8) Analyze Data: Used a benchmarking matrix to compare data across centers and analyzed focus group discussions to gauge consensus on service needs in the EEC.

9) Ensure Reliability and Validity: Reliability maintained by consistent coding; validity checked by two researchers reviewing coding and analysis.

10) Reporting: Documented methodology and findings in a final report, offering recommendations for enhancing services and outlining strategic implications.

11) Conclusion of Findings: Synthesized benchmarking insights and focus group discussions into actionable strategies, concluding analysis in July and August 2023.

IV. RESULTS AND DISCUSSION

A. University-Based Translation and Interpretation Centers

The benchmarking of four university-based translation and interpretation centers was conducted by gathering data from their websites and through interviews with executives and staff at each center. Grounded in benchmarking theory, which emphasizes systematic comparisons to foster continuous improvement, this study utilized a Benchmark Matrix to analyze the findings. The framework provided by Robere's (2000) benchmarking strategies guided the assessment across four key dimensions: strategy benchmarking, performance benchmarking, process benchmarking, and product benchmarking. These dimensions helped explore strategic goals, monitor performance, adjust processes, and evaluate service offerings to enhance operational outcomes. The detailed analysis led to the following conclusions.

1) Strategy Benchmarking: The strategy emphasized by all four centers revolves around reputation, stemming from the quality of translation work and the expertise of the translators. Most translators at these centers are foreign language professors teaching at universities, with only a few being freelancers. Centers A, B, and C have a well-defined quality review system, including a secondary language reviewer to verify translation accuracy before delivering to clients. This is illustrated in the following dialogue with the director of Center A.

Researcher: "How have you continuously built the reputation and success of this translation and interpretation center?"

Director: "The main factor is our translators. Other factors are secondary. (...) We don't do much beyond finding skilled translators and ensuring quality. For example, we don't send the work directly to clients immediately after receiving it from translators. We also have secondary language reviewers. If it's a translation of a foreign language, we use native speaker reviewers. (...) Another point is that we often take on challenging tasks, such as translating Thai culture, temples, coins, and woven fabrics. We have translators capable of handling such work, which is why government agencies frequently come to us, knowing we have translators who can do the job."

The fact that these centers can have secondary language reviewers and handle difficult translation tasks shows that they have a substantial network of translators. Center D, however, relies on the expertise of its translators, and due to a smaller number of available translators for certain languages, it cannot always implement a secondary review process. Thus, having an ample network of skilled translators familiar with the languages and subjects relevant to the center's focus areas is crucial.

Moreover, the strategy of enhancing reputation is also achieved through demonstrating academic expertise in translation and interpretation. The leading centers are linked with undergraduate and graduate courses, integrating these into their services through academic activities such as workshops, seminars, collaborations, and research initiatives. The following excerpts illustrate how Centers A, B, and C actively engage in these activities.

Director A: "Since the start of the master's program in Translation in 1999, it has been offered every year. (..) Currently, there have been more than 20 batches for English-Thai translation. (...) The master's program in Interpreting is offered every other year, with about 10 batches so far. Additionally, there are regular academic service projects, such as legal translation, short-term interpreting, and interpreter training, including simultaneous interpreting courses, which are offered once per semester. (...) Some of these courses are very popular, and registration fills up within just 2-3 days."

Director B: "The center's strategy has five aspects. The first is to achieve academic excellence by organizing seminars and training sessions on translation and interpreting. We hold training sessions twice a year and provide translation and interpreting services. (...) The second aspect is to promote education, which includes conducting research, developing the translation profession, and producing translated works by the center's committee. The current project we are working on is translating the royal speeches of King Rama IX."

Director C: "Our institute offers a master's degree program, originally named XXX, which includes a translation track. It is one of the first universities in the country to offer a master's degree in translation, probably since the late 1990s. As you can see, there are many theses on translation in this room. The current program includes both English language teaching and translation tracks. The professor who founded the translation track was renowned in the translation field and had strong connections with professional translation associations, which led to the establishment of our translation center."

On the other hand, despite being established for over 30 years, Center D's primary mission is revenue generation rather than research and academic programs. Its affiliation with an academic department might overshadow its academic reputation goals. Unlike Centers A, B, and C, which are specifically established for translation and interpretation with missions separate from academic service revenue generation, Center D operates under the academic services department of a faculty, which might lead to less focus on academic reputation. The summary of the strategy benchmarking is presented in table 3.

Table 3: Strategy benchmarking summary

Center	Strategy Benchmarking Summary
Center A	Focuses on reputation through quality translation and academic integration. Offers regular academic projects and master's programs. Uses university professors with secondary language reviewers for complex tasks.
Center B	Prioritizes academic excellence and educational advancement through frequent training sessions and research. Employs university professors and incorporates secondary reviewers in quality assurance.
Center C	Combines academic integration with strong professional connections. Established translation tracks in master's programs, linked with professional translation associations. Uses secondary reviewers for advanced tasks.
Center D	Aims for revenue generation, operating under the academic services department with limited academic activities. Employs university professors but faces challenges in secondary reviews due to limited translator availability.

The strategy focusing on reputation due to quality and expertise (Tongtip Poonlarp & Nattharath Leenakitti, 2016) underscores the necessity of maintaining a high standard in translation services, reflecting Newmark's (1988) emphasis on accuracy in translation. Centers A, B, and C implement a robust quality review system, which not only aligns with international standards (Millán & Bartrina, 2013) but also mirrors the best practices recommended in academic settings, reinforcing the pivotal role of academic integration in translation services (Ojeda & Muñoz, 2019). This strategic integration supports the notion that centers connected with academic institutions tend to enhance their reputational capital through scholarly activities, which can significantly impact their service delivery and client satisfaction (Kumari, 2019).

2) Performance Benchmarking: Centers A, B, and C each have specific annual plans or objectives for their translation services. In contrast, Center D does not have specific plans and objectives for translation services because translation is part of a broader service offering that focuses more on foreign language training, as shown in the following excerpt from the interview with the director of Center D.

Director D: "Actually, our language center is not a translation center per se. Therefore, we count all projects in the annual planning. We don't separate them into training projects or translation projects because sometimes we might not have any translation projects at all for the whole year, or there might just be one, or there could be several projects throughout the year. (...) It's just another service of the language center, which has many other projects. (...) Our KPI is the total revenue of the center, not separated by project types."

However, having such plans can contribute to greater job challenges for staff, potentially leading to better performance outcomes.

Additionally, it is observed that Center A likely performs the best in terms of the volume of translation work and revenue, despite not engaging in aggressive marketing. This superior performance could be attributed to its reputation, quality, and the diversity of expertise among its translators, which allows it to accept challenging translation tasks that other centers might refuse. Consequently, even though these tasks command higher fees, clients are willing to pay for the services offered by Center A due to its ability to handle complex translations.

The specific annual plans or objectives for translation services adopted by Centers A, B, and C illustrate a strategic approach that aligns with Robere's (2000) benchmarking strategies for continuous improvement. Center A's superior performance, attributed to its reputation and the diversity of expertise among its translators, echoes findings from Stapenhurst (2009), who notes that clear strategic objectives contribute to higher operational performance. This center's ability to handle complex translations which other centers refuse showcases the practical application of high standards in translation as discussed by Pöchhacker (2011). The summary of the performance benchmarking is presented in table 4.

Table 4: Performance benchmarking summary

Center	Performance Benchmarking Summary
Center A	Has specific annual plans focused on translation services. Known for excellent performance in volume and revenue without aggressive marketing, excels in handling complex translations that command higher fees.
Center B	Implements specific annual plans, focusing exclusively on translation services. Engages in strategic planning for continuous improvement, though specific performance metrics are not detailed.
Center C	Like Centers A and B with specific annual plans for translation services. Details on performance metrics are not specified but likely align with strategic continuous improvement goals.

Table 4: Performance benchmarking summary (Cont.)

Center	Performance Benchmarking Summary
Center D	Lacks specific plans for translation, offering a mix of language services. Performance measured by total center revenue, with translation just one part of a broader service offering.

3) Process Benchmarking: In terms of processes, Centers A, B, C, and D show a similar direction. It was found that each of the four centers has 1-2 staff members specifically tasked with coordinating translation services. All four centers also implement a certification stamp for verified translations. Centers A, B, and D have a process where completed translations are sent to the client for review, and only after ensuring that there are no errors do they apply the certification stamp.

There are, however, differences in operational procedures among the centers. For example, in the payment process, there are three payment models: full payment before the translation begins, partial payment (deposit) before the translation starts, and payment on the day the translation is received. In terms of ethical or ethical risk document screening, Centers B and C explicitly state that they do not accept translations of research abstracts, theses intended for graduation submission, academic position applications, or any documents that are inappropriate, defamatory, or illegal.

Director B: "(..) We will not accept translation jobs for dissertations because we believe it is the responsibility of the students to do it themselves, including research works that professors will use for academic promotion. It's also a matter of research ethics (and ours). We have consulted with the head of the Research Ethics Committee, who told us that we could translate questionnaires or experimental reports, but for dissertations or research papers, he didn't specify clearly. He left it to us to decide, and we chose not to accept translations for those."

The uniform process across Centers A, B, C, and D, involving specific coordination roles and certification stamps for translations, highlights a standard industry practice that ensures quality and accountability (Risku et al., 2016). The variations in payment processes among the centers reflect their individual operational strategies and client handling techniques, which can influence their market competitiveness and financial sustainability (Akarapong Untong & Mingsarn Kaosa-ard, 2014). The ethical considerations in document screening at Centers B and C align with broader professional standards that emphasize ethical responsibility in translation practices (Valdeón, 2021). The summary of the process benchmarking is presented in table 5.

Table 5: Process benchmarking summary

Center	Process Benchmarking Summary
Center A	Employs 1-2 staff members for translation coordination. Uses a certification stamp for verified translations. Translations are reviewed by clients before the final stamp is applied. Uses standard payment models without specific ethical restrictions.
Center B	Like A in staffing and certification processes. Ethical document screening prohibits translations of theses, research abstracts, and similar documents for academic integrity. Offers multiple payment options including full and partial payments.
Center C	Staffing and certification like A and B. Also adheres to strict ethical screening standards, rejecting documents that could compromise academic or professional integrity. Payment models include options for full and partial pre-payments.
Center D	Coordinates translation services with 1-2 dedicated staff. Implements a certification stamp like the other centers. Reviews translations before certification but does not specify ethical restrictions or detailed payment models.

4) Product Benchmarking: In benchmarking products and services, it was found that all four centers, A, B, C, and D, offer similar types of services, primarily translation and training or seminars. However, there are distinct offerings among them: one center offers a Master's program in translation and another in interpretation, one center conducts standardization tests for translators, another publishes translation-related books, and another offers foreign language training. Regarding quality development in translation work, all centers agreed on the importance of translators being experts in the specific subjects they translate. Additionally, a process may be needed for a third party to verify the accuracy of translations.

Regarding translation clients, the four centers have similar types of clients, including government agencies, private sector companies, shops, and individuals. However, the proportion of clients in each group can vary based on the center's context and expertise. For instance, some centers, located in research-focused universities with extensive medical and health science faculties, have a higher number of clients needing scientific and medical document translation.

However, none of the four centers offer interpreter services. Interviews with executives revealed that providing interpretation services is not suitable for university translation centers due to cost considerations. The overhead fees required by the university can make the service fees uncompetitive, as shown in the excerpt from the interview with the director of Center A.

Director A: "We let our clients contact the interpreters directly because if we offered interpreting services like translation services, the fees would be very expensive. We would need to ask the interpreters how much they would charge, then we would have to add a 10% profit for the center and another 10% for the faculty. The price would end up being much higher. Therefore, we do not intend to specialize in this area."

Moreover, as illustrated in the following excerpt from the interview with the director of Center D, interpretation often requires specific equipment and can be limited by the university faculty's schedule constraints, as interpreting work sometimes involves travel to different provinces or extends over several days or even months, which regular faculty members with teaching responsibilities cannot accommodate.

Director C: "Actually, our center focuses more on translation even though we often have clients contacting us for interpreters. Currently, there are faculty members who work as interpreters, but they are hired privately because if hired through the center, the process would be more complicated. For instance, we would need to prepare equipment and plan for solving potential problems in advance."

The diverse offerings among the centers, such as specialized master's programs and translation standardization tests, indicate a tailored approach to meeting specific client needs and expanding their service portfolio (Sununta Siengthai, 2015). The emphasis on translator expertise in specific subjects they translate is crucial for maintaining service quality and is in line with industry standards that demand specialized knowledge and skills (Sansoen Sattavorn, 2020). The absence of interpreter services across the centers, as revealed through executive interviews, points to a strategic decision influenced by cost considerations and operational challenges, which align with the broader market dynamics observed in public service interpretation sectors (Yamamoto, 2019). The summary of the product benchmarking is presented in table 6.

The discussions and findings from the benchmarked translation and interpretation centers highlight their operational dynamics and strategic orientations, resonating with several theoretical frameworks that enhance the understanding of their practices. Applying benchmarking theory, as described by Robere (2000), demonstrates how these centers continually improve through clear strategic goals and quality management, supported by Newmark's (1988) emphasis on maintaining high translation standards to enhance reputation. The significance of Academic and Professional Integration is evident in the role of educational activities in professional practice, aligning with the views of Ojeda and Muñoz (2019). Insights from Human Resource Management theories explain the centers' staffing strategies and development practices, which are crucial for adapting to the dynamic demands of translation services. Lastly, strategic decisions around not offering interpreter services, analyzed through Yamamoto (2019), reflect cost considerations and market dynamics, pointing to a nuanced understanding of service provision within the competitive landscape of translation and interpretation services.

Table 6: Product benchmarking summary

Center	Product Benchmarking Summary
Center A	Offers translation and training seminars, plus a Master's program in translation. Does not offer interpreter services due to cost considerations, allowing clients to directly contact interpreters. Focuses on expert translators in specific subjects.
Center B	Provides translation services, training, and publishes translation-related books. Does not offer interpreter services, focusing instead on expanding its translation offerings with educational materials.
Center C	Offers translation and training, conducts standardization tests for translators, and has a Master's program in interpretation. Similar to others, does not provide interpreter services, focusing on translation specialization.
Center D	Offers translation and foreign language training. Lacks interpreter services due to logistical challenges and faculty constraints. Focuses more on translation while accommodating clients needing interpreters privately.

B. Focus Group Discussion

From a focus group with three representatives from Association T, key insights emerged about the interpreting services provided by the university translation and interpretation centers. These insights can be analyzed using several frameworks: Interpreting Services Strategy (Yamamoto, 2019) for understanding strategic decisions on Community and Conference Interpreting; Human Resource Management (Tongtip Poonlarp & Nattharath Leenakitti, 2016; Sununta Siengthai, 2015) for staffing and compensation strategies; Ethical and Professional Standards (Valdeón, 2021) for precautionary measures like cancellation policies; and Service Provision and Client Relationship Management (Risku et al., 2016) for balancing client expectations with operational challenges.

1) Types of Interpreting Services: The interpreting services are categorized into Community Interpreting and Conference Interpreting:

Community Interpreting caters to nearby community activities such as at police stations, hospitals, and tourist sites, and can be offered on-site or remotely (online or by telephone). This immediacy in service provision necessitates on-call availability of interpreters due to the urgent nature of requests. This mode of interpreting supports the findings of Netima Burapasiriwat (2020) who emphasizes the dynamic requirements of interpreters in the labor market, particularly in terms of responsiveness and availability. Community interpreting can be further subdivided into free and paid services:

Free services, ideal for public welfare activities, also serve as a training ground for students or novice interpreters, highlighting an educational component like internship opportunities discussed by Sununta Siengthai (2015), which enhance practical skills through real-world experience.

Paid services are more commercial or require specialized expertise for longer durations. The integration of freelance interpreters in paid services reflects the flexibility needed in professional interpreting as discussed in Millán and Bartrina (2013), emphasizing the diverse professional paths within translation and interpreting.

Conference Interpreting necessitates experienced and professional interpreters, capable of operating both onsite and remotely. This requirement underscores the high level of expertise needed, aligning with Pöchhacker (2016) discussion on the professional standards and rigorous training required for conference interpreters. The necessity for pre-event coordination and the inability to provide immediate service align with the organizational challenges noted by Ojeda and Muñoz (2019), who highlight the logistical complexities in scheduling and planning interpreting services. Conference interpreting is divided into two sub-types: Consecutive Interpreting (CI) and Simultaneous Interpreting (SI).

Consecutive Interpreting (CI) involves the interpreter translating after the speaker has spoken. This can be done both at the actual event location or online (e.g., via Zoom). CI does not require special equipment, just an appropriate setting from the event organizers. The time for interpretation should match the speaking time, without summary or abbreviation.

Simultaneous Interpreting (SI) involves translating at the same time as the speaker is speaking. This type requires special equipment. The center should manage equipment rental to ensure quality, avoiding any inconvenience that might arise from poor-quality equipment provided by the client. For events longer than an hour, two interpreters are typically needed to work together, with both being compensated.

2) Precautions in the Interpreting Process: Travel and Accommodation for Interpreters: Incorporating travel time into the hired duration addresses the logistical aspects of service provision, aligning with Valdeón (2021) who emphasizes the practical considerations in providing interpretation services.

Job Cancellation: The cancellation policy reflects a common practice in service industries where terms are designed to minimize financial loss while accommodating client needs, a balance discussed in Risku et al. (2016) as crucial for maintaining client-provider relationships.

Compensation Differences Between CI and SI: This segment illustrates the nuanced understanding of the skills required for different types of interpreting, which (Sununta Siengthai, 2015) suggests should be recognized in human resource practices within the interpreting sector.

Half-Day and Full-Day Rates: Establishing specific rates for different durations of service provision not only standardizes billing practices but also aligns with industry norms where service duration directly influences compensation, as noted by Tongtip Poonlarp and Nattharath Leenakitti (2016).

The discussions from the focus group reveal a complex landscape of interpreting services that require nuanced management of human resources, strategic planning, and a deep understanding of the professional and ethical standards in the interpreting industry. These findings highlight the critical role of universities in preparing interpreters to meet the diverse and dynamic demands of the market.

In conclusion, the benchmarking of four university-based translation and interpretation centers revealed key insights across strategic, performance, process, and product dimensions. Centers A, B, and C focus on maintaining high standards in translation quality and academic integration, which enhances their reputation and operational outcomes, aligning with benchmarking theory and reputation management frameworks. Center D, in contrast, prioritizes revenue generation with less emphasis on academic reputation. The study also highlighted how human resource strategies and ethical considerations, particularly in handling complex translations, contribute to service quality. Additionally, all centers face challenges in offering interpretation services due to cost and logistical constraints, reflecting broader market dynamics. These findings underscore the importance of clear strategic goals, quality management, and academic integration in shaping the effectiveness of translation and interpretation centers.

V. CONCLUSION

This study explores the crucial role of reputation and quality management in university-based translation centers and offers actionable strategies for enhancing service offerings to meet global market demands. By applying benchmarking theory and reputation management frameworks, the research presents a robust model for universities seeking to strengthen their translation and interpretation services. Key findings suggest that strategic adjustments, such as the introduction of interpretation services and the adoption of flexible administrative structures, can significantly enhance an institution's ability to meet client needs while fostering cross-cultural communication. These insights contribute to the existing literature by highlighting the pivotal role academic institutions can play in the translation industry, with broader implications for both community engagement and global economic integration. The following section delves into a detailed discussion of these findings, offering a deeper analysis of their significance and potential applications.

The findings of this research indicate that X University is well positioned to establish a “Center of Excellence in Translation and Interpretation” to serve the Eastern Economic Corridor (EEC) and its surrounding communities. Transforming the existing document translation unit into a center of excellence would necessitate a strategic restructuring of both management and services to better meet client expectations. This evolution would not only enhance the university's service offerings but also promote the development of skilled translators and interpreters who can support the growing demands within the EEC region.

Key strategies that X University’s Translation and Interpreting Center could adopt are closely aligned with the theoretical frameworks of Reputation and Quality Management, as well as Human Resource Management. First, maintaining a network of skilled translators and interpreters, including both university faculty and professional freelance translators, would not only uphold but enhance the center's reputation for delivering high-quality services. This approach supports the findings of Millán and Bartrina (2013) and Newmark (1988), emphasizing that reputation in the translation industry is deeply tied to the consistency and accuracy of services provided.

Second, adopting a flexible administrative structure that facilitates rapid service delivery, including sufficient operational staff, aligns with the recommendations of (Sununta Siengthai, 2015) in managing human resources effectively. This flexibility is crucial for balancing academic duties with professional service offerings, allowing the center to respond efficiently to client needs without compromising quality. Third, the center should play a pivotal role in producing highly qualified translators and interpreters through both degree and non-degree programs. This integration of academic and professional activities is supported by Ojeda and Muñoz (2019), who stress the importance of academic institutions in shaping the next generation of professionals.

A key finding of this research is that no existing university-based centers formally offer interpretation services, which represents a gap in the market. If X University’s center were to introduce interpretation services, it would differentiate itself significantly in the competitive landscape. According to Yamamoto (2019), offering such services requires careful consideration of cost constraints, but the potential benefits in terms of reputation and service diversification could outweigh these challenges.

Moreover, interpreting services at X University need not operate on a fully commercial basis due to resource limitations. Instead, the center could focus on community interpretation, which is ideal for university faculty and students seeking practice. This approach would require less preparation time, contribute to a positive community image, and provide valuable hands-on experience. For conference interpretation, a more specialized service, the center could collaborate with professional partners, thereby balancing the resource demands while still offering high-quality services.

The findings of this research extend beyond X University, offering valuable insights for a variety of organizations that aspire to promote the quality of translation and interpretation services. The strategic approaches identified in this research can significantly enhance the capacity of both university-based and other institutions to respond effectively to the needs of the local and global economy. By fostering proficient translation and interpretation services, these centers can facilitate international business, enhance cross-cultural communication, and contribute to global connectivity. By improving communication barriers, these centers facilitate better business practices, healthcare delivery, and legal processes, thereby enhancing economic efficiency and social integration. They not only support economic growth by enabling smoother transactions and interactions on a global scale but also play a crucial role in enhancing community engagement and participation. Therefore, the structured and strategic models derived from this study provide a robust framework for institutions to elevate their translation and interpreting services, thereby making a substantive impact on both local communities and the global marketplace.

ACKNOWLEDGEMENT

This work was financially supported by (i) Burapha University (BUU), (ii) Thailand Science Research and Innovation (TSRI), and (iii) National Science Research and Innovation Fund (NSRF) (Fundamental Fund: Grant no. HU033/2566).

REFERENCES

Akera Ratchavieng, Suriya Wachirawongpaisarn, Patamanun Hirantirawat, Anan Sillapee, & Phongsak Phakamach. (2021). 360° Benchmarking: High-performance innovative organization tools (in Thai). *Rattanakosin Journal of Social Sciences and Humanities, 3*(3), 47–65.

Akarapong Untong, & Mingsarn Kaosa-ard. (2014). Spas performances benchmarking and operation efficiency (in Thai). *Applied Economics Journal, 21*(1), 1–19.

Auschala Chalayonnavin. (2019). The working process for human trafficking resolution in order to reduce the risk of human trafficking incidents over the cross border region (in Thai). *NKRAFA Journal of Humanities and Social Sciences, 7*, 43-54.

Auntiga Phung-nga, Thanawut Limpanitgul, Pimphun Sujarinphong, & Wanvipha Hongnaphadol. (2016). *The study of convention capability of Thailand: The study of Thailand MICE capability* (in Thai). Retrieved from Thailand Science Research and Innovation (TSRI) website: https://elibrary.tsri.or.th/fullP/RDG5850048/RDG5850048V04/RDG5850048V04_full.pdf

Eastern Economic Corridor (EEC). (2019). *About EEC: Who we are*. Retrieved from https://www.eeco.or.th/en/vision-mission

Korawan Phromyaem. (2022). The study of linguistic landscape of Chinese language and the translation methods of business names in tourism areas of Chiang Mai (in Thai). *Journal of Human Sciences, 23*(1), 257–278.

Krippendorff, K. (2018). *Content Analysis: An Introduction to Its Methodology* (4th ed.). Los Angeles, CA: SAGE Publications.

Krueger, R. A., & Casey, M. A. (2009). *Focus Groups: A Practical Guide for Applied Research* (4th ed.). Thousand Oaks, CA: SAGE Publications.

Kumari, A. (2019). Translation and globalisation. *Contemporary Literary Review India, 6*(2), 11–24.

MGR Online. (2020, September 18). 3 Major agencies jointly launch 'EEC Automation Park' project at Burapha University (in Thai). *MGR Online*. Retrieved from https://mgronline.com/local/detail/9630000095659

Millán, C., & Bartrina, F. (2013). *The Routledge Handbook of Translation Studies*. Oxfordshire, England: Routledge.

Ministry of Higher Education, Science, Research and Innovation. (2020). *Number of higher education institutions, academic year 2020, classified by province* (in Thai). Retrieved from https://data.mhesi.go.th/dataset/univ_uni_11_05

Netima Burapasiriwat. (2020). Needs assessment for labor market of Korean interpreter in Thailand: A case study in online job advertisement (in Thai). *Korean Language and Cultural Studies Journal, 2*(1), 153–173.

Newmark, P. (1988). *A Textbook of Translation*. Hertfordshire, England: Prentice-Hall International.

Ojeda, B. M., & Muñoz, M. L. R. (Eds.). (2019). *Translation in and for Society: Sociological and Cultural Approaches in Translation*. Córdoba, Spain: UCOPress.

Pöchhacker, F. (2011). Conference interpreting. In K. Malmkjær & K. Windle (Eds.), *The Oxford Handbook of Translation Studies* (pp. 307–324). doi:10.1093/oxfordhb/9780199239306.013.0022

Pöchhacker, F. (2016). *Introducing Interpreting Studies* (2nd ed.). Oxfordshire, England: Routledge.

Puttachart Limsiriruengrai. (2022). Research to obtain guidelines for Thai-English translation for developing linguistic landscape in tourist attractions in Thailand. *Manutsayasat Wichakan, 29*(2), 200–222.

Ratchanee Piyathamrongchai. (2018). Thai interpreters' roles and problems in cultural differences in the context of japanization: A case study of Japanese enterprises in the industrial estate of Thailand (in Thai). *Journal of Language, Religion and Culture, 7*(2), 51–90.

Risku, H., Pein-Weber, C., & Milosevic, J. (2016). "The task of the translator": Comparing the views of the client and the translator. *International Journal of Communication, 10,* 989–1008.

Robere, P. J. (2000). *Benchmarking: A Systems Approach for Continual Improvement* (in Thai). Bangkok, Thailand: Durakitbundit University Press.

Sansoen Sattavorn. (2020). Predictors of Japanese interpreters' organizational commitment (in Thai). *NIDA Business Journal, 26*, 153–171.

Stapenhurst, T. (2009). *The Benchmarking Book: A How-to-Guide to Best Practice for Managers and Practitioners*. Oxford, England: Butterworth-Heinemann.

Sununta Siengthai. (2015). Japanese-style human resource management in Thailand (in Thai). *Japanese Studies Journal, 32*(2), 1–17.

Tongtip Poonlarp. (2016). Investigating the needs for interpreters in the Thai labor market through online job advertisements (in Thai). *Journal of Letters, 45*(2), 263–303.

Tongtip Poonlarp, & Nattharath Leenakitti. (2016). "What do employers want?" A study of online job advertisements for translators in Thailand (in Thai). *Journal of Language and Culture, 35*(2), 7–33.

Valdeón, R. A. (2021). Perspectives on interpreting. *Perspectives, 29*(4), 441–453.

Wannida Yuenyong. (2019). *Problems regarding Japanese interpretation conducted by Thai interpreters in industrial factories of Thailand: A case study of differences between novice and professional interpreters* (in Thai) (Master's thesis). Retrieved from https://ethesisarchive.library.tu.ac.th/thesis/2019/TU_2019_6006032046_11420_11592.pdf

Yamamoto, K. (2019). Toward deployment of public service interpreting and translation in Thailand: The Japanese case from a comparative perspective. *Kasetsart Journal of Social Sciences, 40*(2), 303–310.

Economics of Chess Investment Based on Secondary Analysis of YouTuber Videos

Yu-Chin Wen*

Thai-Nichi International College (TNIC), Thai-Nichi Institute of Technology, Bangkok, Thailand

*Corresponding Author. E-mail address: yuchin@tni.ac.th

Received: 26 April 2024; Revised: 3 July 2024; Accepted: 11 July 2024
Published online: 26 December 2024

Abstract

This qualitative research study investigates the question about the most economical way of investing time and money in both the career and hobby of chess and to evaluate their opportunity costs. Using reflexive thematic analysis on secondary data of global chess industry experts' commentaries and discussions on YouTube revealed 9 themes that are related to making economical investments on chess as a career or a hobby. Having a career in chess is strongly not recommended because it is filled with high risks and uncertainty that involve unstable net income, prize winnings that heavily favor the top winners, negative mindset, extra work, and marketing challenges. In contrast, in order to make economical investment in chess as a hobby, learning and becoming better at playing chess can be optimized through cost-effective self-study, interactive learning, playstyle focus, and waste avoidance. The opportunity cost of heavy investment in a chess as a career is very high which is any easier career that provides stable and higher income while the opportunity cost of minimal investment in chess as a hobby is relatively low considering the cognitive and psychological benefits of playing chess. The findings of this study revealed how to make the most economical decisions to invest time and money in the game of chess which can be applied other hobbies. The ability to make economic decisions can positively spillover to other areas of everyday life to continuously optimize the use of scarce resources, avoid unnecessary waste, and always consider opportunity costs.

Keywords: Chess, Economics, Hobbies, Investment, Qualitative research

I. INTRODUCTION

Not everyone may enjoy working in their daily jobs, but everyone certainly enjoys spending time on their hobbies. Unlike work, everyone is free to choose whatever hobby they want to pursue during their free time on a regular basis. There is a wide variety of hobbies to choose from, ranging from creative or intellectual activities to physical or relaxation activities. Hobbies, which are also known as leisure activities, are known to have positive effects on mental health by developing useful skills, making social connections, and helping people recover from the stresses of daily life. The choice of a hobby is also influenced by various reasons other than interests, such as personality, culture, and available resources. Work can often become very stressful and must be completed to meet deadlines without much choice, but hobbies can be changed voluntarily whenever the experience is no longer enjoyable.

According to Statista Search Department (2024) in the United States, the top 5 most popular hobbies and activities were cooking or baking, reading, pets, video gaming, and outdoor activities while in Japan, the top 5 most popular hobbies and activities were traveling, reading, cooking or baking, video gaming, and doing sports and fitness. Some people may even enjoy their hobbies so much that they are willing to try to pursue a career based on their favorite hobbies, which is the case of what happened with some famous celebrities such as popular sports athletes, singers, and chefs who were so skilled and talented that they have turned their hobbies into profitable professions. While the choice of a hobby depends mostly on personal preferences, it may also be constrained by limited resources of time and money. Some expensive hobbies such as international traveling, cave diving, or golf can consume a lot of time and money while other affordable hobbies such as reading books, video gaming, or yoga consume much less resources comparatively. With such a wide variety of hobbies being enjoyed by millions of people all over the world influenced by cultural preferences, it is important to be careful not to overspend resources when engaging in these hobbies either for leisure or career attempt. Similar to how people try to maximize benefits at minimal costs from their careers, hobbyists should also try to maximize benefits at minimal costs from hobbies as well. The ability to have economical decision making even for free-time activities is always beneficial for everyday life and is applicable to every person living in this world because it helps to reduce waste of resources which is an important reason to why this research study is needed.

Another hobby that has recently become popular during the COVID-19 pandemic is chess, more specifically, online chess to avoid risk of infection. Statistics provided by Chess.com revealed that in 2018, they had about 25 million members but in 2022, that number jumped four times to 100 million (ChessCom, 2022). In March 2024, the number of Chess.com members currently stood at over 160 million. Online chess has been growing in popularity despite heavy competition in the online gaming industry and many chess players may be interested to invest resources in the game of chess. There are many useful skills that playing chess can develop, especially cognitive benefits (Aciego, García, & Betancort, 2012) and psychological benefits (Cibeira et al., 2021) that can be applied to everyday life. Cognitive benefits of chess consist of problem solving, strategic thinking, memory, concentration, spatial reasoning, visualization and specific types of academic performance such as mathematics and logic. Psychological benefits of chess consist of higher self-esteem, confidence, improved decision-making, stress management, emotional regulation, and sportsmanship despite frustration from losing. By investing valuable resources, particularly time and money, chess players can improve their skill level and later join competitive events to earn prize money.

The types of investment chess players can make range from simply playing online chess for many hours a day at no cost to paying monthly subscriptions on chess education websites for skill improvement, buying and reading quality chess books, and training under experienced chess coaches. Learning chess has also never been easier or cheaper with so much free educational content on the internet. In fact, some of the computer and internet supported chess instruction is even more effective and efficient compared to traditional methods (Arabacı, 2009). Once a chess player becomes skilled enough by becoming a grandmaster with a FIDE rating of at least 2500 points, several options of making money from chess can emerge, but the sustainability of having a career in chess is uncertain.

One viable option for chess masters to make money is through social media platforms such as YouTube. A study by Han (2020) about how YouTubers make money revealed that the number of views, the after-view comment rate, and the after-view attitude expression rate all have significant positive effects on a YouTuber's year revenues while revenues drop as the age of their channels increase. Since YouTube is the most watched video and streaming platform in the world, it makes sense for some chess masters with unique personalities and professional experience to build their own YouTube channels by providing educational and entertaining content for their viewers. This competition between chess content creators to maximize view count on YouTube has conveniently created valuable secondary data on relevant topics that can be used for this research study.

To fully understand the decision-making process that goes into choosing and investing in a hobby such as chess requires a brief overview about the study of economics. Economics is essentially about how individuals and societies make decisions in a world where there are limited resources, which require careful choices to be made about how these resources are allocated. For every choice that is made, there is a trade-off which means that for every decision that a person makes about one thing, that person is also giving up or sacrificing something else. Trade-offs are evaluated based on their opportunity cost, which is the value of whatever is lost when choosing one thing over the other. Opportunity cost can be defined as the value of the second best-valued alternative use of that resource. For example, many young adults are willing to spend high tuition fees to study for an undergraduate degree for four years. Their opportunity cost of studying four years in college is the money they could have made if they worked for four years with a high school diploma instead. Since every decision made by any individual always has an opportunity cost, the same assumption can be applied to the decision to engage in a hobby such as chess.

There is a current knowledge gap in the economics of investing in the hobby of chess which is evident by the lack of available research done on this topic. Most of the previous research literature did not focus on the business or economic aspects of hobbies because they are considered to be just free-time activities that don't produce anything of value compared to the complex operations of international companies that seek to maximize profits under management pressure. Instead, research about hobbies generally focused more on mental health aspects while research about chess generally focused more on educational aspects. In fact, online chess only just became popular recently in the past five years with unexpected help from COVID-19 so research literature has yet to catch up on this niche market of online gaming. This study will fill a knowledge gap by relating the study of economics to investment in chess and fill in the gap with knowledge about how to make the most economical decisions when investing scarce resources such as time and money in chess. The wisdom from this new knowledge about being efficient and not overspending resources can then be easily applied to other hobbies that are enjoyed by billions of people around the world.

This research study is an exploratory research to investigate the marginal analysis of chess investment as either a career or a hobby as well as chess players' opportunity cost of chess investment. The main resources that chess players spend to study chess and become more skilled are time and money. Can chess players benefit from spending an additional hour of studying chess per day compared to the cost? This research study will attempt to answer this question about the marginal analysis of chess investment by dividing this question into two parts in which the first question focuses on the economics of chess investment for a chess career and the second question focuses on the economics of chess investment as a hobby. To avoid confusion, the three questions are explained in greater detail. The first question asks if a chess player spends up to nine hours per day studying and playing chess like a normal working job with the intention of competing seriously in professional tournaments to win prize money or generate other viable income as a career, what is the most economical way to invest and benefit from it? The second question asks if a chess player spends not more than one hour per day studying and playing chess as a hobby for relaxation, what is the most economical way to invest and benefit from it? The third question asks what is the opportunity cost of investing in chess as a career as well as what is the opportunity cost of investing in chess as a hobby?

The purpose of this research study is to investigate the most economical way of investing time and money in both the career and hobby of chess and to evaluate their opportunity costs. Research objectives are to fully answer all three of the following research questions that are illustrated by a conceptual framework.

1. What is the most economical way to invest in chess for a future career in chess by making heavy investment to maximize income?

2. What is the most economical way to invest in chess as a hobby by making minimal investment to maximize benefits for life?

3. What is the opportunity cost of investing in chess?

Figure 1: Chess investment economics conceptual framework

II. LITERATURE REVIEW

Previous literature about hobbies and their benefits on mental health especially on elder people is discussed. A study (Saihara et al., 2010) about how enjoying hobbies is related to desirable cardiovascular effects revealed that enjoyment of hobbies reduced the chance of heart problems. Similarly, participating in reading and other hobbies for one hour a day also reduces the risk of dementia (Hughes, Chang, Vander Bilt, & Ganguli, 2010) while retired individuals who participate in hobbies or leisure activities experienced higher life satisfaction (Nimrod, 2007). Women who engage in the creative hobby of quilting experienced enhanced well-being with creative skill development and formation of strong friendships with other quilters (Burt & Atkinson, 2012). Leisure activities appeared to benefit mental health status among middle-aged adults especially when others are present whereas specific social activities do not (Takeda, Noguchi, Monma, & Tamiya, 2015). When middle-aged and older adults engage in the hobby of arts and crafts creation, their cognitive performance and neural efficiency improved, leading to more life satisfaction and healthy ageing (Adams-Price & Morse, 2018). Drawing is also another hobby that relieves stress, especially during the COVID-19 pandemic (Hartono, 2022). In another study about hobby engagement and mental wellbeing among people aged 65 years and older in over a dozen countries (Mak et al., 2023), the results revealed that hobby engagement promotes healthy aging regardless of country of origin.

A study on Shanghai employees in China (Li et al., 2019) revealed that having daily hobbies can help to mitigate the adverse effects of long working hours on workers' depression and well-being. Furthermore, the majority of health care physicians who experienced burnout reported that outside interests or hobbies was a substantial mitigation factor for burnout and disengagement (Li, Lai, Friedrich, Liu, & Popkin, 2023). Hobby engagement with organized activities also creates social benefits and improved peer functioning for adolescents, especially youths with family and neighborhood disadvantages (Steinberg & Simon, 2019). The findings of a study by Davis, Hoisl, and Davis (2014) that explores the link between employee leisure time activities and the value of their creative output showed that diversity, social orientation, and more focused hobbies is positively related to higher invention value. In a study about the benefits of creative hobbies on middle-aged and older adults (Israel, Adams-Price, Bolstad, & Nadorff, 2022), the findings suggested that receiving recognition from others for engaging in creative hobbies may provide a greater buffer to depression than do age and self-perceived creativity.

As shown by research studies done on a variety of hobbies, there are numerous mental health, physical health, cognitive, and social benefits that are associated with habitual hobby engagement. Chess is not unlike any other hobby, but since it has a defining feature of requiring certain intellectual abilities in order to win the zero-sum game, people who play chess can receive more cognitive benefits than if they chose to engage in a less intellectually demanding hobby. Spending time and possibly money to play chess is essentially an investment so the benefits and rewards of playing chess should be at least equal or worth more than the resources spent.

Next, previous literature about chess investment and its benefits is discussed. Most previous studies focused on educational or psychological benefits of chess with few studies relating chess to business or economics revealing a significant knowledge gap. A study about strategic similarities between business and chess (Graber, 2009) revealed that chess rewards long-term overall thinking, assessing risk and rewards, forming backup plans, learning from mistakes, perseverance, patience, and other intellectual traits that can lead to business success. There is a strong correlation between chess skill and numbers of hours of practice, but for development of high-level performance in chess required reading books and using computer software of game databases (Campitelli & Gobet, 2008). However, chess players at the highest skill of grandmasters expended 5,000 hours on serious study alone during their first decade of serious chess play which is about five times the average amount reported by intermediate players (Charness, Tuffiash, Krampe, Reingold, & Vasyukova, 2005) which shows a huge difference in investment of time in chess between professionals versus amateurs. Unfortunately, not everyone is suitable to pursue a career in chess because a study by de Bruin, Kok, Leppink, and Camp (2014) indicated that at the early stages of expertise development, IQ and motivation influenced chess performance.

Chess training can either be used as a valuable learning aid for children with learning disabilities (Scholz et al., 2008) or for training gifted students to meet higher gifted program standards (Adams, 2012). Chess training can also be used to develop leaders' cognitive skills (Hunt & Cangemi, 2014). A study by Sala, Gorini, and Pravettoni (2015) showed that a strong correlation between chess and math scores and that even a short-time practice of chess in children can be a useful tool to enhance their mathematic abilities. The effect of chess training on mathematical problem solving was also confirmed by Meloni and Fanari (2019) with no effect on meta-cognitive abilities and other academic performance such as written text comprehension and recall. Neuroscientific evidence suggested that chess can even be a tool to improve academic performance especially in math and reading for school-aged children (Ortiz-Pulido, Ortiz-Pulido, García-Hernández, & Ramírez-Ortega, 2019). Besides math, chess training can also improve working memory and concentration (Atashafrouz, 2019). Chess was also suggested to have a protective factor against dementia for elders due to its cognitive benefits (Lillo-Crespo, Forner-Ruiz, Riquelme-Galindo, Ruiz-Fernández, & García-Sanjuan, 2019). In another study by Islam, Lee, and Nicholas (2021) to investigate benefits of chess training on primary school students, the results revealed that chess training reduces the level of risk aversion for almost a year, improves math scores, and reduces time inconsistency. Further evidence from an experimental study by Mel (2021) demonstrated that students in the experimental group who played chess showed significantly higher mathematics improvement than the control group. The results of a recent study by Rimban (2023) that explored the impact of chess strategies on the development of constructivist thinking revealed that the cognitive benefits of chess which includes critical thinking, problem-solving, and decision-making, are transferable and relevant to various life domains. The importance of patience and deliberate thinking was emphasized in chess strategies with broader implications for cognitive development.

Few if any relevant studies were found that related chess specifically with economics, opportunity cost, and marginal analysis so the scope was expanded to hobbies. There are some previous studies that related hobbies with the relevant topics of economics and opportunity cost for the purposes of this study, but there is a lack of studies that related hobbies with marginal analysis revealing another knowledge gap.

First, some research studies related hobbies to economics. A model about the incentives to invent hobbies and to acquire hobby skills may explain the economic origins of culture (Sallstroem, 2007). In a study by Kwapisz (2019) about how startup team characteristics correlate with a hobby-based entrepreneur forming a new profitable firm, the results revealed that new firms are less likely to be formed if teams are bigger or more functionally diverse. Ignoring the financial focus of professional artisans, a study about hobbyist artisans (Lin, 2019) revealed a hidden economy among the hobbyist craft community that includes transfer of knowledge from instructors to newcomers and innovation to create new, unique products. In another study about hobbyist collectors (Kleine, Peschke, & Wagner, 2020), the collectors who are mostly male with above-average education and income, considered their activity as investment and their personalities are characterized by low agreeableness and high openness. Hobbies of entrepreneurs can also directly affect the risk preference of entrepreneurs with risky hobbies having a positive correlation with corporate risk taking (Song, Nahm, & Song, 2021). Well-educated hobby farmers in South Australia invested capital in rural areas to pursue new lifestyles focused on environmental or horse-related activities (Song, Robinson, & Bardsley, 2022).

Next, some research studies related hobbies to opportunity cost. In a study by Haghpour, Sahabeh, and Halvari (2022) about opportunity cost in consumer behavior, the results showed that opportunity cost consideration does not always lead to positive outcomes and may lead to more choice discomfort, regret, and dissatisfaction. Opportunity cost tends to be neglected in decisions about public policy while opportunity cost is not neglected in private consumption (Persson & Tinghög, 2020). In a study by Wallrodt and Thieme (2023) from Germany, the findings suggest that the opportunity cost of volunteering are related to family activities instead of paid work which implies that volunteering activities generally compete with family activities rather than with paid work. Informal caregivers face additional opportunity cost compared to non-caregivers because they spend more time multitasking, experience more stress and fragmented time (Urwin, Lau, & Grande, 2023). Gamers who enjoy playing video games as a hobby may be interested to pursue gaming as a career but a study by Cardenas (2023) revealed that pursuing a career in electronic sports has a high opportunity cost and is not a practical substitute for traditional higher education and established career pathways. The pursuit of meaning causes consumers to consider their opportunity cost or how they can otherwise use their money, which in turn leads to a preference for less expensive goods (Mead & Williams, 2023). Children also have opportunity cost too as shown in the results of a study by Caetano, Caetano, and Nielsen (2024) which indicated that the last hour of enrichment activity aimed at skill development has a negligible effect on cognitive skills and negative effect on non-cognitive skills.

A review of recent literature about the benefits of investing in hobbies and chess as well as the economics and opportunity cost of engaging in hobbies has been provided. While there were previous studies about the educational or psychological benefits of chess, few studies related chess to business or economics which is a significant knowledge gap. This research study will contribute to research literature by providing new knowledge that relates the hobby of chess to the field of economics with findings that are applicable to decision making about time and money investment in hobbies.

III. RESEARCH METHODOLOGY

The purpose of this exploratory research is to investigate the research questions about the most economical way of investing time and money in the hobby of chess and to evaluate its opportunity cost. Qualitative research was the methodology that was used to answer the research questions, which involves collecting non-numerical data and identifying patterns in language, theme, and structure in order to understand human experiences. In this particular research study, the human experience of playing chess professionally was a required dataset which can only be obtained from chess experts. The reason qualitative research was used for this study was due to a lack of research literature about the niche market of chess in the global hobby industry while there is a massive amount of easily accessible data on YouTube provided by chess content creators that are available for analysis by online gaming researchers. Quantitative research cannot be used for this exploratory research because numerical responses do not give sufficient details and context than what is required for answering the research questions. Detailed analysis of audio transcripts provided by chess experts describing their lifelong experiences about playing chess professionally as well as their insightful understanding about the economics of chess. There is probably no other group of people in the world who are more qualified to give advice and information about the economics of chess other than chess YouTubers who have the necessary relevant experience and expertise. These chess YouTubers make a living off social media and have a strong incentive to give honest and accurate assessments about the economics of chess investment to maintain their reputation and viewership.

The secondary data was collected from YouTuber videos that are either commentating or having a group discussion about the economics of chess. While searching on YouTube using the key words of chess, economics, and investment, the results displayed a long list of unrelated videos, videos containing inaccurate or wrong information which was fact-checked by the researcher, videos that were too short and did not provide enough data, videos with unknown creator and low view count, and outdated videos. The researcher had to carefully watch and filter through dozens of unqualified videos before narrowing down to the five best videos that contain the most suitable data and context for answering the research questions.

These five videos had to be thoroughly analyzed and re-watched several times by a single researcher which took dozens of hours so due to resource constraint, only a total of five videos was analyzed for this study. However, the five videos came from different sources of chess YouTubers which can be used for data source triangulation to reduce bias (Jonsen & Jehn, 2009). Determining adequate sample size in qualitative research is ultimately a matter of judgment depending on research requirements according to Sandelowski (1995).

After meeting the two required conditions of having relevance to answering the research questions and recentness with the oldest video being published about two years ago, the sample was conveniently selected based on the popularity of the YouTube videos, channel, and reputation of the YouTubers. Each video had a minimum of 10,000 views which shows their reach while videos with more views were considered to have more impact and carry more weight. The target population are chess industry experts, particularly chess grandmasters (with a minimum FIDE rating of over 2500 to signify mastery over chess and considered to be the highest attainable rank other than world champion) and international masters (with a minimum FIDE rating of over 2400 and considered to be the second highest attainable rank), who are very familiar with and deeply involved in the chess industry for at least the past ten years. The samples consist of Hikaru Nakamura, Eric Hansen, Levy Rozman, and ChessDojo chess masters who specialize in coaching. Hikaru Nakamura is a Japanese-American who is currently one of the best chess players in the world with a FIDE rating of consistently over 2700 and is also a popular YouTuber that creates regular content about chess. Eric Hansen is a grandmaster of the popular Chessbrah YouTube channel and Levy Rozman is an international master of GothamChess YouTube channel who describes himself as the internet's chess teacher with over 4.7 million subscribers. ChessDojo YouTube channel consists of grandmaster Jesse Kraai, international master David Pruess, and international master Kostya Kavutskiy, who help to create educational chess content together. This sample list, while small, offers immensely valuable data because of their background, experience and expertise in chess and qualitative analysis must be used to interpret the data with sufficient detail and context for answering the research questions. The secondary data for each of the five videos was recorded by chess YouTubers and uploaded onto the YouTube social media platform. Secondary data was used instead of primary data due to cost considerations, lack of personal accessibility to chess experts, and free secondary data on YouTube being sufficient enough to answer the research questions. Since the chess YouTubers are public figures that uploaded their videos on YouTube for public dissemination to earn money, there should be no ethical concerns or expectations of privacy when using this secondary data for research purposes and not for profit. Since the data is of a secondary type, there was no control over the questions asked or answers given, but by examining specific parts of each audio transcript, possible relevant answers to answering the research questions can be collected and analyzed.

Secondary data from five videos on YouTube that includes a mix of commentary and group discussion were selected for this research study. The YouTube videos are arranged chronologically in order of date published from oldest to newest, with the oldest video being published about two years ago and the most recent one being published in March 2024. The first YouTube video (Nakamura, 2021) dated March 29, 2021 with over 120,000 views was Hikaru Nakamura making a commentary about how to earn a living playing chess. The second YouTube video (Hansen, 2023) dated November 12, 2023 with over 43,000 views was Eric Hansen making a commentary about why chess grandmasters are poor. The third YouTube video (Nakamura, Kraai, Pruess, &

Kavutskiy, 2023) dated November 21, 2023 with over 21,000 views was Hikaru having a group discussion with Jesse Kraai, David Pruess, and Kostya Kavutskiy about professional chess economics. The fourth YouTube video (Rozman, 2024) dated January 31, 2024 with over 200,000 views was the popular Levy Rozman making a commentary about whether chess is a waste of money. The Fifth YouTube video (Kraai, Pruess, & Kavutskiy, 2024) dated March 2, 2024 with 13,000 views was a group discussion with Jesse Kraai, David Pruess, and Kostya Kavutskiy that ranks the best and worst ways to spend money on chess. These five videos were considered to be sufficient data and no other video samples were needed because the previous sources already included the two most popular chess YouTubers Levy Rozman and Hikaru Nakamura, along with several other knowledgeable chess experts who are very familiar with the economics of chess investment. Transcripts of these video recordings are auto-generated by YouTube with some errors that require further proofreading to remove filler words, grammar mistakes, and typos before the data can be analyzed.

Thematic analysis was the qualitative research method that was selected to investigate the most economical way of investing time and money in the career or hobby of chess and to evaluate its opportunity cost. Thematic analysis is a data analysis process that involves examining through a data set to identify patterns, systematically coding and deriving themes to create a narrative. In this exploratory research study, an inductive approach was chosen to derive meanings and themes without any preconceptions, allowing any codes or themes to emerge from the data. This specific type of thematic analysis that uses the inductive approach is called reflexive thematic analysis. Reflexive thematic analysis was first developed by Braun and Clarke (2006) initially for psychological research but due to its flexibility, this research method became popularized in other social science fields.

Data analysis was analyzed manually by hand using reflexive thematic analysis. A qualitative description based on observation about overall content was created for each of the five YouTube videos, which was followed by a table that displayed meaningful, quoted excerpts with their related codes for each YouTube video. All the codes are then grouped and organized into themes. After important themes are developed and explained in separate tables, narrative analysis involving two imaginary characters was used to demonstrate how to be economical with chess investment. The first imaginary character called Character Alpha is making a heavy investment in chess in order to pursue a professional career in chess. The second imaginary character called Character Beta is making a minimal investment in chess as a hobby to maximize benefits for life. An imaginary story was created for each of these two characters to illustrate their most economical choices with associated opportunity costs and demonstrate how to maximize their marginal benefits relative to their marginal costs. Two types of triangulation were used to enhance validity and credibility while limiting possible biases in this qualitative research study. Data triangulation was reached with multiple data sources from 5 YouTube videos which were each published on different dates ranging from March 2021 to March 2024. Within-methods triangulation was done with the two qualitative research methods of thematic analysis and narrative analysis. Based on the results, valuable insights can be provided about the economics and marginal analysis of chess to answer the research questions about the most economical way of investing time and money in the career or hobby of chess and to evaluate its opportunity cost.

IV. RESULTS AND DISCUSSION

Quotes from the video transcripts that provide the most relevance to answering the research questions were carefully chosen and then changed into numerous codes that were organized and grouped into themes for further analysis. Each descriptive code is followed by a condensed description of what the code means. Initially, five tables containing detailed excerpts and codes of each video transcriptions were arranged in chronological order of YouTube video publish date. Unfortunately, lengthy quotes from the video transcripts and their associated codes that form an essential part of the initial coding and analysis process were cut out and not included in the results due to size limitations of this research paper. The codes created from the video commentary and discussion transcripts are subsequently organized under various themes which are then divided into two separate tables to answer the research questions about the most economical way of investing in chess as a career or a hobby. The first group of themes are considered to be factors relating to economical investment in chess as a career as shown in Table 1 and the second group of themes are considered to be factors relating to economical investment in chess as a hobby as shown in Table 2. The codes for each theme were subsequently gathered and arranged together methodically to provide a clearer explanation of what each theme means. Each theme represents an important factor that is related to economical investment in chess as a career or a hobby.

Table 1: Definitions and labels for themes about chess investment as a career

List of Themes about Chess Investment as a Career
1) Unstable Net Income: The prize amount for winners of chess tournaments can sometimes seem high but the number can be misleading because it does not include tax deductions and other necessary expenses that have to be paid such as for travel, hotel, and training partner fees. The earnings can also be unpredictable because sometimes prizes have to be shared with others whenever the results are tied and not to mention that the margin of winning can be very narrow. Being a strong player does not guarantee consistent earnings, sometimes not even breaking even. Young chess grandmasters receive parental financial support for playing competitive events but after they turn 18 years old, they have to start worrying about expenses other than just focus on chess. With the exception of India and a few other countries like Uzbekistan, chess grandmasters have a lack of sponsorships from their governments or big businesses which make them very dependent on prize winnings and other income sources.
2) Top Heavy: A non-top 10 grandmaster based on FIDE rating has much less earnings potential due to not being invited to the Grand Chess Tour so there is high pressure for a top 10 grandmaster to maintain FIDE rating of at least 2700 to keep his yearly income viable. The prize pools of competitive events also heavily favor the top winners while the bottom half usually gets nothing like in the case of FIDE Grand Swiss 2023.
3) Negative Mindset: It can be a depressing and stressful experience to play chess in competitive events especially when the results are poor. For example, in the FIDE Grand Swiss 2023 that took place over a 3-week period, being in the top 46 out of 114 only gets $2,000 which has a high opportunity cost since the 3 weeks spent playing chess with a high chance to win nothing could have been used to do something else more productive. While the number of competitive events have increased recently leading to more income potential, too much competition creates fatigue for grandmasters which leads to gradual loss of their enjoyment in chess and reduces game quality. Some grandmasters also have a negative feeling that luck plays an unusually big role in deciding the winner of some important tournaments such as the Candidates tournament which decides the challenger to the World Championship because they have a lack of control over how others play.
4) Extra Work: More people are playing chess now than ever before leading to more competition especially from kids who are quickly getting better at chess in the modern era to compete with the jobs of older grandmasters. Older grandmasters have to study, train, and prepare harder just to keep up with younger generations. Since prize winnings are not guaranteed, grandmasters have to pursue other income sources such as content creation on social media or teaching chess. Current young and promising grandmasters need to start using social media more to maintain public interest in chess and eventually replace the aging chess celebrities such as Magnus, Hikaru, and Levy.

Table 1: Definitions and labels for themes about chess investment as a career (Cont.)

List of Themes about Chess Investment as a Career
5) Marketing Challenges: Chess might not be as viewer friendly as some other video game tournaments because most top chess tournaments are played in classical format where both players have more than one hundred minutes each to make all their moves per game. Each game takes up to six hours which is too long for viewers and there is also a high chance for each game to end up with a boring draw because grandmasters don't lose easily. This viewer unfriendliness of chess presents a significant marketing challenge for tournament organizers leading to stagnation in prize pools and lack of profitability for organizers who often work in a thankless environment with lack of motivation to change.

Table 2: Definitions and labels for themes about chess investment as a hobby

List of Themes about Chess Investment as a Hobby
6) Cost-Effective Self-Study: To become better at playing chess requires some study time and there are several cost-effective ways of studying chess by one's self. Before making any significant investment into study materials for chess, a chess student must first discover their proficiency level which can be done for free by playing a minimum number of games on Chess.com website which will assign an Elo rating depending on one's performance, which can be categorized as beginner, intermediate, advanced, or expert. The most cost-effective investment would be to focus only on level appropriate study materials. For example, beginners should only buy chess books of beginner difficulty and advanced players should only buy chess courses of advanced difficulty or otherwise the mismatched study materials would be either too easy or too difficult which will not optimize learning effectiveness. Chess books are considered to be very cost-effective for studying chess by one's self because they give a lot of information compared to their cost, can be studied for months, and can be stored permanently for future reuse. However, chess books are not user friendly to the more digital reliant younger generations. Another very cost-effective way for studying chess by one's self is a yearly premium subscription on Chess.com which allows online users to gain access to thousands of hours of chess educational content provided by hundreds of trainers at a fraction of what it used to cost before Chess.com existed. 7) Interactive Learning: Besides self-studying chess which can be lonely or boring, there are other cost-effective options for studying chess that involve knowledgeable interactions with trainers and other chess players. Playing in chess tournaments is actually the best way to become better at chess because there is no other substitute for the valuable experience of competing to win a prize under competitive pressure. During downtime from tournament play, there is the cost-effective option of engaging in interactive online training programs with experienced trainers who can point out mistakes and other ways for improvement that are specifically customized to each individual. Joining local chess clubs to practice with nearby players is also cost-effective for studying chess while fulfilling a social purpose and having the opportunity to participate in various chess-related activities. 8) Playstyle Focus: With discretionary income, spending some money goes a long way to helping one improve at chess quickly compared to spending no money at all, but it must be quality and specialized investment. For example, instead of buying six opening courses, it's more optimal to just buy one opening course and specialize to gain the most value for money. One should focus money on a course that teaches a specific playstyle such as pawn gambits or positional play that fits one's certain playstyle and preference. Investing money in and studying to match a specific playstyle preference will optimize chess learning and maximize enjoyment compared to being forced to study other playstyles that one finds to be boring. 9) Waste Avoidance: One main advantage of taking chess as a hobby is that it is very affordable and does not require much money to start playing. Not only is it possible to play online chess totally for free, other necessary expenses would just include finding people to play with and spending a little bit of money on buying a durable chess set which costs less than a monthly streaming subscription or required tools for other more expensive hobbies. Besides making cost-effective investments in chess, it is also important to avoid wasting resources on materials that will not be optimally used. Examples of wasteful investment include not studying accurately, buying level inappropriate study materials, and cheating. Finally, it is possible to learn chess for free from YouTube, but there is a time cost because it costs valuable time to filter through the oversupply of content, lack of structure, and clickbait.

Based on the development of these 9 themes, two chronological narratives were provided to further illustrate the economics of chess investment as a career and as a hobby. The first narrative analysis is an imaginary story that involves Character Alpha who is making a heavy investment in chess in order to pursue a professional career in chess. Character Alpha's most economical choices are suggested based on the themes revealed by previous thematic analysis of chess investment as a career. Due to the top heavy nature of competitive chess where only the absolutely top 10 grandmasters can earn significant prize winnings while the rest cannot make a viable living from chess, Character Alpha must be identified as a chess prodigy at a very young age and receive parental or sponsored training and support to become a future grandmaster who can compete with the best players at the highest level. Without natural chess talent identified at a very young age, it would not be economical to invest in chess as a future career due to the intense and ever increasing competition where failure to become the best would be a huge opportunity cost. Even assuming that Character Alpha is a chess prodigy, she would still need to invest many childhood and teenage years in studying, training, and playing chess in many tournaments in order to remain competitive. All this resource investment in mastering chess during childhood and teenage years could become a sunk cost or simply wasted if playing professional chess is not pursued as a career during adulthood as the logical next step. Even if Character Alpha turns out to be one of the world's best chess players, the yearly net income is unstable because of unpredictable results, possibly shared prizes, and high expenses that include travel, hotel, training partner fees, and even tax deductions. Character Alpha also needs to deal with negative mindset such as mental stress, depression, and fatigue during periods of poor tournament results. Unless lucky enough to be born in India where sponsorships by the government or big businesses is possible, she is also required to do extra work to maintain a safety net during times of poor performance, which is why alternative income sources must be explored such as content creation for social media or teaching chess. There is also the possibility that public interest in chess may fade away in the future unless new grandmasters such as Character Alpha engage in social media marketing to become popular and eventually replace aging chess celebrities. Faced with such a potentially stressful adult career in chess filled with high risks as well as the possible waste of resources in chess investment during childhood and teenage years which do not guarantee a promising career, Character Alpha and her guardian must reconsider whether to invest a significant part of her early life into chess when the resources could be better spent on somewhere else. Even an extra hour of study in chess per day does not necessarily guarantee more tournament earnings due to various unpredictable factors outside her control. Alternatively, Character Alpha can choose to significantly reduce the amount of her chess investment from nine hours of study per day (similar to a full-time job) to not more than one hour of study per day (similar to a hobby) to basically rethink of chess as a hobby rather than a career in order to be economical. The eight hours of study time per day that would have been spent on mastering chess could instead be used to do something more productive. Thus, the opportunity cost of heavy investment in chess as a career is the alternative use of resources that could have been spent to improve valuable skills during early life to prepare for getting into a good college and graduating into any stable job with a decent earning. In most careers, age and experience leads to higher salaries, but in a chess career, older grandmasters can often no longer compete with new and younger grandmasters for the top prize winnings.

The second narrative analysis is an imaginary story that involves Character Beta who is making a minimal investment in chess as a hobby to maximize benefits for life. Character Beta's most economical choices are suggested based on the themes revealed by previous thematic analysis of chess investment as a hobby. Unlike chess investment as a career where only chess prodigies with natural talent have to be identified at a young age followed by years of training to even have a chance of making a viable career out of chess, there are no restrictive conditions such as age restrictions, natural talent, or even meeting a certain level of intelligence for chess investment as a hobby. The only requirement to playing chess as a hobby is enjoyment since it is a voluntary activity that can be done during periods of free time with no pressure to earn money since money is provided by either parents or a full-time job. In a plausible scenario, Character Beta is a 50-year-old man who used to play chess for fun as a teenager a long time ago, but became busy with work as an adult and has recently regained his interest in chess due to online social media marketing of chess. He likes to play online chess with strangers for not more than one hour per day and is interested to improve his chess skills without spending too much money. If he prefers to study alone, there are two economical options for cost-effective self-study which are chess books or a Chess.com yearly subscription that will give him the most effective outcome relative to the amount of money he spends. He also needs to study level appropriate materials that are suitable for his Elo performance level. If he prefers to study with other people which can also be effective but cost more, he can choose to engage in several economical options for interactive learning which are competitive pressure from tournament play, interactive online training programs with customized coaching, and local chess clubs to participate in various chess-related activities with other chess players. Since not many people have the time to study the thousands of chess opening ideas, positions, and playstyles with the exception of grandmasters, Character Beta should have a playstyle focus which is to specialize in one specific opening and playstyle that he is likely to face and put to good use in his games such as the Scandinavian Defense where Black plays pawn to D5 in response to White opening with pawn to E4. This quality and specialized investment allows him to focus his scarce time and money on only studying the Scandinavian Defense that he enjoys playing from cost-effective books, online courses, or Chess.com videos without wasting resources on studying other openings and playstyles that he finds to be boring. In addition to making cost-effective investments in studying chess, it is also important for Character Beta to avoid wasting resources on materials that will not be optimally used such as by not studying accurately, buying level inappropriate study materials, and cheating. While it is possible to learn chess for free from YouTube, it costs valuable time to filter through the oversupply of content, lack of structure, and clickbait which is not economical if Character Beta can actually afford to spend some money on quality materials to save time. Ultimately, Character Beta is just playing chess as a hobby so there is no need to overspend money or time on becoming better at chess when the purpose of a hobby is to just enjoy the free-time activity for relaxation. Not more than one hour of chess study or play per day is necessary since each extra minute or hour spent on chess per day has valuable alternative uses such as for work or family. Previous research has suggested that playing chess has cognitive and psychological benefits which is always useful for work and improving quality of life. Thus, the opportunity cost of minimal investment in chess as a hobby is any other hobby that could bring more enjoyment and relaxation without experiencing stress from competition with chess opponents minus the cognitive and psychological benefits that playing chess provides.

In summary, answers were provided to the research questions about the most economical way of investing time and money in the career or hobby of chess and to evaluate its opportunity cost. Having a career in chess is filled with high risks that involve unstable net income, prize winnings that heavily favor the top winners, negative mindset, extra work, and marketing challenges. Only chess prodigies at a young age should make a crucial life decision about whether to make a heavy investment in chess in order to pursue a professional career in chess while anybody else who are not chess prodigies should not even bother to consider the possibility of playing chess as a career due to the high opportunity cost of college education and alternative careers that offer more viable income with less risk. However, having chess as a hobby on the other hand, as long as it remains enjoyable, can be rewarding by providing both cognitive and psychological benefits which improve quality of life. In order to make economical investment in chess as a hobby, learning and becoming better at chess can be optimized through cost-effective self-study, interactive learning, playstyle focus, and waste avoidance. The relatively low opportunity cost of chess as a hobby is simply any other hobby that could bring more enjoyment and relaxation without experiencing stress from competition with chess opponents minus the cognitive and psychological benefits that playing chess provides.

V. CONCLUSION

Chess is one of the thousands of available hobbies that can be taken as a free-time activity to bring enjoyment and relaxation. Traditionally, it was played on a chess board between two players in a physical location but as the world became more digitally connected, millions of chess players over the world are now able to play online chess instantly and conveniently with both friends and strangers. As the global number of chess players continue to grow, it is important for every chess player to understand about the economics of investing their time and money into chess. Every minute and every baht that they spend on chess has an opportunity cost, which is the alternative use of their scarce resources. So chess players must gain as much value as possible out of whatever they put into studying and playing chess.

The results of this study strongly suggests to not make any heavy investment in chess in order to pursue a professional career in chess because a career in chess is filled with high risks that involve unstable net income, prize winnings that heavily favor the top winners, negative mindset, extra work, and marketing challenges. The only exception is if a chess prodigy is identified at a young age to potentially become one of the best chess grandmasters in the future and even deciding to go all-in on a chess career involves costly sacrifices and uncertainty. The opportunity cost of a chess career is simply too high, which can be basically a college education and alternative careers that offer more viable income with much less risk.

In contrast, the results of this study does suggest to make a minimum investment in chess as a hobby to maximize benefits for life. Obviously, anybody who is not interested to take chess as a hobby is free to choose any other hobby for enjoyment but for those who do enjoy playing chess, spending some money to become better at chess can have cognitive benefits and psychological benefits. Previous research already revealed cognitive benefits of chess on mathematical and academic performance while there were psychological benefits of chess on confidence, decision making, and stress management. In order to make economical investment in chess as a hobby, learning and becoming better at chess can be optimized through cost-effective self-study, interactive learning, playstyle focus, and waste avoidance. The opportunity cost of playing chess as a hobby is relatively low, which is simply any other hobby that could bring more enjoyment and relaxation without experiencing stress from competition with chess opponents minus the cognitive and psychological benefits that playing chess provides.

This study revealed how to make the most economical decisions to invest resources in the game of chess and other hobbies. The ability to make economic decisions can positively spillover to other areas of everyday life to continuously optimize the use of scarce resources such as time and money, avoid unnecessary waste, and always consider opportunity costs. This study can serve as a warning to anyone who may be interested to pursue a career in their hobby. It is often very competitive with high risks while consistent winnings are not guaranteed to maintain a decent standard of living.

The findings of this research study can also be applied to other industries such as sports and gaming where people have to make risky, life-changing decisions about whether to pursue their hobbies as a profession or not. In a study (Drumm, 2014) about individuals who transformed their hobby into a profession, the results revealed that continued enthusiasm for their chosen activity persisted even when commercialized and relatively little research into business activities was undertaken by them before going professional, which may indicate hobbyists prioritizing passion over profit when pursuing a career. Another study (Ronkainen, Ryba, McDougall, Tod, & Tikkanen, 2022) about coaches in European sports clubs demonstrated that younger coaches thought of coaching as a hobby and placed more value on personal benefits while older coaches thought of coaching as a profession and focused on selfless values which showed that age may influence perceptions of hobbies. In a study (Bányai, Zsila, Griffiths, Demetrovics, & Király, 2020) about gamer motives to become professional, the results revealed that the gaming motivations of competition, skill development, and social motivations predicted career planning as a professional e-sport player with younger players more likely to seek career opportunities than older players. While economics should be considered in any decision to pursue a hobby as a career, other overriding reasons such as passion or reputation can end up playing the most important role.

The limitations of this study must be acknowledged. Firstly, the sample size was small and conveniently selected from YouTube based on relevance to answering the research questions so the population of global chess industry experts might not be accurately represented since a majority of them don't have social media presence on YouTube to provide possible alternative viewpoints. Secondly, while a lot of details and context were provided by this qualitative research study, there is a lack of generalizability and insufficient scientific evidence backed by quantitative analysis with numerical values. It is understandable that a research finding is more likely to be accepted as a factual if it is quantified, but overemphasis on numbers can lead to a biased and oversimplified view of the world (Greenhalgh & Taylor, 1997). This qualitative research provided answers to preliminary questions about the economics of chess investment, which can then be addressed by quantitative studies in the future. Thirdly, the source of data was secondary so there was a lack of control over the commentaries and questions asked during discussions. Future studies can improve the validity and reliability of this study by providing quantitative analysis of numerical data that involve surveys of hundreds of professional chess players about the economics of chess investment.

REFERENCES

Aciego, R., García, L., & Betancort, M. (2012). The benefits of chess for the intellectual and social-emotional enrichment in schoolchildren. *The Spanish Journal of Psychology, 15*(2), 551–559.

Adams, T. C. P. (2012). Chess from square a1: Incorporating chess into the gifted class. *Gifted Child Today, 35*(4), 243–251.

Adams-Price, C. E., & Morse, L. W. (2018). Crafts as serious hobbies: Impact and benefits in later life. *Craft Research, 9*(1), 93–102.

Arabacı, R. (2009). The affect of computer and internet supported chess instruction on university students. *International Journal of Human Sciences, 6*(1), 673–682.

Atashafrouz, A. (2019). The effectiveness of chess on problem-solving, working memory, and concentration of male high school students. *Iranian Evolutionary and Educational Psychology Journal, 1*(4), 249–258.

Bányai, F., Zsila, Á., Griffiths, M. D., Demetrovics, Z., & Király, O. (2020). Career as a professional gamer: Gaming motives as predictors of career plans to become a professional eSport player. *Frontiers in Psychology, 11*. doi:10.3389/fpsyg.2020.01866

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101.

Burt, E. L., & Atkinson, J. (2012). The relationship between quilting and wellbeing. *Journal of Public Health, 34*(1), 54–59.

Caetano, C., Caetano, G., & Nielsen, E. (2024). Are children spending too much time on enrichment activities?. *Economics of Education Review, 98.* doi:10.1016/j.econedurev.2023.102503

Campitelli, G., & Gobet, F. (2008). The role of practice in chess: A longitudinal study. *Learning and Individual Differences, 18*(4), 446–458.

Cardenas, J. (2023). *eSports or college: Opportunity cost analysis* (Bachelor's senior project, State University of New York). Retrieved from https://soar.suny.edu/handle/20.500.12648/14021

ChessCom. (2022, December 16). Chess.com reaches 100 million members! [Web log post]. Retrieved from www.chess.com/article/view/chesscom-reaches-100-million-members

Charness, N., Tuffiash, M., Krampe, R., Reingold, E., & Vasyukova, E. (2005). The role of deliberate practice in chess expertise. *Applied Cognitive Psychology, 19*(2), 151–165.

Cibeira, N., Lorenzo-López, L., Maseda, A., Blanco-Fandiño, J., López-López, R., & Millán-Calenti, J. C. (2021). Effectiveness of a chess-training program for improving cognition, mood, and quality of life in older adults: A pilot study. *Geriatric Nursing, 42*(4), 894–900.

Davis, L. N., Hoisl, K., & Davis, J. (2014). *Spanning the creative space between home and work: leisure time, hobbies and organizational creativity.* Paper presented at the DRUID Society Conference 2014, Frederiksberg, Denmark.

de Bruin, A. B. H., Kok, E. M., Leppink, J., & Camp, G. (2014). Practice, intelligence, and enjoyment in novice chess players: A prospective study at the earliest stage of a chess career. *Intelligence, 45,* 18–25.

Drumm, K. (2014). *How information behaviour changes in individuals who transform a hobby into a profession.* Retrieved from https://works.hcommons.org/records/206hn-qbm66

Fullana, M. A., Hidalgo-Mazzei, D., Vieta, E., & Radua, J. (2020). Coping behaviors associated with decreased anxiety and depressive symptoms during the COVID-19 pandemic and lockdown. *Journal of Affective Disorders, 275,* 80–81.

Graber, R. S. (2009). Business lessons from chess: A discussion of parallels between chess strategy and business strategy, and how chess can have applications for business education. *Academy of Educational Leadership Journal, 13*(1), 79–85.

Greenhalgh, T., & Taylor, R. (1997). How to read a paper: Papers that go beyond numbers (qualitative research). *BMJ, 315*(7110), 740–743.

Haghpour, B., Sahabeh, E., & Halvari, H. (2022). Opportunity cost in consumer behavior: Definitions, operationalizations, and ambiguities. *International Journal of Consumer Studies, 46*(5), 1942–1959.

Han, B. (2020). How do YouTubers make money? A lesson learned from the most subscribed YouTuber channels. *International Journal of Business Information Systems, 33*(1), 132–143.

Hansen, E. (2023, November 12). Eric discusses why grandmasters are poor [Video file]. Retrieved from https://youtu.be/q98nuSyPgn4

Hartono, M. (2022). Drawing hobby as a medium to manage stress and self-development. *VCD (Journal of Visual Communication Design), 7*(1), 43–52.

Hughes, T. F., Chang, C.-C. H., Vander Bilt, J., & Ganguli, M. (2010). Engagement in reading and hobbies and risk of incident dementia: The MoVIES project. *American Journal of Alzheimer's Disease and Other Dementias, 25*(5), 432–438.

Hunt, S. J., & Cangemi, J. (2014). Want to improve your leadership skills? Play chess!. *Education, 134*(3), 359–368.

Islam, A., Lee, W.-S., & Nicholas, A. (2021). The effects of chess instruction on academic and non-cognitive outcomes: Field experimental evidence from a developing country. *Journal of Development Economics, 150.* doi:10.1016/j.jdeveco.2020.102615

Israel, S. M., Adams-Price, C. E., Bolstad, C. J., & Nadorff, D. K. (2022). Age and recognition for one's creative hobby are associated with fewer depressive symptoms in middle-aged and older adults. *Psychology of Aesthetics, Creativity, and the Arts, 16*(4), 610–617.

Jonsen, K., & Jehn, K. A. (2009). Using triangulation to validate themes in qualitative studies. *Qualitative Research in Organizations and Management: An International Journal, 4*(2), 123–150.

Kleine, J., Peschke, T., & Wagner, N. (2020). Rich men's hobby or question of personality: Who considers collectibles as alternative investment?. *Finance Research Letters, 35,* 101307.

Kraai, J., Kavutskiy, K., & Pruess, D. (2024, March 1). Ranking the best money spent on chess: Dojo talks [Video file]. Retrieved from https://youtu.be/t3EpVnEBAto

Kwapisz, A. (2019). Team aspects of hobby-based entrepreneurship. *Academy of Management Proceedings, 2019*(1). doi:10.5465/AMBPP.2019.81

Li, Y., Lai, C. Y., Friedrich, B., Liu, C., & Popkin, J. H. (2023). The association of hobbies and leisure activities with physician burnout and disengagement. *Journal of Wellness, 5*(1). doi:10.55504/2578-9333.1160

Li, Z., Dai, J., Wu, N., Jia, Y., Gao, J., & Fu, H. (2019). Effect of long working hours on depression and mental well-being among employees in Shanghai: The role of having leisure hobbies. *International Journal of Environmental Research and Public Health, 16*(24), 4980. doi:10.3390/ijerph16244980

Lillo-Crespo, M., Forner-Ruiz, M., Riquelme-Galindo, J., Ruiz-Fernández, D., & García-Sanjuan, S. (2019). Chess practice as a protective factor in dementia. *International Journal of Environmental Research and Public Health, 16*(12). doi:10.3390/ijerph16122116

Lin, J. (2019). *Creative "hobby" as manual physical engagement and human flourishing* (Bachelor's thesis, University of North Carolina at Chapel Hill). Retrieved from https://doi.org/10.17615/3svz-tr33

Mak, H. W., Noguchi, T., Bone, J. K., Wels, J., Gao, Q., Kondo, K., ... & Fancourt, D. (2023). Hobby engagement and mental wellbeing among people aged 65 years and older in 16 countries. *Nature Medicine, 29*(9), 2233–2240.

Mead, N. L., & Williams, L. E. (2023). The pursuit of meaning and the preference for less expensive options. *Journal of Consumer Research, 49*(5), 741–761.

Mel, B. N. (2021). Does playing chess improve mathematics scores? An experimental study among co-curricular – Chess students in Politeknik Kuching Sarawak. *International Journal of Advanced Research in Education and Society, 3*(2), 9–17.

Meloni, C., & Fanari, R. (2019). Chess training effect on meta-cognitive processes and academic performance. *Proceedings of the 16th International Conference on Cognition and Exploratory Learning in Digital Age (CELDA 2019)*, 387–393.

Nakamura, H. (2021, March 29). How to earn a living playing chess [Video file]. Retrieved from https://youtu.be/4hWlbsAVRN0

Nakamura, H., Kraai, J., Pruess, D., & Kavutskiy, K. (2023, November 21). GM Hikaru on the chess economy: Dojo talks. [Video file]. Retrieved from https://youtu.be/PcTMQmqxZ5w

Nimrod, G. (2007). Retirees' leisure: Activities, benefits, and their contribution to life satisfaction. *Leisure Studies, 26*(1), 65–80.

Ortiz-Pulido, R., Ortiz-Pulido, R., García-Hernández, L. I., Pérez-Estudillo, C. A., & Ramírez-Ortega, M. L. (2019). Neuroscientific evidence support that chess improves academic performance in school. *Revista mexicana de neurociencia (Internet)*, *20*(4), 194–199.

Persson, E., & Tinghög, G. (2020). Opportunity cost neglect in public policy. *Journal of Economic Behavior & Organization, 170,* 301–312.

Rimban, E. (2023). *Chess strategy and the development of constructivist thinking: Cultivating cognitive skills and transferable competencies.* Retrieved from https://ssrn.com/abstract=4490147

Ronkainen, N. J., Ryba, T. V., McDougall, M., Tod, D., & Tikkanen, O. (2022). Hobby, career or vocation? Meanings in sports coaching and their implications for recruitment and retention of coaches. *Managing Sport and Leisure, 27*(4), 381–396.

Rozman, L. (2024, January 30). Is chess a waste of money? [Video file]. Retrieved from https://youtu.be/B7GYpJg6lIw

Saihara, K., Hamasaki, S., Ishida, S., Kataoka, T., Yoshikawa, A., Orihara, K., ... & Tei, C. (2010). Enjoying hobbies is related to desirable cardiovascular effects. *Heart and Vessels, 25*(2), 113–120.

Sala, G., Gorini, A., & Pravettoni, G. (2015). Mathematical problem-solving abilities and chess: An experimental study on young pupils. *SAGE open, 5*(3). doi:10.1177/2158244015596050

Sallstroem, S. (2007*). Hobbies, skills and incentives to work: The happy gardener and the wealthy golfer.* Retrieved from https://ssrn.com/abstract=1136701

Sandelowski, M. (1995). Sample size in qualitative research. *Research in Nursing & Health, 18*(2), 179–183.

Scholz, M., Niesch, H., Steffen, O., Ernst, B., Loeffler, M., Witruk, E., & Schwarz, H. (2008). Impact of chess training on mathematics performance and concentration ability of children with learning disabilities. *International Journal of Special Education, 23*(3), 138–148.

Song, B., Robinson, G. M., & Bardsley, D. K. (2022). Hobby and part-time farmers in a multifunctional landscape: Environmentalism, lifestyles, and amenity. *Geographical Research, 60*(3), 480–497.

Song, C., Nahm, A. Y., & Song, Z. (2021). Entrepreneurs' hobbies and corporate risk taking: Evidence from china. *International Review of Financial Analysis, 77,* 101856. doi:10.1016/j.irfa.2021.101856

Statista Search Department. (2024). Most popular hobbies & activities in the U.S. as of December 2023 [Infographic]. Retrieved from https://www.statista.com/forecasts/997050/most-popular-hobbies-and-activities-in-the-us

Steinberg, D. B., & Simon, V. (2019). A comparison of hobbies and organized activities among low income urban adolescents. *Journal of Child and Family Studies, 28*(5), 1182–1195.

Takeda, F., Noguchi, H., Monma, T., & Tamiya, N. (2015). How possibly do leisure and social activities impact mental health of middle-aged adults in Japan?: An evidence from a national longitudinal survey. *PloS one, 10*(10). doi:10.1371/journal.pone.0139777

Urwin, S., Lau, Y.-S., Grande, G., & Sutton, M. (2023). Informal caregiving and the allocation of time: Implications for opportunity costs and measurement. *Social Science & Medicine, 334*, 116164. doi:10.1002/hec.4624

Wallrodt, S., & Thieme, L. (2023). The opportunity costs of volunteering: Evidence from Germany. *Nonprofit and Voluntary Sector Quarterly, 52*(5), 1169–1190.

Exploring the Nexus of Person-Environment Fit in Educator Workforce in Thailand

Sirinda Chitboon[1] Damrong Sattayawaksakul[2*]

[1,2*]*Faculty of Business Administration, Asia-Pacific International University, Saraburi, Thailand*

*Corresponding Author. E-mail address: damsat@apiu.edu

Received: 25 February 2024; Revised: 13 July 2024; Accepted: 18 July 2024
Published online: 26 December 2024

Abstract

This research aimed to examine and elaborate the relationship between the person-environment fit theory (Person-Organization Fit, Person-Job Fit, and Person-Group Fit) on employee commitment in the education sector. As educational institutions face challenges related to declining trends in workforce retention, investigating how the alignment of individual traits within the organization, job, and team influences affective commitment. The data were collected from 208 samples selected from employees at two universities in Thailand through a purposive sampling approach. Questionnaires were sent to the correspondents both online and on paper. Descriptive statistics, Pearson correlation analysis, and regression analysis were used for data analysis. The results of the analysis showed that two out of three independent variables that are Person-Organization Fit (Beta = 0.430, p = 0.000) and Person-Group Fit (Beta = 0.258, p = 0.000) have a positive relation with Affective Commitment. However, Person-Job Fit, which did not support one of the proposed hypotheses, negatively influenced Affective Commitment (Beta = -0.106, p = 0.044).

Keywords: Affective commitment, Person-group fit, Person-job fit, Person-organization fit

I. INTRODUCTION

Education serves as the foundation of an individual's life and plays a vital role as the backbone of society, with the duty of upholding functional and enhanced sustainability in environmental, social, and governance (ESG) (Chan & Hsieh, 2022). It is important to keep current with a well-educated workforce in order to uphold innovation development, be ready for adaptation to environmental changes, and boost overall societal progress. Unfortunately, recent indications have illustrated a declining trend in education, especially in higher education, as predicted in a study by Cameron (1983). Therefore, not only a tendency to lead to a lack of society improvement mechanisms but also a challenge to retain a current improving social structure trend. To address these challenges, it is important to implement the togetherness of policymakers, educators, and society to prioritize and invest in education by enhancing education's quality. Especially accessible and adapting dimensions in order to meet the evolving needs of society. Additionally, lifelong learning and continuous education can contribute to a flexible and resilient workforce.

Developing a high-caliber workforce demands substantial investments in time, effort, and budget. Sustaining these resources presents an even greater challenge. A proficient worker, akin to the fruit of a tree, flourishes through a combination of inherent personal traits and an optimal environment. Just as water and sunlight are vital for a tree's growth, salary and benefits serve as the nourishment essential for the health and productivity of employees in the organization. In parallel, fertilizer significantly contributes ensuring to the overall success of the fruiting process, drawing connections to organizational management that provides incentives and other motivational sources to elicit willingness and produce expected outcomes aligned with organizational success.

Above all, the environment acts as the ultimate controller, influencing overall growth until the fruition of the process. Therefore, maintaining the right setting and surrounding environment is imperative to strengthen growth. For an organization, it is important to elaborate on the appropriate Person-Environment Fit (PE fit) to ensure the acquisition of the right individual as a valuable organizational resource. Included appropriate fit in job, team, and organization. The criticality of person and environment is a very important feature impacting different stages of an employee's organizational journey, including their decision to remain in a company (Greguras & Diefendorff, 2009), the theory underscores the importance of affective commitment in ensuring overall satisfaction, both physically and mentally, to encourage individuals to stay within an organization. The sufficiency of knowledge and effective communication is essential to strengthen the process of expressing shaping efficient behavior and retaining the maximum capacity to ensure business success (Anwar & Abdullah, 2021).

Affective commitment, indicating an employee's emotional connection and active involvement with the organization, emerges as a pivotal factor shaping their feeling to continue working (Brkich, Jeffs, & Carless, 2002). As humans manage all operational aspects within an organization, assessing human resource challenges becomes crucial for evaluating its success. In the education sector, human resources not only contribute to organizational accomplishments but also play a role in shaping societal initiatives for sustainable development. Research often distinguishes between Person-Organization Fit (PO fit) and Person-Job Fit (PJ fit) (Carless, 2005). This interest continues in 2023, as evident in works by Astuti and Amir (2023), Park and Hai (2024), and Liao (2023). PO fit typically involves aligning employee values with organizational culture, while PJ fit focuses on matching skills with job requirements (Cable & DeRue, 2002). Recent studies, such as Lin et al. (2022), underscore the importance of aligning individual traits with the organization, extending the Person-Environment Fit theory to team dynamics.

Therefore, it is necessary to investigate the impact of aligning individual traits and organizational elements, guided by the Person-Environment Fit theory, on employee commitment, with a specific focus on the education sector. The study zeroes in individuals with tenure who are at a crossroads, grappling with the decision of whether to stay or leave their current workplace—a scenario commonly known as the 'fight or flight' dilemma. Examining how the fit within the organization, job, and team influences affective commitment becomes a central aspect of this research. Further, this research intends to fill gaps in understanding and adapting to the challenge of global trends education workforce declining trend with the ultimate goal to contribute to building a globally successful and inclusive learning society, ensuring that future generations have the necessary skills and knowledge for improving.

II. OBJECTIVES

1. To analyze the level of Person-Organization Fit, Person-Job Fit, Person-Group Fit, and Affective Commitment in the education sector.

2. To examine and elaborate the relationship between the Person-Environment Fit theory (Person-Organization Fit, Person-Job Fit, and Person-Group Fit) on Affective Commitment in the education sector.

III. LITERATURE REVIEWS

A. Human Resource in Education Sector Challenges

The challenge in the higher education market is due to declining population and globalization factors and it is a contribution to a scarcity of human resources (Yonezawa, 2020). Moreover, the discussion on young individuals who are neither employed, enrolled in education, nor undergoing training is widely acknowledged, creating a significant knowledge gap (Mellberg, Minas, Korpi, & Andersson, 2023). Given that knowledge forms the fundamental foundation of life and enables individuals to fulfill roles and responsibilities in society, a comprehensive education is essential. Proper allocation and communication of general education are necessary to adapt to the current situation, foster improvement at societal, national, and global levels, and cultivate responsible global citizens.

Cameron (1983) suggests the potential for a declining trend in education, particularly in higher education. This decline is associated with factors such as outdated curricula, inadequate resources, and a lack of investment in the professional development of educators. Therefore, to address these challenges a collective effort is required from policymakers, educators, and society. It is imperative to prioritize and invest in education, enhance its quality, improve accessibility, and adapt to the needs of society.

The education sector faces recurrent challenges in effectively managing its human resources, which serve both as the workforce and as contributors to produce for other parties. Consequently, the allocation of importance to human resources in the education industry becomes crucial, considering their effectiveness and contribution to societal development. The challenges extend beyond the classroom, affecting administrative staff who face issues such as workload, burnout, and the need for continuous skill development. These challenges collectively create an environment where attracting and retaining high-caliber talent becomes increasingly difficult for the sector to adapt to changes effectively.

Promoting a culture of lifelong learning and continuous education is essential for educating a workforce to remain flexible and resilient in addressing these challenges. Investing in employee training and development not only ensures a skilled workforce but also supports a culture of continuous improvement

(Eisenbeiss, van Knippenberg, & Boerner, 2008), leading to increased employee satisfaction and commitment.

Succession planning is influenced by various factors, including how well individuals fit into their work environment (Fusarelli, Fusarelli, & Riddick, 2018). Effective communication is a powerful tool for keeping people informed, and satisfied and contributing to positive organizational outcomes. As organizations navigate challenges in the education sector, a strategic approach to human resource management becomes imperative. Establishing a positive organizational culture, aligning individual values with job requirements, and promoting compatibility within teams are critical factors that enhance employee commitment, retention, and overall performance.

B. PE Fit

The study of Andela and van der Doef (2019) has overlaid the concept of Person-Environment Fit (PE Fit) originally rooted in various theories such as Murray's need-press model in 1938, Lewin's field theory in 1951, and French, Rodgers, and Cobb's model in 1974. Where the emphasis is on an alignment between an individual and their environment both subjective and objective. Later, studies by Katzell and Locke built on the theory to become the central of focus research on job satisfaction, while French, Caplan, and Harrison’s model in 1982, and McGrath’s model in 1976, indicated job stress. After all, there are remaining areas that need further clarification.

The Person-Environment Fit (PE Fit) Theory is a framework that provides an understanding of how well individuals align with their work environment. This alignment involves psychological dimensions, and it is about compatibility between individuals and organizations. It is also related to why people might want to leave or stay in their jobs (Redelinghuys, 2023), with three main types of fit: 1) Person-Organization Fit, an expression of how much someone feels their values match with their workplace. When this match is strong, people are less likely to want to quit. 2) Needs-Supplies Fit, perception of satisfaction from a job like what was wanted from the job like money or rewards. 3) Demands-Abilities Fit, personal observation of matching between job's requirements and employee's skills. Further, Person-Organization Fit and Needs-Supplies Fit are more significant than Demands-Abilities Fit in influencing turnover intention. (Redelinghuys, 2023)

C. PO Fit

Person-Organization Fit (PO Fit) is a relationship between organizational culture and employee values. Research by Cable and DeRue (2002) has found a suitable working environment physically and mentally can greatly enhance productivity. Personal dedication is strong evidence of personal emotionally attached to the organization; it is always followed by an optimistic viewpoint and comfortable feeling toward the organization (van Dick, Wagner, Stellmacher, & Christ, 2004). Employees with a strong alignment with an organization's values tend to reflect greater emotional feeling and commitment yielding a positive organizational climate and overall satisfaction.

Recent studies by Astuti and Amir (2023) and Park and Hai (2024) provide a contemporary viewpoint of PO fit. They explore and prove the positive alignment of personal values and organizational culture. The study of Astuti and Amir (2023) explored the effect of PO, PJ fit and AC on organizational citizenship behavior (OCB) in Indonesia's public sector and found a positive and significant effect on OCB, while the study of Park and Hai (2024) found a positive relation of PO, PJ, and OC among hotel employees.

Piasentin and Chapman (2006) found subjective PO fit important implications for workplace outcomes. Further, they represent an empirical measurement to indicate the importance of PO fit in employees attributed to specific fit types and predict the tendency to provide positive work attitudes towards the organization and personal roles.

D. PJ Fit

Person-Job Fit (PJ Fit) is an alignment of individual skills with job requirements. Specifically, it emphasizes the match between the ability of a person fulfilled to the demands of their job. Employees with a high ability fit are expected to show a higher level of affective commitment.

As the study in the 19th century, allocated important determinant of job satisfaction is PJ fit (Arvey, Carter, & Buerkley, 1991). Therefore, the PJ fit directly influences the individual satisfaction to perform the job. This is the yield of the fruitful and multiplier effect resulting in accomplishing the organization's goal. Additionally, Cable and DeRue's (2002) studies initiate the importance of driven job satisfaction and commitment caused mainly by job fit. Along with this, the study of Iqbal (2012) addresses the job satisfaction caused by job fit. As well as, the study of Fauzan (2023), shows PJ Fit significantly influences job satisfaction, with both PJ Fit and job satisfaction are significantly impact organizational commitment. From these studies, the proximity timeline of every ten years, there are still scholars in academia who confirm the concept of correlation between job satisfaction and personal job fit.

Brkich, Jeffs, and Carless (2002) provide an internationally applicable self-measurement scale on PJ Fit, to discover knowledge, skills, abilities, needs, and values with job requirements. Where PJ Fit goes beyond skill matching, it involves work preferences to support organizational values. It is a significant sign when employees perceive that their values and preferences align with the values of the organization they work for, they are likely to demonstrate increased commitment.

E. PG Fit

Person-Group Fit (PG Fit) explores how well individuals align with their team. Individuals with a high fit to their team are likely to demonstrate a stronger emotional connection and commitment to the organization. Previous studies, such as Lin et al. (2022), extend the P-E fit theory to team dynamics, emphasizing the significance of aligning individual preferences with the organization for optimal team satisfaction and performance. When individuals feel a sense of unity and compatibility with their team members, they are more likely to be committed to the collective goals of the organization. Since the team is mostly connected to an individual and plays an important part in dealing with most work matters, team dynamics play a remarkable role in influencing employee commitment. Further, effective communication and positive interpersonal interactions are important to building both sides of Person-Group Fit in collaboration and shared values to work within teams (Pudjiarti & Hutomo, 2020)

In addition, St J. Burch and Anderson (2004) identified the need to measure and evaluate person-team fit for selection and development purposes as a psychometric tool. It is a contribution to prove the importance of team fit in various dimensions.

F. Affective Commitment

Workforce commitment is an essential factor for global sustainable development (Chan & Hsieh, 2022). The hardworking application of effort together with unwavering commitment yields a substantial multiplier effect; it amplifies the impact of meaningful contributions. Modern motivation goes beyond salary, it encompasses opportunities for advancement, salary increases, and professional growth. On the other hand, commitment isn't just about loyalty to the organization; it's also about how employees interact with each other, encouraging them to willingly contribute (Putsom, 2020). Therefore, designing effective employee engagement strategies requires alignment of a diverse workforce involving early planning, clear communication, collaboration, internal transitions, and proactive steps (Davis, 2015).

As Averin (2020) suggested normative commitment implies a sense of responsibility, continuance commitment is influenced by a perceived "need" to stay, and Affective Commitment (AC) signifies an emotional inclination or longing to continue being a member. This aligns with Meyer and Allen's (1997) illustrated three-component model, employee commitment encompasses three psychological states. The first stage is Affective Commitment (AC), involving emotional attachment, identification, and organizational involvement. Second, continuance commitment, which is related to perceived costs, associated with leaving the organization and last, normative commitment, reflecting employees' sense of obligation to remain with the organization.

Research by Meyer, Stanley, Herscovitch, and Topolnytsky (2002) indicates that the three forms of commitment predict workplace behaviors differentially, with AC demonstrating the strongest positive association with desirable behaviors such as Organizational Citizenship Behaviors (OCB). These differences are significant due to the unique psychological nature of each commitment form. It reflects a willingness to invest time and effort in organizational goals with a sense of belonging. Further, noteworthy findings suggest that hope is a predictor of organizational commitment, specifically in the affective area (Chernyak-Hai, Bareket-Bojmel, & Margalit, 2024; Masale, Barkhuizen, & Schutte, 2021).

IV. Hypotheses development

A. Person-organization Fit and Affective Commitment

The level of Person-Organization Fit contributes to the competitive advantage of an organization. When there is a high alignment between individual and organization, it is a tendency leading to a positive output and expected outcome i.e. organizational commitment, improvement in productivity, and decreased turnover intention (Alniaçik, Alniaçik, Erat, & Akçin, 2013). Affective Commitment is a key element of organizational commitment, it indicates an individual's emotional attachment and identification with their organization (Mercurio, 2015). Factors contributing to Affective Commitment include perceived organizational support, effective leadership, and a positive organizational culture and climate. It also influences an individual's decision-making and develops a sense of loyalty and engagement (Meyer et al., 2002). A study by Behery (2009) confirmed a positive correlation between PO fit and Affective Commitment to the organization. Individuals with a high organizational fit are likely to demonstrate a higher level of Affective Commitment.

H1: Person-Organization Fit has a positive relation with Affective Commitment.

B. Person-Job Fit and Affective Commitment

Job design influences the degree of Affective Commitment (Katz, Rudolph, Kühner, & Zacher, 2023). The characteristics of a job play a crucial role in the level of satisfaction, which is linked to Affective Commitment. Job satisfaction is an immediate outcome resulting from an arrangement between individual expectations and organizational reality. The development of Affective Commitment is measured by how well an organization meets employees' needs, where positive experiences suggest that those with greater job choice autonomy exhibit stronger commitment (Rifai, 2005). This connection results in positive outcomes for both individuals and organizations. Employees who are emotionally attached find fulfillment and happiness, often going beyond their formal duties to contribute to the organization's well-being (Miao, Newman, & Huang, 2014). Additionally, several recent studies have explored the use of PJ Fit as a mediator between Affective Commitment and job satisfaction (Hayat & Afshari, 2022; Meredith et al., 2023; Moulik & Giri, 2022), shedding light on the possibility of examining employees with a high ability fit to the demands, likely demonstrating a higher level of Affective Commitment.

H2: Person-job Fit has a positive relation with Affective Commitment.

C. Person-Group Fit and Affective Commitment

According to Xiao, Mao, Quan, and Qing, (2020), individuals with good teamwork not only experience better health and increased happiness, but they are also seven times more likely to be engaged and committed to their work compared to those without such friendships. Building positive relationships among colleagues can improve the work environment by strengthening connections, encouraging cooperation, and improving respect. This enables them to share values, experiences, and joy. Employees with strong emotional bonds with coworkers have a higher tendency to be active in teamwork and show empathy and support for colleague's challenges (Berman, West, & Richter, 2002). An investigation of PG fit and commitment in a Korean company found low PG fit, and high PS fit with low PO fit leads to a higher level of commitment compared to low PS fit with high PO fit (Sung, Seong, & Kim, 2020). Therefore, Individuals who fit well with the team are likely to exhibit a higher level of Affective Commitment.

H3: Person-Group Fit has a positive relation with Affective Commitment.

All hypotheses are summarized in the conceptual model, as shown in Figure 1.

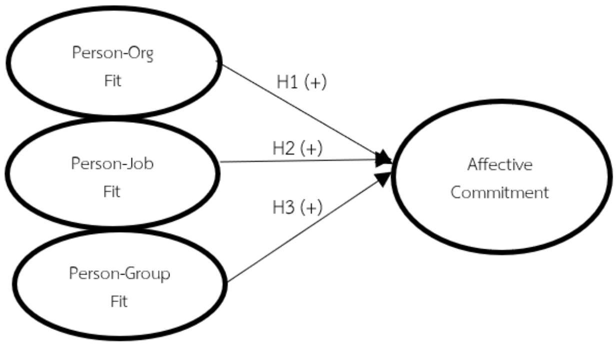


Figure 1: Conceptual framework

V. METHODS

A. Sample and Data Collection

The target population for this study encompasses the workforce within the education sector, aligning with the research objective of exploring the relationships individuals uphold with their jobs, teams, and organizations. Admitting the impracticality of gathering data from the entire population, a sampling frame has been instituted, narrowing the focus to employees in higher education institutions in Thailand. To enhance the feasibility of the study, a purposive sampling approach is adopted within each group subset, comprising both public and private higher education institutions. Specifically, two institutions are selected, one public university and one private university in the central part of Thailand to simplify the survey process.

A comprehensive questionnaire has been formulated, designed to be accessible both online and offline. For the private institution, since official permission to collect research participants, takes a long process and time, the researcher has invited individuals within the organization to participate anonymously in an online distribution through personal relations while process deferring. The researcher has access to the intranet and the employee name list, using personal connections to send invitations for participation in the survey through online channels, email, and social networks. On the other hand, for public institutions, since the researcher leveraged knowledge of employees working together and existing email or social network, the invitation to participate in the questionnaire was sent to the contacted channel. The total questionnaire links were sent to approximately 400 neighbors, and only 42 responses were received, approximately a 10 percent response rate for online data collection.

Afterward, permission to visit in person was granted by both of the institutions to collect data, though authorization to use the network channel was not obtained. The researcher visited respondents door-to-door to explain the research purpose. The selection of participants for this method depended on their accessibility and willingness to engage during the visit. A QR code was provided to scan for survey access, and respondents could also choose to use a provided tablet or opt for a paper-printed questionnaire. Small tokens of appreciation were distributed after completing the survey. During the visits 166 out of 202 agreed to participate, which represents an 82 percent response rate from offline data collection. In total, 208 usable responses were collected and suitable for data analysis. The individual characteristics are summarized in Table 1.

Table 1: Descriptive statistics of the sample

Personal Characteristics	Number	Percentage
Organization type		
Private	69	33.2
Public	139	66.8
Gender		
Male	97	46.6
Female	111	53.4
Generation		
Boomer	50	24.0
Gen X	59	28.4
Gen Y	95	45.7
Gen Z	4	1.9
Education		
Doctorate	16	7.7
Master	98	47.1
Bachelor	94	45.2

Table 1: Descriptive statistics of the sample (Cont.)

Personal Characteristics	Number	Percentage
Year of Service		
0-5 Years	56	26.9
6-10 Years	35	16.8
More than 10 Years	117	56.2

B. Measures

Person-Organization Fit was assessed by using the scale developed by Piasentin & Chapman (2006). The scale consists of eight questions. Respondents rated all questions using a Likert scale with five points, rating from a minimum of 1 to a maximum of 5 (strongly disagree to strongly agree).

Person-Job Fit was assessed by using the scale developed by Cable and DeRue (2002). The scale consists of three questions. Respondents rated all questions using a Likert scale with five points, rating from a minimum of 1 to a maximum of 5 (strongly disagree to strongly agree).

Person-Group Fit was assessed by utilizing the categorization method and excluding specific questions within the similar categories scale developed by St J. Burch and Anderson (2004). The original scale, consisting of seventeen questions, they were classified into five groups, communication and information sharing, unity and team dynamics, connectivity and team interaction, team atmosphere, and team performance. Then choose the most suitable representative questions aligned with the research objectives. The final scale consists of five questions. Respondents rated all questions using a Likert scale with five points, rating from a minimum of 1 to a maximum of 5 (strongly disagree to strongly agree).

The Affective Commitment was assessed by using the scale developed by Kuvaas (2006). The scale consists of six questions. Respondents rated all questions using a Likert scale with five points, rating from a minimum of 1 to a maximum of 5 (strongly disagree to strongly agree).

C. Statistical Analysis

Correlation and regression analysis have been adopted to assess the strength and interaction relationships between variables. Particularly to analyze and interpret understanding of the connection between individual Affective Commitment and fits of job, team, and organization. The analysis was performed using descriptive analysis, Pearson Correlation Analysis, and Regression Analysis.

VI. RESULTS

A. Mean Value of the Factors Affecting Affective Commitment

The results of the analysis, as shown in Table 2, revealed the mean level and standard deviation of the person-organization fit, Person-Job Fit, Person-Group fit, and Affective Commitment.

The perceptions of individual traits and organizational elements, guided by the Person-Environment Fit theory, on employee commitment, with a specific focus on the education sector, were at a high level ($\bar{x}$ more than 3.50). When considering each of the Person-Environment Fit theory items, it was found that Person-Group Fit had the highest level ($\bar{x}$ = 3.95), followed by Person-Job Fit ($\bar{x}$ = 3.88) and Person-Organization Fit ($\bar{x}$ = 3.74). The perception of Affective Commitment was also at a lower level ($\bar{x}$ = 3.65) than all the Person-Environment Fit theory factors.

Table 2: Mean value of factors affecting affective commitment

Variables	$\bar{x}$	SD	Perception Level
Person-Organization Fit	3.74	.58	High level
Person-Job Fit	3.88	.86	High level
Person-Group fit	3.95	.61	High level
Affective Commitment	3.65	.64	High level

(n = 208)

B. The Regression Analysis of the Relationship between the Person-Environment Fits and the Affective Commitment

The results of Pearson Correlation Analysis, as shown in Table 3, indicate that only Person-Job Fit was not correlated with Affective Commitment.

Table 3: Pearson correlations

Variables	Affective Commitment	Person-Organization Fit	Person-Job Fit	Person-Group fit
Affective Commitment	1.000	-	-	-
Person-Organization Fit	.459**	1.000	-	-
Person-Job Fit	.132	.517**	1.000	-
Person-Group fit	.426**	.549**	.290**	1.000

***. Correlation is significant at the 0.01; *. Correlation is significant at the 0.05*

Table 4: Multiple regression analysis between person-environment fits and the affective commitment

Factors of Person-Environment Fit	Affective Commitment			t	p
	b	S.E.b	β		
Constant	1.438	.288	-	4.984	.000**
Person-Organization Fit	.430	.089	.392	4.861	.000**
Person-Job Fit	-.106	.052	-.143	-2.028	.044*
Person-Group fit	.258	.074	.249	3.462	.000**
(n = 208) F= 24.152; P = 0.000; R =.514; R^2 = .264; AdjR^2 = .253					

*** Statistical significance at 0.01; * Statistical significance at 0.05*

The rest of the variables were significantly correlated with each other with a statistical significance at the 0.01 level.

The results of the Multiple Regression Analysis, in Table 4, showed similar results as the Pearson Analysis. That is only Person -Job Fit has no relation or negative relation with Affective Commitment. The other two relationships showed significance at the 0.01 level. That is Person-Organization Fit and Person-Group Fit have a positive relation with Affective Commitment.

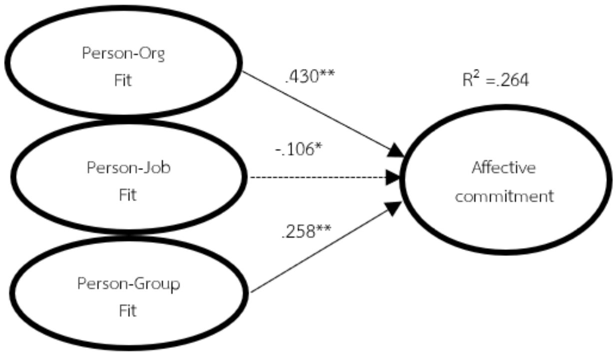
Specifically, the multiple correlation coefficient was 0.514 and was able to jointly predict successful performances in 26.4% of instances (R Square = .264), with statistical significance at the 0.01 level, and with a standard error in forecasting equal to ± 0.548. When considering the predictor regression coefficient, it was found that two predictors influenced Affective Commitment significantly at the 0.01 level. These predictors were Person-Organization Fit (Beta = 0.430, p = 0.000) and Person-Group Fit (Beta = 0.258, p = 0.000). However, Person-Organization Fit negatively influenced Affective Commitment significantly at the 0.05 level (Beta = -0.106, p = 0.044). When considering the R Square, which is 0.264, and the VIF values, which are between 1.365 and 1.781 indicating variables are moderately correlated and there is no significant multicollinearity that needs to be corrected (Daoud, 2017).

Thus, Hypothesis 1 was supported. Person-Organization Fit has a positive relation with Affective Commitment (Beta = 0.430, p = 0.000, VIF = 1.781).

Hypothesis 2 was not supported. Person-Job Fit does not have a positive relation with Affective Commitment. However, Person-Job Fit has a negative relation with Affective Commitment (Beta = -.106, p = 0.044, VIF = 1.365).

Hypothesis 3 was supported (Model 3). Person-Group fit has a positive relation with Affective Commitment (Beta = 0.442, p = 0.000, VIF = 1.424).

The results of multiple regression analysis between person-environment fits and Affective Commitment are summarized in the conceptual model, as shown in Figure 2.



Notes: ** <.01, * <.05
Standardized beta coefficients are reported.
Dash lines represent non-significant results.

Figure 2: Results of multiple regression

VII. DISCUSSION AND CONCLUSION

A. General Discussion of the Results

The study investigated the factors influencing Affective Commitment in the education sector. The mean values and standard deviations for Person-Organization Fit, Person-Job Fit, Person-Group Fit, and Affective Commitment were analyzed. Person-Group Fit had the highest mean level, followed by Person-Job Fit and Person-Organization Fit. Affective Commitment had a slightly lower mean level. Pearson correlation analysis revealed significant correlations among all variables, except for Person-Job Fit. However, multiple regression analyses yielded different results. Person-Organization Fit and Person-Group fit positively influenced Affective Commitment, while Person-Job Fit did not. Person-Job Fit negatively influenced Affective Commitment. The overall model predicted Affective Commitment in 26.4% of instances. Control variables (organizational type, gender, generation, and education level) showed no significant effects on the relationship between person-environment fits and Affective Commitment.

The results (Hypothesis 2) show that Person-Job Fit had a negative impact on Affective Commitment, which was inconsistent with existing research in this field. Research findings from various studies suggest a positive relationship between Person-Job Fit and Affective Commitment (Tsai and Tsao, 2017), rather than a negative correlation as the current results. Moreover, some studies highlight the mediating role of Person-Job Fit in enhancing Affective Commitment (e.g. Sheikh, Hassan & Sultana, 2022; Yulianti & Fitdiarini, 2022). Others emphasize the indirect impact of Person-Job Fit, through other variables such as job satisfaction and self-efficacy, ultimately leading to increased Affective Commitment (e.g. Dechkham, 2022, Kim, Schuh, & Cai, 2020; Park & Hai, 2024; Peng & Mao, 2015; Yalabik, Rayton, & Rapti, 2017). Therefore, based on the available research, there is no evidence of a negative correlation between Person-Job Fit and Affective Commitment; instead, the literature suggests a positive or mediating relationship between these constructs.

Overall, the findings from the study align with several aspects of the literature review on human resource challenges in the education sector, Person-Environment Fit (PE fit), and Affective Commitment. For example, Choy and Yeung (2023) and Ju and Kamarudin (2023), found that PE fit influences various aspects such as turnover intention, employee engagement, positive affect, and affective commitment. The challenges in the education sector, include the scarcity of human resources due to declining populations and globalization factors. It emphasizes the need for comprehensive education, proper allocation and communication of general education, and addressing challenges such as outdated curricula and inadequate resources (Yonezawa, 2020). The study's focus on the education sector's challenges in managing human resources, including issues faced by administrative staff, resonates with the empirical findings that highlight the importance of Person-Organization Fit, Person-Job Fit, and Person-Group Fit in influencing Affective Commitment among employees in the education sector.

Another important aspects of promoting a culture of lifelong learning and continuous education to address workforce challenges (Eisenbeiss, et al., 2008) align with the study's findings (Choy & Yeung, 2023; Ju & Kamarudin, 2023) which indicate that Person-Organization Fit and Person-Group Fit significantly influence Affective Commitment, supporting the idea that investing in employee training and development contributes to a skilled and committed workforce.

Furthermore, the concept of Person-Environment Fit (PE fit) theory, specifically focuses on Person-Organization Fit (PO fit), Person-Job Fit (PJ fit), and Person-Group Fit (PG fit) (Redelinghuys, 2023). The empirical study aligns with these concepts by investigating the relationship between these fits and Affective Commitment. The study's results support the positive relationships between Affective Commitment and Person-Organization Fit, Person-Job Fit, and Person-Group fit, in line with the literature's emphasis on the importance of these fits in organizational outcomes (Mellberg et al., 2023).

B. Recommendations for Future Research

Given that research on factors influencing Affective Commitment in the education sector, there is a potential for future research. First, investigating mediating and moderating variables, for instance, leadership style, organization climate, and retention period could lead to a better understanding of the correlation between person-environment fits and Affective Commitment. Next is to incorporate qualitative research methods, including an in-depth interview to enhance comprehension of individual preferences and experiences. Additionally, longitudinal studies or a time series experiment could yield a better understanding evolving nature of these relationships. Further, additional control variables might contribute to a more nuanced examination of the factors influencing Affective Commitment. Researchers might consider person-supervisor fit as suggested by Alniaçik et al. (2013). Moreover, exploring the impact of external factors, such as global economic conditions is expecting additional dimension to the study. Finally, empirical evidence suggests a positive or mediating relationship between Person-Job Fit and Affective Commitment. The current results are inconsistent with existing research in this field. This needs to be investigated further in different contexts and measurements.

C. Limitations

The study has represented a strong point in exploring Affective Commitment in the education sector. However, there are certain limitations. First of all, a sample size and the selection process. Purposive sampling creates a potential influence to bias or underrepresentation, which not be able to represent the overall education segment. Moreover, from the R-square or adjusted R-square value, the model explains the dependent variable to a relatively low extent, approximately 25–26% (Table 4). This means more than 70% of Affective Commitment remains unexplained by this model. Thus, the model is inability to fully explain Affective Commitment. In addition, the focus of the study on the education sector may limit generalization to other industries. Further, the study has omitted variables and the impact of external factors on Affective Commitment. Addressing these weaknesses in future research would enhance the study's strength and applicability.

D. Managerial Implications

The study's findings provide valuable insights for management in the education sector to enhance employee commitment. Particularly, the most influential factor, indicated by the highest beta coefficient, is fostering Person-Organization Fit (PO Fit). To strengthen commitment, management should focus on aligning individual values with the organization's culture, emphasizing shared goals, and fostering a positive work climate to deepen emotional attachment.

Following closely in significance is the impact of Person-Group Fit (PG Fit) on Affective Commitment. Development of team dynamics by promoting compatibility among team members, encouraging effective communication, and fostering shared values within teams is essential for enhancing overall employee commitment.

Though Person-Job Fit (PJ Fit) did not show a statistically significant impact, it still warrants consideration. Management efforts can be directed towards refining job roles, providing skill development opportunities, and addressing any mismatches to positively influence commitment.

Regarding control variables like organizational type, gender, generation, and education level, the analysis suggests that they do not significantly affect the relationship between person-environment fits and Affective Commitment. Therefore, managerial focus may not need to be extensive in these areas when aiming to enhance commitment in the education sector.

In conclusion, a strategic emphasis on PO Fit and PG Fit is recommended for management, offering the most substantial impact on Affective Commitment among employees. By prioritizing these areas, educational institutions can create a workplace environment that fosters emotional attachment, commitment, and overall organizational success.

REFERENCES

Alniaçik, E., Alniaçik, Ü., Erat, S., & Akçin, K. (2013). Does person-organization fit moderate the effects of affective commitment and job satisfaction on turnover intentions?. *Procedia - Social and Behavioral Sciences, 99*, 274–281.

Andela, M., & van der Doef, M. (2019). A comprehensive assessment of the person-environment fit dimensions and their relationships with work-related outcomes. *Journal of Career Development, 46*(5), 567–582. doi:10.1177/0894845318789512

Anwar, G., & Abdullah, N. N. (2021). The impact of human resource management practice on organizational performance. *International Journal of Engineering, Business and Management, 5*(1), 35–47.

Arvey, R. D., Carter, G. W., & Buerkley, D. K. (1991). Job satisfaction: Dispositional and situational influences. In C. L. Cooper & I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology* (pp. 359–383). New York, NY: John Wiley & Sons.

Astuti, Y. F., & Amir, D. A. (2023). The effect of person-organization fit, person-job fit, and organizational commitment on organizational citizenship behavior: Evidence from employees in the Indonesia public sector. *Diponegoro International Journal of Business, 6*(1), 1–8.

Averin, A. (2020). Spiritual leadership and employees' continuance commitment: Employees' perception of spiritual leadership in their organizational leaders and employees' organizational commitment. *International Leadership Journal, 12*(2), 18–47.

Behery, M. H. (2009). Person/organization job-fitting and affective commitment to the organization: Perspectives from the UAE. *Cross Cultural Management: An International Journal, 16*(2), 179–196. doi:10.1108/13527600910953928

Berman, E. M., West, J. P., & Richter, M. N., Jr., (2002). Workplace relations: Friendship patterns and consequences (according to managers). *Public Administration Review, 62*(2), 217–230.

Brkich, M., Jeffs, D., & Carless, S. A. (2002). A global self-report measure of person-job fit. *European Journal of Psychological Assessment*, *18*(1), 43–51. doi:10.1027/1015-5759.18.1.43

Cable, D. M., & DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology, 87*(5), 875–884.

Cameron, K. (1983). Strategic responses to conditions of decline: Higher education and the private sector. *The Journal of Higher Education*, *54*(4), 359–380.

Carless, S. A. (2005). Person–job fit versus person–organization fit as predictors of organizational attraction and job acceptance intentions: A longitudinal study. *Journal of Occupational and Organizational Psychology*, *78*(3), 411–429.

Chan, Y.-K., & Hsieh, M.-Y. (2022). An empirical study on higher education C-ESG sustainable development strategy in lower-birth-rate era. *Sustainability*, *14*(19), 12629.

Chernyak-Hai, L., Bareket-Bojmel, L., & Margalit, M. (2024). A matter of hope: Perceived support, hope, affective commitment, and citizenship behavior in organizations. *European Management Journal*, *42*(4), 576–583.

Choy, M. W. C., & Yeung, A. S. (2023). Person-environment fit: implications for vocational students' career in the era of crisis. In C. Hong & W. W. K. Ma, (Eds.), *Applied Degree Education and the Shape of Things to Come* (pp. 319–338). doi:10.1007/978-981-19-9315-2_18

Daoud, J. I. (2017). Multicollinearity and regression analysis. *Journal of Physics: Conference Series, 949*, 1–6. doi:10.1088/1742-6596/949/1/012009

Davis, P. J. (2015). Implementing an employee career-development strategy: How to build commitment and retain employees. *Human Resource Management International Digest*, *23*(4), 28–32.

Dechkham, P. (2022). A causal relationship model of person-job fit and job satisfaction affecting the job performance of convenience store employees (in Thai). *Journal of Accountancy and Management, 14*(4), 185–197.

Eisenbeiss, S. A., van Knippenberg, D., & Boerner, S. (2008). Transformational leadership and team innovation: Integrating team climate principles. *Journal of Applied Psychology, 93*(6), 1438–1446.

Fauzan, R. (2023). The influence of person-job fit toward job satisfaction, organizational commitment, and organizational citizenship behavior. *Riwayat: Educational Journal of History and Humanities, 6*(1), 181–195. doi:10.24815/jr.v6i1.295553

Fusarelli, B. C., Fusarelli, L. D., & Riddick, F. (2018). Planning for the future: Leadership development and succession planning in education. *Journal of Research on Leadership Education*, *13*(3), 286–313.

Greguras, G. J., & Diefendorff, J. M. (2009). Different fits satisfy different needs: Linking person-environment fit to employee commitment and performance using self-determination theory. *Journal of Applied Psychology*, *94*(2), 465–477.

Hayat, A., & Afshari, L. (2022). CSR and employee well-being in hospitality industry: A mediation model of job satisfaction and affective commitment. *Journal of Hospitality and Tourism Management, 51*, 387–396.

Iqbal, M. T. (2012). The impact of person job fit on job satisfaction and its subsequent impact on employees performance. *Mediterranean Journal of Social Sciences, 3*(2), 523–530.

Ju, S.-Y., & Kamarudin, D. (2023). A mediation model of affective commitment towards the environment on local government employees' organizational citizenship behaviour towards the environment (OCBE). *International Journal of Entrepreneurship, Business and Technology, 1*(1), 70–81.

Katz, I. M., Rudolph, C. W., Kühner, C., & Zacher, H. (2023). Job characteristics and employee green behavior. *Journal of Environmental Psychology, 92*, 102159. doi:10.1016/j.jenvp.2023.102159

Kim, T.-Y., Schuh, S. C., & Cai, Y. (2020). Person or Job? Change in person-job fit and its impact on employee work attitudes over time. *Journal of Management Studies, 57*(2), 287–313.

Kuvaas, B. (2006). Performance appraisal satisfaction and employee outcomes: Mediating and moderating roles of work motivation. *The International Journal of Human Resource Management, 17*(3), 504–522.

Liao, P.-Y. (2023). Proactive personality, job crafting, and person-environment fit: Does job autonomy matter?. *Current Psychology, 42*, 18959–18970.

Lin, X., Sivarak, O., Chou, T.-H., Lin, Y.-T., Rahardja, U., Ruangkanjanases, A., ... Chen, S.-C. (2022). Exploring the effect of team-environment fit in the relationship between team personality, job satisfaction, and performance. *Frontiers in Public Health*, *10,* 897482. doi:10.3389/fpubh.2022.897482

Masale, R., Barkhuizen, E. N., & Schutte, N. E. (2021). Exploring the determinants of an organisational talent culture for a Botswanan local government institution. *Acta Commercii, 21*(1), a892.

Mellberg, C., Minas, R., Korpi, T., & Andersson, L. (2023). Effective local governance assisting vulnerable groups: The case of youth not in employment, education or training (NEETs) in Sweden. *International Journal of Social Welfare*, *32*(1), 20–31.

Mercurio, Z. A. (2015). Affective commitment as a core essence of organizational commitment: An integrative literature review. *Human Resource Development Review, 14*(4), 389–414.

Meredith, C., Moolenaar, N., Struyve, C., Vandecandelaere, M., Gielen, S., & Kyndt, E. (2023). The importance of a collaborative culture for teachers' job satisfaction and affective commitment. *European Journal of Psychology of Education*, *38*, 43–62.

Meyer, J. P., & Allen, N. J. (1997). *Commitment in the Workplace: Theory, Research, and Application*. California, CA: Sage Publications.

Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior*, *61*(1), 20–52.

Miao, Q., Newman, A., & Huang, X. (2014). The impact of participative leadership on job performance and organizational citizenship behavior: distinguishing between the mediating effects of affective and cognitive trust. *The International Journal of Human Resource Management, 25*(20), 2796–2810.

Moulik, M., & Giri, V. N. (2022). Impact of increasing social resources on work engagement and affective organizational commitment: The mediating role of person–job fit. *Management and Labour Studies*, *47*(1), 59–73.

Park, I.-J., & Hai, S. (2024). Person-organization fit, person-job fit and organizational commitment among hotel employees: the roles of positive affect and calling. *International Journal of Contemporary Hospitality Management, 36*(3), 852–872. doi:10.1108/IJCHM-07-2022-0827

Peng, Y., & Mao, C. (2015). The impact of person–job fit on job satisfaction: The mediator role of self efficacy. *Social Indicators Research, 121*(3), 805–813.

Piasentin, K. A., & Chapman, D. S. (2006). Subjective person–organization fit: Bridging the gap between conceptualization and measurement. *Journal of Vocational Behavior*, *69*(2), 202–221.

Pudjiarti, E. S., & Hutomo, P. T. P. (2020). Innovative work behavior: An integrative investigation of person-job fit, person-organization fit, and person-group fit. *Business: Theory and Practice, 21*(1), 39–47.

Redelinghuys, K. (2023). Assessing the impact of person-environment fit on turnover intention through multiple linear regression. *Psychological Reports.* Advance online publication. doi:10.1177/00332941231219957

Rifai, H. A. (2005). A test of the relationships among perceptions of justice, job satisfaction, affective commitment and organizational citizenship behavior. *Gadjah Mada International Journal of Business, 7*(2), 131–154. doi:10.22146/gamaijb.5574

Sheikh, A. A., Hassan, N. M., & Sultana, R. (2022). Linking service-oriented high-performance work practices bundle with person-job fit, person organization fit and affective commitment: A parallel mediation analysis. *Review of Applied Management and Social Sciences, 5*(2), 149–166.

St J. Burch, G., & Anderson, N. (2004). Measuring person-team fit development and validation of the team selection inventory. *Journal of Managerial Psychology, 19*(4), 406–426.

Sung, S. H., Seong, J. Y., & Kim, Y. G. (2020). Seeking sustainable development in teams: Towards improving team commitment through person-group fit. *Sustainability*, *12*(15), 6033. doi:10.3390/su12156033

Tsai, P. C.-F., & Tsao, C.-W. (2017). The effects of person-environment fit and external locus of control on organizational affective commitment: A study of immigrant wives in Taiwan. *Journal of International Migration and Integration, 18*(3), 699–717. doi:10.1007/s12134-016-0493-x

van Dick, R., Wagner, U., Stellmacher, J., & Christ, O. (2004). The utility of a broader conceptualization of organizational identification: Which aspects really matter?. *Journal of Occupational and Organizational Psychology, 77*(2), 171–191.

Wanlee Putsom. (2020). The relationship among organizational climate, leader-member exchanges and affective commitment towards positive organizational behavior of a not-for-profit organization in Thailand. *Journal of Business Administration The Association of Private Education Institutions of Thailand, 9*(2), 146–165.

Xiao, J., Mao, J.-Y., Quan, J., & Qing, T. (2020). Relationally charged: How and when workplace friendship facilitates employee interpersonal citizenship. *Frontiers in Psychology, 11*, 190. doi:10.3389/fpsyg.2020.00190

Yalabik, Z. Y., Rayton, B. A., & Rapti, A. (2017). Facets of job satisfaction and work engagement. *Evidence-based HRM, 5(3)*, 248–265.

Yonezawa, A. (2020). Challenges of the Japanese higher education Amidst population decline and globalization. *Globalisation, Societies and Education*, *18*(1), 43–52.

Yulianti, P., & Fitdiarini, N. (2022). Increasing nurses' affective professional commitment through person job-fit. *Journal of Theoretical and Applied Management (Jurnal Manajemen Teori Dan Terapan), 15*(1), 121–131.

ปัจจัยที่มีผลต่อความพึงพอใจและความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่องหลังการระบาดของ COVID-19

ชิดชนก อินทอง*

**สาขาวิชาโลจิสติกส์สากลและการจัดการอุตสาหกรรม คณะบริหารธุรกิจ มหาวิทยาลัยเทคโนโลยีมหานคร, กรุงเทพมหานคร, ประเทศไทย*

*ผู้ประพันธ์บรรณกิจ อีเมล : chidchanok@mut.ac.th

รับต้นฉบับ : 14 กันยายน 2567 รับบทความฉบับแก้ไข : 19 พฤศจิกายน 2567; ตอบรับบทความ : 20 พฤศจิกายน 2567
เผยแพร่ออนไลน์ : 26 ธันวาคม 2567

บทคัดย่อ

จากสถานการณ์ปัจจุบันของผู้บริโภคที่ใช้บริการแอปพลิเคชันสั่งอาหารหลังจากสถานการณ์โรคระบาดโควิด-19 พบว่าพฤติกรรมของผู้บริโภคมีการเปลี่ยนแปลงไป งานวิจัยนี้ได้ศึกษาความสัมพันธ์ระหว่างตัวชี้วัดที่เกี่ยวข้องกับความพึงพอใจและความตั้งใจที่จะใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่องในประเทศไทยผ่านแพลตฟอร์มสั่งอาหารออนไลน์ รวบรวมข้อมูลโดยใช้แบบสอบถามกับกลุ่มชายและหญิงจำนวน 660 คน มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่ส่งผลต่อความพึงพอใจและความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่องโดยใช้แบบจำลองสมการโครงสร้าง การวิเคราะห์ข้อมูลอิทธิพลที่ส่งผลต่อความพึงพอใจที่จะใช้แอปพลิเคชันสั่งอาหาร พบว่า ความคาดหวังประสิทธิภาพ สภาพของสิ่งอำนวยความสะดวก แรงจูงใจด้านความเพลิดเพลิน มูลค่าราคา และอิทธิพลของสังคม มีผลต่อความพึงพอใจที่จะใช้แอปพลิเคชันสั่งอาหาร นอกจากนี้ยังพบว่าความพึงพอใจมีอิทธิพลต่อความเคยชินของผู้บริโภคเช่นกัน ส่วนการวิเคราะห์ข้อมูลอิทธิพลที่ส่งผลต่อความตั้งใจที่จะใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่องพบว่า ความเคยชิน ความพึงพอใจ และความคาดหวังประสิทธิภาพ มีผลต่อพฤติกรรมความตั้งใจที่จะใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่องของผู้ใช้งานในเชิงสถิติมีนัยสำคัญที่ 0.05

คำสำคัญ : ความตั้งใจอย่างต่อเนื่อง แอปพลิเคชันสั่งอาหาร ความพึงพอใจ แบบจำลองสมการเชิงโครงสร้าง

Factors Affecting Satisfaction and Intention to Continue Using Food Ordering Application After the COVID-19 Pandemic

Chidchanok Inthong*

Global Logistics and Industrial Management, Faculty of Business Administration, Mahanakorn University of Technology, Bangkok, Thailand

*Corresponding Author. E-mail address: chidchanok@mut.ac.th

Received: 14 September 2024; Revised: 19 November 2024; Accepted: 20 November 2024
Published online: 26 December 2024

Abstract

From the current situation of consumers who use food ordering apps after the COVID-19 pandemic, it was found that consumer behavior has changed. This research studied the relationship between indicators related to satisfaction and intention to continue using food ordering apps in Thailand via the food delivery platforms. Data were collected using a questionnaire with a group of 660 males and females. The objective was to study the factors affecting satisfaction and intention to continue using food ordering apps using structural equation modeling. The data analysis on the influences on satisfaction to use food ordering apps found that efficiency expectations, facilities, entertainment motivations, price value, and social influences affected satisfaction to use food ordering apps. It was also found that familiarity influenced consumer satisfaction. The data analysis on the influences on intention to continue using food ordering apps found that familiarity, satisfaction, and efficiency expectations affected users' behavior and intention to continue using food ordering apps in a statistically significant manner at 0.05.

Keywords: Continuous intention, Food delivery application, Satisfaction, Structural equation modeling

1) บทนำ

จากสถานการณ์การแพร่ระบาดของ COVID-19 รวมถึงมาตรการควบคุมโรคระบาด ปฏิเสธไม่ได้เลยว่าธุรกิจบริการส่งอาหาร (food delivery) มีการเจริญเติบโตอย่างต่อเนื่องแบบก้าวกระโดด ซึ่งเห็นได้จากทั้งปริมาณการใช้บริการ จำนวนของร้านอาหาร และอาชีพไรเดอร์ที่เข้าร่วมแพลตฟอร์มในปี พ.ศ. 2563 (Punyapob Tantipidok, & Pattharapon Yuttharsaknukul, 2021) จากการคาดการณ์ของ Euromonitor ที่กล่าวถึงตลาด food delivery ของไทยว่ามีแนวโน้มที่จะพัฒนาอย่างต่อเนื่อง โดยมูลค่าของตลาดจะเติบโตขึ้นจาก 68.8 พันล้านบาทในปี พ.ศ. 2563 เพิ่มเป็น 74 พันล้านบาทในปี พ.ศ. 2564 และอาจเพิ่มสูงถึง 99 พันล้านบาทในปี พ.ศ. 2567 เมื่อพิจารณาส่วนแบ่งทางการตลาดในปี พ.ศ.2563 พบว่า Grab มีส่วนแบ่งตลาดสูงสุด โดยครอบครองสัดส่วนมากถึงร้อยละ 50 ในขณะที่แอปพลิเคชัน Food Panda, Lineman และ Gojek มีสัดส่วนรองลงมา นอกจากนี้ ในปี พ.ศ. 2564 ยังพบว่าร้านอาหารข้างทางจะมีส่วนแบ่งรายได้ของธุรกิจจัดส่งอาหารออนไลน์มากถึงร้อยละ 40 (Kittisak Kongka, 2021)

หลังจากสถานการณ์โรคระบาดคลี่คลาย ตลาดเกิดความชะลอตัวเล็กน้อย แต่ก็ยังคงความร้อนแรงอย่างต่อเนื่อง แต่ผู้ประกอบ-การยังคงต้องการส่วนแบ่งทางการตลาดอย่างต่อเนื่อง ซึ่งจากข้อมูลย้อนหลังเมื่อเปรียบเทียบผลประกอบการหลักของแอปพลิเคชันผลปรากฏว่าในปี พ.ศ. 2566 Grab มีรายได้สูงสุดถึง 15,622 ล้านบาท (Amarin TV Online, 2024) และจากผลสำรวจแนวโน้มและพฤติกรรมการใช้งานแอปพลิเคชันสั่งอาหารของศูนย์วิจัยกสิกรพบว่า ประชาชนยังมีการใช้บริการแต่ลดความถี่ลง เนื่องจากมีการปรับเปลี่ยนพฤติกรรมหลังสถานการณ์ COVID-19 รวมถึงผู้ใช้บริการส่วนใหญ่กว่าร้อยละ 80 จะใช้บริการมากกว่าหนึ่งแอปพลิเคชัน (Kasikorn Research Center, 2023) ทั้งนี้เจ้าของธุรกิจแอปพลิเคชันจะต้องปรับปรุงคุณภาพการให้บริการ และร่วมมือกับผู้ประกอบการร้านอาหารและผู้ให้บริการขับขี่ เพื่อให้ธุรกิจสามารถดำเนินการได้อย่างต่อเนื่องและส่งผลให้ลูกค้าเกิดความพึงพอใจและใช้บริการอย่างต่อเนื่อง สอดคล้องกับการสำรวจของศูนย์วิจัยกสิกรที่คาดการณ์ว่าปริมาณการสั่งอาหารผ่านแอปพลิเคชัน ในปี พ.ศ. 2567 จะลดลงประมาณ 3.7% จากปี พ.ศ. 2566 โดยเป็นผลมาจากความจำเป็นที่ต้องใช้บริการแอปพลิเคชันลดลง และราคาอาหารเฉลี่ยที่ขายในแอปพลิเคชันที่ปรับตัวสูงขึ้น เพราะต้นทุนที่สูงขึ้นและทางร้านจัดโปรโมชันเพื่อกระตุ้นยอดขาย (Varithorn Sirisattayawong & Anataporn Labsakkarn, 2024) จากการทบทวนงานวิจัยที่เกี่ยวข้องกับการใช้บริการแอปพลิเคชันสั่งอาหาร พบว่ามีผู้วิจัยที่ทำการศึกษาเรื่องที่เกี่ยวข้องกับแอปพลิเคชันสั่งอาหาร ดังนี้ Chaiyawit Muangmee, Sebastian Kot, Nusanee Meekaewkunchorn, Nattapon Kassakorn, and Bila Khalid (2021) ศึกษาปัจจัยที่ส่งผลต่อความตั้งใจในการใช้แอปพลิเคชันส่งอาหารช่วงการระบาดของ COVID-19 Weiler and Gilitwala (2024) ศึกษาว่าทำไมคนกรุงเทพถึงใช้บริการส่งอาหารออนไลน์ หลังสถานการณ์ COVID-19 Kraikrit Bussaban, Thanapat Emin, Ariya Martsiri, and Punporn Ponpitak (2022) ศึกษาการยอมรับนวัตกรรมการใช้แอปพลิเคชันสั่งอาหารออนไลน์ Pasiri Khetpiyarat, Watcharaporn Areerattanasak, Sineenart Vikramprasit, and Apa Saisombut (2024) ศึกษาแรงจูงใจและกลยุทธ์การตลาดบริการที่ส่งผลต่อการตัดสินใจเลือกใช้บริการแอปพลิเคชันสั่งอาหารของผู้บริโภค Jutamas Sriratana (2021) ศึกษาพฤติกรรมการเลือกใช้บริการสั่งอาหารออนไลน์ผ่านแอปพลิเคชันสั่งอาหารของผู้บริโภคในช่วงการระบาดของ COVID-19 Pornsupat Sirichoksopon and Anake Chitkesorn (2021) ศึกษาการยอมรับเทคโนโลยีและปัจจัยส่วนประสมทางการตลาดที่ส่งผลต่อการตัดสินใจสั่งอาหารออนไลน์ของผู้บริโภค Alalwan (2020) ศึกษาปัจจัยที่ส่งผลต่อความพึงพอใจทางอิเล็กทรอนิกส์ของลูกค้าและความตั้งใจที่จะใช้อย่างต่อเนื่อง Zhao and Bacao (2020) ศึกษาปัจจัยที่กำหนดว่าลูกค้าจะยังคงใช้แอปพลิเคชันสั่งอาหารต่อในช่วงการระบาดของ COVID-19

จากการทบทวนวรรณกรรมผู้วิจัยต้องการทราบถึงปัจจัยที่ส่งผลต่อความพึงพอใจและความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง โดยผู้ที่เกี่ยวข้องในธุรกิจแอปพลิเคชันสั่งอาหาร สามารถนำผลการวิจัยที่ได้ไปใช้เป็นข้อมูลในการวิเคราะห์ประกอบการตัดสินใจในการปรับปรุงพัฒนาแอปพลิเคชันสั่งอาหารให้ดึงดูดความสนใจ สามารถกระตุ้นความต้องการใช้ และสร้างความพึงพอใจให้กับผู้ใช้งานที่จะนำไปสู่การกลับมาใช้บริการอย่างต่อเนื่อง และสร้างกลยุทธ์เพื่อเพิ่มความได้เปรียบในการแข่งขัน รวมถึงขยายฐานลูกค้าเพื่อสร้างการเติบโตของธุรกิจ

2) วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาปัจจัยที่ส่งผลต่อความพึงพอใจของลูกค้าในการใช้บริการแอปพลิเคชันสั่งอาหารหลังการระบาดของ COVID-19

2. เพื่อศึกษาปัจจัยที่ส่งผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่องหลังการระบาดของ COVID-19

3) การทบทวนวรรณกรรม

3.1) แนวคิดเกี่ยวกับความพึงพอใจ

Kotler (1999) กล่าวว่า ความพึงพอใจของลูกค้าเป็นอีกแนวคิดที่สำคัญที่ได้รับการศึกษามากที่สุด เพราะความพึงพอใจของลูกค้ามีบทบาทสำคัญในการสร้างความได้เปรียบทางธุรกิจ เนื่องจากมีอิทธิพลต่อการรักษาลูกค้าเก่าและการแนะนำลูกค้าใหม่ ความพึงพอใจเป็นปัจจัยสำคัญในการตัดสินใจของลูกค้าว่าจะใช้บริการและจะเกี่ยวข้องกับผลิตภัณฑ์หรือบริการหรือไม่ในการซื้อของออนไลน์ รวมถึงการซื้ออาหาร ความพึงพอใจของลูกค้าเป็นหนึ่งในปัจจัยสำคัญที่นำไปสู่การรักษาฐานลูกค้าและขยายกลุ่มลูกค้าใหม่ รวมถึงความตั้งใจที่จะกลับมาซื้อซ้ำในระยะยาว มีงานวิจัยที่ศึกษาเกี่ยวกับความพึงพอใจของการใช้แอปพลิเคชันสั่งอาหาร ตัวอย่างเช่น Al Amin et al. (2020) พบว่าความพึงพอใจมีอิทธิพลต่อความตั้งใจของผู้ใช้ต่อการใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่องผลการวิจัยที่คล้ายกันนี้ได้รับการยืนยันเกี่ยวกับความพึงพอใจที่ส่งผลการใช้บริการอย่างต่อเนื่อง เช่น Annaraud and Berezina (2020) ศึกษาการคาดการณ์ความพึงพอใจและความตั้งใจในการใช้บริการจัดส่งอาหารออนไลน์ Agarwal and Sahu (2022) การคาดการณ์ความตั้งใจใช้ซ้ำสำหรับบริการสั่งอาหารออนไลน์ นอกจากนี้ Alalwan (2020) ได้ศึกษาเกี่ยวกับปัจจัยความพึงพอใจที่ส่งผลต่อความเคยชินและความเคยชินส่งผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

ดังนั้นผู้วิจัยจึงได้ทำการศึกษาปัจจัยที่ส่งผลต่อความพึงพอใจของการใช้บริการแอปพลิเคชันสั่งอาหารของผู้ใช้บริการในมุมมองการตลาด ซึ่งผลการวิจัยที่ได้จะส่งผลให้ผู้ประกอบการแอปพลิเคชันสั่งอาหารสามารถนำไปพัฒนาหรือปรับปรุงเพื่อให้ลูกค้าที่ใช้บริการมีความพึงพอใจต่อการใช้งาน

3.2) แนวคิดเกี่ยวกับการพัฒนาทฤษฎีรวมของการยอมรับและการใช้เทคโนโลยี

Venkatesh, Morris, Davis, and Davis (2003) ได้เสนอทฤษฎีรวมการยอมรับและใช้เทคโนโลยี (Unified Theory of Acceptance and Use of Technology: UTAUT) เพื่ออธิบายการยอมรับและใช้เทคโนโลยีของแต่ละบุคคล โดยใช้ความตั้งใจแสดงพฤติกรรม และพฤติกรรมการใช้ เป็นตัวแปรหลักจากทฤษฎีพฤติกรรมตามแบบแผนของ Ajzen (1991) ซึ่งหลักการคือ ศึกษาพฤติกรรมการใช้ที่ได้รับแรงกระตุ้นจากความตั้งใจทำต่อมา Venkatesh, Thong, and Xu (2012) พบว่าทฤษฎีดังกล่าวมีข้อจำกัดจึงพัฒนาโดยศึกษาปัจจัยเพิ่มเติมให้มีความเหมาะสมยิ่งขึ้น เรียกว่า ทฤษฎีการพัฒนาทฤษฎีรวมของการยอมรับและใช้เทคโนโลยี (Modified UTAUT หรือ UTAUT2) ซึ่งปัจจัยที่เพิ่มขึ้นมีอิทธิพลทางตรงต่อความตั้งใจกระทำและพฤติกรรมการใช้ สรุปได้ว่าหลักการของ UTAUT2 เป็นการศึกษาพฤติกรรมการใช้ที่ได้รับแรงกระตุ้นจากความตั้งใจกระทำโดยปัจจัยที่มีอิทธิพลต่อความตั้งใจกระทำ

ความคาดหวังประสิทธิภาพ (Performance Expectancy: PE) หมายถึง สิ่งที่ผู้ใช้เชื่อว่าการใช้แอปพลิเคชันสั่งอาหาร จะช่วยให้ได้มาซึ่งการใช้บริการที่มีประสิทธิภาพ Zanetta et al. (2021) ยืนยันการศึกษาของ Alalwan (2020) แสดงให้เห็นว่าปัจจัยนี้สำคัญต่อใช้บริการ

ความคาดหวังในความพยายาม (Effort Expectancy: EE) หมายถึง ผู้ใช้บริการเชื่อว่าการใช้บริการแอปพลิเคชันสั่งอาหารเป็นเรื่องง่าย ไม่ซับซ้อน Zanetta et al. (2021) ยืนยันการศึกษาของ Alalwan (2020) แสดงให้เห็นว่าปัจจัยนี้สำคัญต่อการใช้บริการ

สภาพของสิ่งอำนวยความสะดวก (Facilitating Conditions: FC) หมายถึง ผู้ใช้เชื่อว่าสิ่งต่าง ๆ สามารถอำนวยความสะดวกในการใช้แอปพลิเคชันสั่งอาหาร Yapp and Kataraian (2022) และ Zanetta et al. (2021) ยืนยันการศึกษาของ Alalwan (2020) แสดงให้เห็นว่าปัจจัยนี้สำคัญต่อการใช้บริการ

แรงจูงใจด้านความเพลิดเพลิน (Hedonic Motivation: HM) หมายถึง ผู้ใช้บริการเพลิดเพลินที่ได้ใช้แอปพลิเคชันสั่งอาหารและการสั่งอาหารออนไลน์น่าสนใจสำหรับผู้บริโภค Yapp and Kataraian (2022) และ Zanetta et al. (2021) ยืนยันการศึกษาของ Alalwan (2020) แสดงให้เห็นว่าปัจจัยนี้สำคัญต่อการใช้บริการ

ความคุ้มค่าด้านราคา (Price Value: PV) หมายถึง ประโยชน์ของการสั่งอาหารผ่านแอปพลิเคชันถือได้ว่ามีค่ามากกว่าต้นทุนทางการเงินและราคาของการใช้บริการ Yapp and Kataraian (2022) และ Zanetta et al. (2021) ยืนยันการศึกษาของ Alalwan (2020) แสดงให้เห็นว่าปัจจัยนี้สำคัญต่อการใช้บริการ

อิทธิพลของสังคม (Social Influence: SI) หมายถึง ผู้คนรอบข้างมีส่วนในการตัดสินใจว่าผู้ใช้ต้องการใช้บริการหรือไม่ Yapp and Kataraian (2022) และ Zanetta et al. (2021) ยืนยันการศึกษาของ Alalwan (2020) แสดงให้เห็นว่าปัจจัยนี้สำคัญต่อการใช้บริการ

3.3) แนวคิดเกี่ยวกับความเหมาะสมของงานและลักษณะของเทคโนโลยี

นอกจากนี้ได้ศึกษาทฤษฎีความเหมาะสมของงานและลักษณะของเทคโนโลยี (Task-Technology Fit: TTF) เป็นทฤษฎีสำหรับประเมินประสิทธิภาพของเทคโนโลยี (Goodhue & Thompson, 1995) ผลกระทบต่อการใช้งานและจับคู่ระหว่างข้อกำหนดของงานและลักษณะของเทคโนโลยี ซึ่งผู้ใช้จะใช้เทคโนโลยีเมื่อมีฟังก์ชันที่เหมาะสมและสนับสนุนกิจกรรมของผู้ใช้เพื่อให้สามารถทำงานได้อย่างมีประสิทธิภาพและเกิดประโยชน์สูงสุด เทคโนโลยีที่ไม่มีประโยชน์เพียงพอจะไม่ถูกนำมาใช้งาน Muangmee et al. (2021) ซึ่งสอดคล้องกับงานวิจัยของ Zhao and Bacao (2020) ได้ยืนยันว่า TTF มีผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

จากแนวคิดดังกล่าว ขอเสนอสมมติฐานงานวิจัย ดังนี้

H1: ความเคยชินมีผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H2: ความพึงพอใจมีผลต่อความเคยชินที่ใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H3: ความพึงพอใจมีผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H4: ความคาดหวังในประสิทธิภาพมีผลต่อความพึงพอใจที่ใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H5: ความคาดหวังในความพยายามมีผลต่อความพึงพอใจที่ใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H6: สภาพของสิ่งอำนวยความสะดวกมีผลต่อความพึงพอใจที่ใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H7: แรงจูงใจด้านความเพลิดเพลินมีผลต่อความพึงพอใจที่ใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H8: มูลค่าราคามีผลต่อความพึงพอใจที่ใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H9: อิทธิพลของสังคมมีผลต่อความพึงพอใจที่ใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H10: ความคาดหวังในประสิทธิภาพมีผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H11: ความคาดหวังในความพยายามมีผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H12: สภาพของสิ่งอำนวยความสะดวกมีผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H13: แรงจูงใจด้านความเพลิดเพลินมีผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

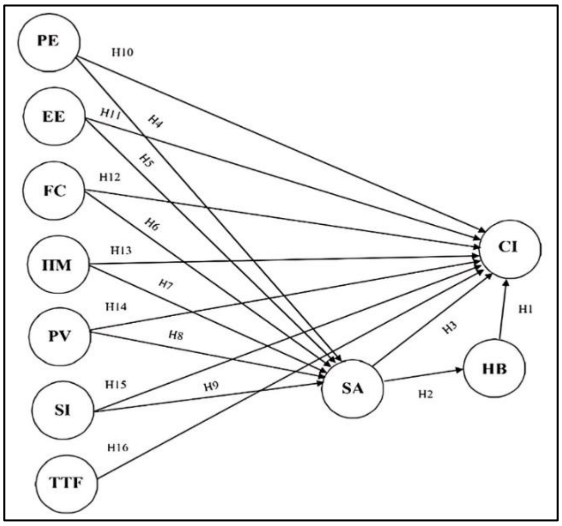
H14: ความคุ้มค่าด้านราคามีผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H15: อิทธิพลของสังคมมีผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

H16: ความเหมาะสมระหว่างงานและเทคโนโลยีมีผลต่อความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง

4) กรอบแนวคิดการวิจัย

ตามสมมติฐาน H1-H16 ได้สร้างกรอบแนวคิดของการศึกษาที่เกี่ยวข้องเกี่ยวกับปัจจัยที่ส่งผลต่อความพึงพอใจของลูกค้าและความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารซ้ำอย่างต่อเนื่องดังแสดงในรูปที่ 1



รูปที่ 1 : กรอบแนวคิดการวิจัย

5) วิธีดำเนินการวิจัย

5.1) การเก็บรวบรวมข้อมูล

5.1.1) แบบสอบถาม แบ่งออกเป็น 3 ส่วน ส่วนที่ 1 คือ ข้อมูลส่วนบุคคล และข้อมูลคุณลักษณะของผู้ตอบ ส่วนที่ 2 เกี่ยวกับปัจจัยที่ส่งผลต่อความพึงพอใจและการใช้บริการอย่างต่อเนื่องของผู้ใช้บริการแอปพลิเคชันสั่งอาหาร ส่วนที่ 3 ข้อเสนอแนะที่เกี่ยวข้อง โดยที่ส่วนที่ 2 ประกอบด้วยคำถาม 27 ข้อ ซึ่งข้อคำถามทั้งหมดมีลักษณะเป็นแบบมาตราส่วนประมาณค่า (rating scale) ซึ่งมีเกณฑ์ในการกำหนดค่าน้ำหนักของการประเมินเป็น 5 ระดับตามวิธีของลิเคิร์ท (Likert scale)

5.1.2) ประชากรและกลุ่มตัวอย่าง ผู้ใช้บริการที่แอปพลิเคชัน Grab Food ในจังหวัดที่เป็นศูนย์กลางทางเศรษฐกิจของแต่ละภูมิภาคของประเทศไทยจำนวน 6 ภูมิภาค ได้แก่ ภาคกลาง ภาคเหนือ ภาคตะวันออกเฉียงเหนือ ภาคตะวันออก ภาคตะวันตก และภาคใต้ โดยมีขนาดกลุ่มตัวอย่างทั้งหมด 660 คน ตัวอย่างแบ่งเป็น 6 ภูมิภาค ในแต่ละพื้นที่ทำการรวบรวมภูมิภาคละ 110 คน ซึ่งสอดคล้องกับการหาขนาดของตัวอย่างที่เหมาะสมจะต้องไม่น้อยกว่า 20 เท่าของจำนวนตัวแปร (Jackson, as cited in Kline, 2011) โดยงานวิจัยนี้มี 27 ตัวแปร ดังนั้นขนาดตัวอย่างต้องมีอย่างน้อย 27 × 20 = 540 ทั้งนี้ผู้วิจัยใช้การสุ่มตัวอย่างแบบกลุ่มตามพื้นที่ทางภูมิศาสตร์ แล้วทำการคัดเลือกมาเพียงบางส่วนด้วยวิธีการสุ่มแบบธรรมดา และระยะเวลาที่ใช้ในการเก็บแบบสอบถามเริ่มตั้งแต่เดือน มกราคม–กุมภาพันธ์ 2564

5.2) ความน่าเชื่อถือของแบบสอบถาม

การตรวจสอบคุณภาพดำเนินโดยผู้เชี่ยวชาญ 5 ท่าน ได้ตรวจสอบความครบถ้วนความสอดคล้องของเนื้อหาของแบบสอบถามที่ตรงกับเรื่องที่จะศึกษา โดยใช้ IOC (Index of item: IOC) เพื่อหาค่าดัชนีความสอดคล้องระหว่างข้อคำถามผลปรากฏว่าค่าดัชนี IOC สูงกว่า 0.5 หมายความว่า ความถูกต้องของเนื้อหาของแบบสอบถามอยู่ในช่วงที่ยอมรับได้ จากนั้นจึงทำการศึกษานำร่องกับผู้ตอบ 30 คนที่ไม่รวมอยู่ในการวิจัย วิเคราะห์ความน่าเชื่อถือโดยใช้ค่าสัมประสิทธิ์แอลฟาของครอนบาก ผลลัพธ์ระบุค่าแอลฟาของครอนบากที่ 0.784–0.965 ซึ่งมากกว่า 0.7 (Tavakol & Dennick, 2011)

5.3) การวิเคราะห์สมการโครงสร้าง

สมการโครงสร้างเป็นวิธีการทางสถิติที่ใช้ตรวจสอบความสัมพันธ์ระหว่างตัวแปร โดยอาจวัดความสัมพันธ์ระหว่างตัวแปรที่สังเกตได้กับตัวแปรแฝง หรือวัดความสัมพันธ์ระหว่างตัวแปรแฝงตั้งแต่สองตัวขึ้นไป คุณสมบัติที่สำคัญคือ ต้องเป็นสมการเส้นตรงและในการหาความสัมพันธ์ระหว่างตัวแปรอาจจะเป็นการหาสาเหตุระหว่างตัวแปร การหาความสัมพันธ์ระหว่างตัวแปรที่เกิดขึ้นพร้อมกัน หรือการหาความสัมพันธ์ระหว่างกลุ่มตัวแปร SEM มี 2 รูปแบบ คือ โมเดลการวัดและโมเดลโครงสร้าง ดังนั้นการในการศึกษานี้จะศึกษาเพื่อให้ได้ความสัมพันธ์ระหว่างปัจจัยที่มีผลต่อความพึงพอใจและความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่องหลังจากการระบาดของ COVID-19 ซึ่งหมายถึงการรับรู้ของผู้ใช้บริการผ่านแอปพลิเคชันและทำการวิเคราะห์ แต่ละปัจจัยเพื่อให้ทราบว่าปัจจัยใดมีน้ำหนักมากที่สุดเพื่อนำเสนอแนะนโยบาย

6) ผลการวิจัย

ผลจากการเก็บข้อมูลจากตัวอย่างคือ ผู้ตอบแบบสอบถามส่วนใหญ่เป็นเพศหญิง จำนวน 415 ราย (ร้อยละ 62.9) และเพศชาย 245 ราย (ร้อยละ 37.1) ส่วนใหญ่มีอายุระหว่าง 21–30 ปี 276 ราย (ร้อยละ 41.8) และ 31–40 ปี 180 ราย (ร้อยละ 27.3) ระดับการศึกษาปริญญาตรี 407 ราย (ร้อยละ 61.9) และผู้จบมัธยมปลาย 152 ราย (ร้อยละ 23.0) ส่วนใหญ่เป็นนักศึกษา 205 ราย (ร้อยละ 31.1) และพนักงานบริษัท 167 ราย (ร้อยละ25.3) ระดับรายได้อยู่ที่ 10,001–20,000 บาท (ร้อยละ 30.9) ความถี่ในการใช้บริการคือน้อยกว่า 4 ครั้งต่อเดือน 334 ราย (ร้อยละ 50.6) และ 5–10 ครั้งต่อเดือน 213 ราย (ร้อยละ 32.3) รวมถึงผลการวิเคราะห์ค่าเฉลี่ยและค่าความเบี่ยงเบนมาตรฐานซึ่งแสดงในตารางที่ 1

6.1) แบบจำลองการวัด

ค่าสถิติดังกล่าวเป็นไปตามข้อมูลเชิงประจักษ์ โดยประกอบด้วยตัวแปรแฝง 9 ตัวแปรและตัวบ่งชี้ 27 ตัวบ่งชี้ ขณะที่พิจารณาจากค่าโหลดมาตรฐาน พบว่าค่าของโหลดมาตรฐานอยู่ในช่วง 0.794–0.928 ซึ่งตรงตามเกณฑ์ที่มากกว่า 0.4 (Hair, Black, Babin, & Anderson, 2010) ดังนั้นจึงสรุปได้ว่าแบบจำลองนี้ประกอบขึ้นด้วยวิธีการที่มีนัยสำคัญทางสถิติ ($p < 0.001$) และค่าการโหลดที่เป็นมาตรฐานซึ่งแสดงในตารางที่ 2

ตารางที่ 1 : ผลการวิเคราะห์ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน

ปัจจัยที่ส่งผลต่อความพึงพอใจและการกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง	รหัส	$\overline{X}$	SD	แปลผล
ความคาดหวังในประสิทธิภาพ (PE) จาก Alalwan (2020)				
1. ท่านพบว่าแอปพลิเคชันสั่งอาหารบนมือถือมีประโยชน์ในชีวิตประจำวันของท่าน	PE1	4.07	0.796	มาก
2. แอปพลิเคชันสั่งอาหารบนมือถือช่วยให้ท่านทำงานสำเร็จได้รวดเร็วขึ้น	PE2	3.97	0.834	มาก
3. การใช้แอปพลิเคชันสั่งอาหารบนมือถือช่วยเพิ่มผลิตภาพของท่าน	PE3	3.85	0.854	มาก

ตารางที่ 1 : ผลการวิเคราะห์ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน (ต่อ)

ปัจจัยที่ส่งผลต่อความพึงพอใจและการกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่อง	รหัส	$\overline{X}$	SD	แปลผล
ความคาดหวังในความพยายาม (EE) จาก Alalwan (2020)				
1. การเรียนรู้วิธีการใช้แอปพลิเคชันสั่งอาหารบนมือถือเป็นเรื่องง่าย	EE1	4.00	0.837	มาก
2. การโต้ตอบระหว่างท่านกับแอปพลิเคชันสั่งอาหารบนมือถือมีความชัดเจนและเข้าใจง่าย	EE2	3.89	0.818	มาก
3. เป็นเรื่องง่ายที่ท่านจะชำนาญในการใช้แอปพลิเคชันสั่งอาหารบนมือถือ	EE3	3.94	0.844	มาก
สภาพของสิ่งอำนวยความสะดวก (FC) จาก Alalwan (2020)				
1. ท่านมีทรัพยากรที่จำเป็นต่อการใช้แอปพลิเคชันสั่งอาหารบนมือถือ	FC1	3.89	0.841	มาก
2. แอปพลิเคชันสั่งอาหารบนมือถือเข้ากันได้กับเทคโนโลยีอื่น ๆ ที่ท่านใช้	FC2	3.95	0.839	มาก
แรงจูงใจด้านความเพลิดเพลิน (HM) จาก Alalwan (2020)				
1. การใช้แอปพลิเคชันสั่งอาหารบนมือถือเป็นเรื่องสนุก	HM1	3.51	0.982	มาก
2. การใช้แอปพลิเคชันสั่งอาหารบนมือถือให้ความเพลิดเพลิน	HM2	3.48	1.033	มาก
มูลค่าราคา (PV) จาก Cho, Bonn, and Li (2019)				
1. ท่านรู้สึกว่าท่านได้รับผลิตภัณฑ์อาหารที่ดีในราคาที่เหมาะสมเมื่อใช้แอปพลิเคชันสั่งอาหาร	PV1	3.82	0.810	มาก
2. การใช้แอปพลิเคชันสั่งอาหารคุ้มค่าสำหรับท่านที่จะทุ่มเทเวลาและความพยายาม	PV2	3.73	0.805	มาก
3. เมื่อเปรียบเทียบกับวิธีการซื้ออาหารทั่วไปท่านจะใช้แอปพลิเคชันสั่งอาหาร	PV3	3.71	0.848	มาก
อิทธิพลของสังคม (SI) จาก Alalwan (2020)				
1. คนที่สำคัญกับท่านคิดว่าท่านควรใช้แอปพลิเคชันสั่งอาหารบนมือถือ	SI1	3.72	0.818	มาก
2. ผู้ที่มีอิทธิพลต่อพฤติกรรมของท่านคิดว่าท่านควรใช้แอปพลิเคชันสั่งอาหารบนมือถือ	SI2	3.67	0.822	มาก
ความเหมาะสมระหว่างงานและเทคโนโลยี (TTF) จาก Zhao and Bacao (2020)				
1. หน้าที่ของแอปพลิเคชันสั่งอาหาร เพียงพอสำหรับการสั่งซื้อและรับอาหารที่จัดส่ง	TTF1	3.90	0.753	มาก
2. หน้าที่ของแอปพลิเคชันสั่งอาหาร เหมาะสมที่จะช่วยจัดการคำสั่งซื้อและการรับอาหารที่จัดส่ง	TTF2	3.92	0.774	มาก
3. หน้าที่ของแอปพลิเคชันสั่งอาหาร เป็นไปตามข้อกำหนดของคำสั่งซื้อและการรับอาหารที่จัดส่ง	TTF3	3.91	0.789	มาก
ความพึงพอใจ (SA) จาก Alalwan (2020)				
1. โดยทั่วไปท่านพึงพอใจกับแอปพลิเคชันสั่งอาหารบนมือถือ	SA1	3.95	0.819	มาก
2. ท่านพึงพอใจกับแอปพลิเคชันสั่งอาหารบนมือถือมาก	SA2	3.93	0.825	มาก
3. โดยรวมแล้วท่านพึงพอใจกับแอปพลิเคชันสั่งอาหารบนมือถือ	SA3	3.98	0.816	มาก
ความเคยชิน (HB) จาก Alalwan (2020)				
1.การใช้แอปพลิเคชันสั่งอาหารบนมือถือกลายเป็นนิสัยสำหรับท่าน	HB1	3.41	1.035	มาก
2. ท่านเสพติดการใช้แอปพลิเคชันสั่งอาหารบนมือถือ	HB2	3.27	1.107	ปานกลาง
3. การใช้แอปพลิเคชันสั่งอาหารบนมือถือกลายเป็นเรื่องปกติสำหรับท่าน	HB3	3.52	1.067	มาก
ความตั้งใจที่จะใช้แอปพลิเคชันสั่งอาหาร (CI) จาก Cho et al. (2019)				
1. ท่านตั้งใจจะใช้แอปพลิเคชันสั่งอาหาร	CI1	3.84	0.840	มาก
2. ถ้าท่านมีโอกาสท่านจะสั่งอาหารผ่านแอปพลิเคชันสั่งอาหาร	CI2	3.83	0.817	มาก
3. ท่านตั้งใจจะสั่งอาหารผ่านแอปพลิเคชันสั่งอาหารต่อไป	CI3	3.79	0.857	มาก

ตารางที่ 2 : ผลลัพธ์ของแบบจำลองการวัด

Construct	Variables	Standardized Loadings*	Standard Error	t-Value	CR	AVE	Cronbach's Alpha
PE	PE1	0.847	0.014	60.345			
	PE2	0.874	0.013	69.209	0.886	0.722	0.884
	PE3	0.828	0.015	54.967			
EE	EE1	0.861	0.013	68.422			
	EE2	0.846	0.013	62.885	0.897	0.744	0.897
	EE3	0.881	0.012	76.557			

ตารางที่ 2 : ผลลัพธ์ของแบบจำลองการวัด (ต่อ)

Construct	Variables	Standardized Loadings*	Standard Error	t-Value	CR	AVE	Cronbach's Alpha
FC	FC1	0.860	0.016	53.503	0.842	0.727	0.842
	FC2	0.845	0.017	51.136			
HM	HM1	0.928	0.013	73.225	0.909	0.833	0.908
	HM2	0.897	0.013	66.819			
PV	PV1	0.794	0.018	43.895			
	PV2	0.826	0.017	49.746	0.848	0.650	0.848
	PV3	0.799	0.018	44.389			
SI	SI1	0.898	0.014	65.295	0.874	0.776	0.874
	S12	0.864	0.015	58.195			
TTF	TTF1	0.857	0.013	67.920			
	TTF2	0.887	0.011	81.070	0.911	0.774	0.911
	TTF3	0.895	0.011	85.211			
SA	SA1	0.892	0.010	88.319			
	SA2	0.893	0.010	88.763	0.925	0.804	0.925
	SA3	0.905	0.009	97.019			
HB	HB1	0.919	0.009	107.027			
	HB2	0.896	0.010	91.843	0.926	0.807	0.925
	HB3	0.879	0.011	50.413			
CI	CI1	0.839	0.014	59.541			
	CI2	0.886	0.011	78.770	0.903	0.757	0.902
	CI3	0.885	0.011	78.207			

*Note: Regression. * significant at α = 0.05*

ตารางที่ 3 : ผลการวิเคราะห์ของการทดสอบสมมติฐาน

	Description	Standardized Path Coefficient	t-Value	P-value	Result
H1	HB → CI	0.239	4.508	0.000**	ยอมรับ
H2	SA → HB	0.987	40.818	0.000**	ยอมรับ
H3	SA → CI	0.277	5.058	0.000**	ยอมรับ
H4	PE → SA	0.608	2.289	0.022**	ยอมรับ
H5	EE → SA	0.183	1.637	0.102	ปฏิเสธ
H6	FC → SA	0.334	2.177	0.029**	ยอมรับ
H7	HM → SA	0.559	3.187	0.001**	ยอมรับ
H8	PV → SA	0.433	4.500	0.000**	ยอมรับ
H9	SI → SA	-1.247	-2.078	0.038**	ยอมรับ
H10	PE → CI	0.153	2.435	0.015**	ยอมรับ
H11	EE → CI	0.025	0.359	0.720	ปฏิเสธ
H12	FC → CI	0.106	1.681	0.095	ปฏิเสธ
H13	HM → CI	0.059	1.315	0.189	ปฏิเสธ
H14	PV → CI	0.109	1.898	0.058	ปฏิเสธ
H15	SI → CI	-0.023	-0.412	0.681	ปฏิเสธ
H16	TTF → CI	0.021	0.368	0.713	ปฏิเสธ

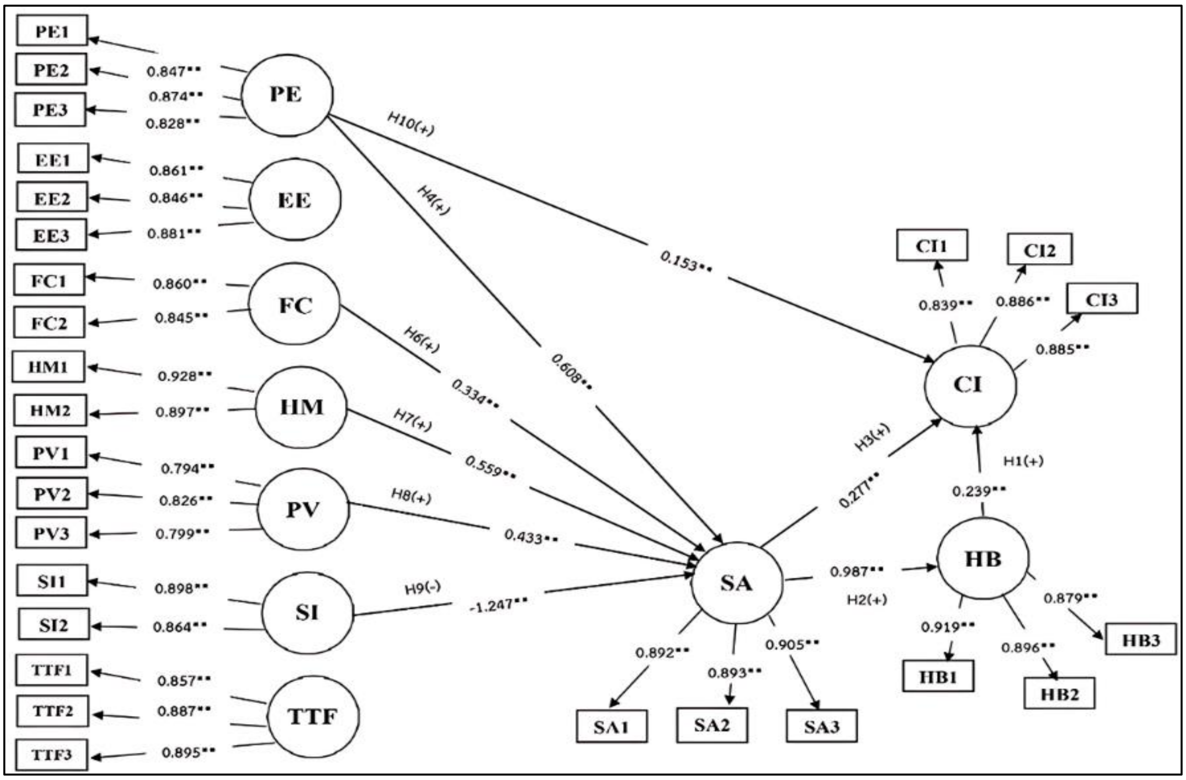
***มีนัยสำคัญทางสถิติที่ระดับ 0.05*

6.2) การวิเคราะห์สมการโครงสร้างและการทดสอบสมมติฐาน

พบว่าผลการวิเคราะห์ของแบบจำลองสอดคล้องกับข้อมูลเชิงประจักษ์ χ^2= 721.944, df = 285, (p < 0.000), χ^2/df = 2.533, RMSEA = 0.048, CFI = 0.972, TLI = 0.965 and SRMR = 0.028 เมื่อเปรียบเทียบกับเกณฑ์ที่แนะนำ คือ χ^2/df ควรมีค่า 2-5 จึงจะเหมาะสม (Marsh & Hocevar, 1985), Root Mean Square Error of Approximation (RMSEA) ควรมีค่าน้อยกว่า 0.07 (Steiger, 2007), Comparative fit index (CFI) ควรมีค่าเท่ากับหรือมากกว่า 0.90 (Hu & Bentler, 1999), Tucker–Lewis index (TLI) or Non-Normed Fit Index (NNFI) ควรมีค่าเท่ากับหรือมากกว่า 0.80 (Hooper, Coughlan, & Mullen, 2008), Standardized Root Mean Square Residual (SRMR) ควรมีค่าเท่ากับหรือน้อยกว่า 0.70 (Hu & Bentler, 1999) ค่าดัชนีความสอดคล้องดังกล่าวบ่งชี้ว่าเหมาะสมเพียงพอ จึงสามารถสรุปได้ว่าแบบจำลองสมการโครงสร้างเป็นไปตามข้อมูลเชิงประจักษ์ นอกจากนี้ เมื่อตรวจสอบด้วยสมมติฐาน 16 ประการที่นำเสนอในตารางที่ 4 พบว่าสิ่งเหล่านี้ส่งผลต่อความตั้งใจเชิงต่อพฤติกรรมในการใช้แอปพลิเคชันสั่งอาหารด้วยวิธีต่อไปนี้

ตารางที่ 3 แสดงผล SEM สำหรับแบบจำลองโครงสร้างซึ่งสำรวจความสัมพันธ์ระหว่างตัวแปรภายนอกทั้งสองตัวที่มีอิทธิพลต่อความตั้งใจใช้อย่างต่อเนื่อง ค่าสัมประสิทธิ์ถดถอยมาตรฐาน (Coef.) ระบุว่าปัจจัยด้านความพึงพอใจมีอิทธิพลสูงสุดต่อความตั้งใจใช้อย่างต่อเนื่อง (0.277) ตามด้วยความเคยชิน (0.239) และปัจจัยความคาดหวังในประสิทธิภาพ (0.153) และผลการวิเคราะห์ความสัมพันธ์ระหว่างความพึงพอใจที่มีอิทธิพลต่อความเคยชิน มีค่าสัมประสิทธิ์ถดถอยมาตรฐาน (Coef.) เท่ากับ (0.987) และผลการวิเคราะห์ความสัมพันธ์ระหว่างตัวแปรภายนอกทั้งหกตัวที่มีอิทธิพลต่อความพึงพอใจในการใช้แอปพลิเคชันสั่งอาหาร ค่าสัมประสิทธิ์ถดถอยมาตรฐาน (Coef.) ระบุว่าปัจจัยทางด้านอิทธิพลของสังคมมีอิทธิพลสูงสุดต่อความพึงพอใจ (-1.247) ตามด้วยปัจจัยความคาดหวังในประสิทธิภาพ (0.608) และปัจจัยด้านแรงจูงใจด้านความเพลิดเพลิน (0.559) และ ผลลัพธ์ของปัจจัยที่ส่งผลต่อความพึงพอใจและความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหารอย่างต่อเนื่องรวมถึงแสดงผลการวิเคราะห์ของการทดสอบสมมติฐานแสดงไว้ในตารางที่ 3

การตรวจสอบโดยสรุปตามสมมติฐานการวิจัยที่นำเสนอ (H1-H16) พบว่าสมมติฐานดังกล่าวส่งผลกระทบอย่างมีนัยสำคัญต่อความสัมพันธ์ ตามที่ระบุและแสดงไว้ในในรูปที่ 2



รูปที่ 2 : ผลการวิเคราะห์สมการโครงสร้าง

7) สรุปและอภิปรายผล

งานวิจัยนี้มีวัตถุประสงค์หลักเพื่อพัฒนาแบบจำลองสมการเชิงโครงสร้างเพื่อตรวจสอบความสัมพันธ์เชิงโครงสร้างของการสั่งอาหารผ่านแอปพลิเคชัน ปัจจัยที่ศึกษาในทฤษฎีรวมการยอมรับการใช้เทคโนโลยี (UTAUT) และส่วนขยายทฤษฎีรวมการยอมรับการใช้ เทคโนโลยี (UTAUT2) รวมถึงเพิ่มปัจจัยความพึงพอใจและความเหมาะสมระหว่างงานและเทคโนโลยีประกอบด้วย ความคาดหวังในประสิทธิภาพ ความคาดหวังในความพยายาม สภาพของสิ่งอำนวยความสะดวก แรงจูงใจด้านความเพลิดเพลิน มูลค่าราคา อิทธิพลของสังคม ความเหมาะสมระหว่างงานและเทคโนโลยี ความพึงพอใจ และความเคยชิน วิธีการศึกษาที่ใช้เป็นดัชนีวิเคราะห์ปัจจัยยืนยัน มีสมมติฐาน 16 ข้อ สำหรับการวิเคราะห์สมการโครงสร้าง ซึ่งตรวจสอบความสัมพันธ์ระหว่างปัจจัย ผลการประเมิน CFA พบว่าสามารถรับรององค์ประกอบของแบบจำลองดังกล่าวได้อย่างมีนัยสำคัญทางสถิติ นอกจากนี้ การวิเคราะห์แบบจำลองสมการ พบว่าดัชนีความสอดคล้องของแบบจำลองมีความสอดคล้องกันเป็นอย่างดี 9 สมมติฐานจากทั้งหมด 16 สมมติฐาน ซึ่งสามารถอธิบายรายละเอียด ได้ดังนี้

จากแบบจำลองสมการโครงสร้าง พบว่ามีปัจจัยที่มีอิทธิพลโดยตรงต่อความพึงพอใจ ได้แก่ ความคาดหวังประสิทธิภาพ ความคาดหวังในความพยายาม สภาพของสิ่งอำนวยความสะดวก ความเคยชิน แรงจูงใจด้านความเพลิดเพลิน มูลค่าราคา และอิทธิพลของสังคม พบว่าดัชนีความสอดคล้องของแบบจำลองมีความสอดคล้องกันเป็นอย่างดี 5 สมมติฐานจากทั้งหมด 6 สมมติฐาน ขณะตรวจสอบค่าสัมประสิทธิ์เส้นทางที่ได้มาตรฐาน พบว่าอิทธิพลของสังคมมีอิทธิพลต่อความพึงพอใจมากที่สุดแต่เป็นเชิงลบ มีค่าเท่ากับ -1.247 หมายความว่า ผู้บริโภคเมื่อได้รับโฆษณาเกี่ยวกับการสั่งอาหารออนไลน์จากกลุ่มที่มีส่งผลต่อตนเองเช่น เพื่อนสนิทหรือพ่อแม่ แล้วทำให้ผู้บริโภคเกิดความสนใจที่จะใช้แอปพลิเคชันสั่งอาหาร จึงเป็นผลให้แสดงออกมาทางพฤติกรรมโดยการตัดสินใจใช้แอปพลิเคชันสั่งอาหาร สอดคล้องกับการวิจัยของ Zhao and Bacao (2020) รองลงมาคือ ความคาดหวังประสิทธิภาพ เท่ากับ 0.608 พบว่า ถ้าผู้ใช้รู้สึกว่าการใช้บริการเป็นประโยชน์ต่อชีวิตประจำวันเกิดความสะดวกสบายก็จะส่งผลให้เกิดความพึงพอใจต่อการใช้งาน สอดคล้องกับงานวิจัยของ Alalwan (2020) และ Zhao and Bacao (2020) ถัดมาคือ แรงจูงใจด้านความเพลิดเพลิน เท่ากับ 0.559 พบว่าถ้าผู้ใช้บริการรู้สึกเพลิดเพลินและมีความสนุกสนานเมื่อได้ใช้บริการแอปพลิเคชันสั่งอาหาร อาจเป็นการได้เข้าไปดูข้อมูลหรือโปรโมชันของร้านค้าทำให้เห็นข้อมูลที่แตกต่างรู้สึกมีความสุขที่ต้องเลือกอาหารก็จะส่งผลให้ลูกค้าเกิดความพึงพอใจ สอดคล้องกับงานวิจัยของ Alalwan (2020) ถัดมาคือ มูลค่าราคา เท่ากับ 0.433 พบว่าหากผู้ใช้บริการคิดว่าผลิตภัณฑ์อาหารที่ได้รับเหมาะสมกับค่าอาหารที่จ่าย รวมถึงการสั่งอาหารผ่านแอปพลิเคชันมีความคุ้มค่ากับการเสียเวลาในการใช้งานแอปพลิเคชันสั่งอาหาร สอดคล้องกับงานวิจัยของ Alalwan (2020) ถัดมาคือ สภาพของสิ่งอำนวยความสะดวก เท่ากับ 0.334 หมายความว่า หากผู้ใช้บริการมีทรัพยากรที่พร้อมต่อการใช้งานแอปพลิเคชันสั่งอาหารในที่นี้ก็จะเป็นโทรศัพท์มือและอินเทอร์เน็ต ผู้ใช้ก็พร้อมที่จะใช้บริการแอปพลิเคชันสั่งอาหาร สอดคล้องกับงานวิจัยของ Alalwan (2020) นอกจากนี้จากการตรวจสอบสมมติฐานของความคาดหวังในความพยายามไม่มีอิทธิพลต่อความพึงพอใจ เท่ากับ 0.183 หมายความว่า ผู้ใช้แอปพลิเคชันสั่งอาหารยังคงมีความวิตกกังวลต่อการใช้แอปพลิเคชันสั่งอาหาร เนื่องจากกังวลว่าการใช้งานมีความยากต่อการใช้หรือกลัวความซับซ้อนของแอปพลิเคชัน รวมถึงเมื่อเกิดปัญหาระหว่างการใช้งานทางผู้ใช้ไม่สามารถโต้ตอบกับทางแอปพลิเคชันได้ นอกจากนี้ผู้วิจัยได้ทำการตรวจสอบสมมติฐานที่ 2 ว่าความพึงพอใจมีอิทธิพลต่อความเคยชินซึ่งมีค่าอิทธิพลเท่ากับ 0.987 หมายความว่า หากผู้ใช้บริการเกิดความพึงพอใจต่อการใช้งานแอปพลิเคชันสั่งอาหารก็จะส่งผลให้เกิดความเคยชินจนกลายเป็นนิสัย เมื่อถึงเวลาของมื้ออาหารผู้ใช้ก็จะทำการสั่งอาหารผ่านแอปพลิเคชันทันที

จากแบบจำลองสมการโครงสร้าง พบว่า มีปัจจัยที่มีอิทธิพลโดยตรงต่อความตั้งใจใช้บริการอย่างต่อเนื่อง ได้แก่ ความเคยชิน ความพึงพอใจ ความคาดหวังประสิทธิภาพ ความคาดหวังในความพยายาม สภาพของสิ่งอำนวยความสะดวก แรงจูงใจด้านความเพลิดเพลิน มูลค่าราคา อิทธิพลของสังคม และความเหมาะสมระหว่างงานและเทคโนโลยี พบว่าดัชนีความสอดคล้องของแบบจำลองมีความสอดคล้องกันเป็นอย่างดี 3 สมมติฐานจากทั้งหมด 9 สมมติฐาน ขณะตรวจสอบค่าสัมประสิทธิ์เส้นทางที่ได้มาตรฐาน พบว่าความพึงพอใจมีอิทธิพลต่อความตั้งใจใช้บริการอย่างต่อเนื่องมากที่สุด เท่ากับ 0.277 หมายความว่า ถ้าผู้ใช้บริการมีความพึงพอใจต่อการใช้งานก็จะส่งผลต่อการใช้บริการที่ต่อเนื่อง หากต้องการบริโภคอาหารก็จะทำการสั่งอาหารผ่านแอปพลิเคชัน สอดคล้องกับงานวิจัยของ Alalwan

(2020) และ Zhao and Bacao (2020) ถัดมาคือ ความเคยชินมีอิทธิพลต่อความตั้งใจที่จะใช้ต่อไปมากที่สุด เท่ากับ 0.239 หมายความว่า ความเคยชินในการใช้แอปพลิเคชันสั่งอาหารมีอิทธิพลทางตรงเชิงบวกต่อความตั้งใจที่จะใช้บริการ ดังนั้นหากผู้ใช้มีแนวโน้มที่จะแสดงพฤติกรรมในการสั่งอาหารผ่านแพลตฟอร์ม เพื่อสนับสนุนการใช้ชีวิตของพวกเขาเนื่องจากชีวิตประจำวันของพวกเขาต้องสั่งอาหารออนไลน์ก็จะส่งผลให้ผู้บริโภคเกิดความเคยชินที่จะใช้บริการ หากต้องการกินอาหารหรือหิวก็จะทำการสั่งอาหารออนไลน์ทันที ซึ่งสอดคล้องกับงานวิจัยทั้ง 8 เรื่อง (Alalwan, 2020; Gunden et al., 2020; Kadir & Ismail, 2022; Palau-Saumell et al., 2019; Rasli et al., 2020; Yao et al., 2023; Yapp & Kataraian, 2022; Zanetta et al., 2021) ลำดับต่อมาคือ ความคาดหวังประสิทธิภาพ ซึ่งมีอิทธิพลต่อความตั้งใจที่จะใช้ต่อไปด้วย เท่ากับ 0.153 หมายความว่าผู้ใช้บริการเชื่อว่าถ้าหากมีการใช้บริการสั่งอาหารผ่านแพลตฟอร์ม จะได้มาซึ่งการบริการที่มีประสิทธิภาพ ไม่มีอุปสรรคในการใช้งาน และสามารถตอบสนองความต้องการของผู้บริโภคได้เป็นอย่างดี ซึ่งสอดคล้องกับงานวิจัยทั้ง 12 เรื่อง (Alalwan, 2020; Gunden et al., 2020; Kadir & Ismail, 2022; Karulkar et al., 2019; Lam et al., 2023; Mensah, 2019; Puriwat & Tripopsakul, 2021; Rasli et al., 2020; Ren et al., 2020; Wijaya & Sukaatmadja, 2021; Yapp & Kataraian, 2022; Zanetta et al., 2021) ที่ผลงานวิจัยออกมาว่าความคาดหวังประสิทธิภาพ ส่งผลในเชิงบวกต่อความตั้งใจเชิงพฤติกรรมในการสั่งอาหารออนไลน์อย่างต่อเนื่อง นอกจากนี้พบว่ามี 6 สมมติฐานที่ส่งผลต่อความตั้งใจใช้บริการอย่างต่อเนื่อง ไม่เป็นจริงทำให้ไม่ยอมรับสมมติฐานคือ ความคาดหวังในความพยามยาม โดยมีค่าอิทธิพล = 0.025 หมายความว่า เวลาที่ผู้บริโภคใช้แอปพลิเคชันสั่งอาหาร ผู้ใช้บริการไม่เชื่อว่าการสั่งอาหารผ่านแพลตฟอร์มเป็นเรื่องง่าย มีความซับซ้อนและยุ่งยากในการใช้บริการ ต้องใช้ความพยายามในการใช้งาน ถัดมาคือ สภาพของสิ่งอำนวยความสะดวก โดยมีค่าอิทธิพล = 0.106 หมายความว่า พบว่าการที่แอปพลิเคชันสั่งอาหารไม่มีระบบสนับสนุนการใช้งานจะส่งผลให้ผู้ใช้บริการไม่อยากใช้งานแอปพลิเคชันมากยิ่งขึ้น และหากไม่มีสิ่งอำนวยความสะดวกในการใช้งานจะทำให้ผู้ใช้บริการเกิดความรู้สึกที่ไม่ดีต่อบริการ ถัดมาคือ แรงจูงใจด้านความเพลิดเพลินมีค่าอิทธิพล = 0.059 หมายความว่า เวลาที่ใช้บริการสั่งอาหารออนไลน์ผ่านแพลตฟอร์ม ผู้ใช้บริการไม่มีความเพลิดเพลินในการใช้งาน และแพลตฟอร์มไม่มีคุณสมบัติที่น่าสนใจหรือดึงดูดใจ ถัดมาคือ มูลค่าด้านราคา มีค่าอิทธิพล = 0.109 หมายความว่า ผู้ใช้บริการแอปพลิเคชันสั่งอาหารมองว่าการใช้บริการไม่มีความคุ้มค่าต่อค่าใช้จ่ายที่ต้องเสียไป หรือผู้ใช้บริการได้รับอาหารไม่ตรงตามข้อมูลที่ระบุไว้ ถัดมาคืออิทธิพลของสังคม มีค่าอิทธิพล = -0.023 หมายความว่า ผู้บริโภคเมื่อได้รับโฆษณาเกี่ยวกับการใช้แอปพลิเคชันสั่งอาหารจากกลุ่มอ้างอิง เช่น เพื่อนสนิทหรือพ่อแม่ แล้วทำให้ผู้บริโภคไม่สนใจที่จะใช้บริการและมีแนวโน้มในที่จะไม่ใช้แอปพลิเคชันสั่งอาหารเลย อาจก่อให้เกิดทัศนคติที่ไม่ดี เช่น ผู้บริโภคอาจจะได้รับข้อมูลจากกลุ่มอ้างอิงว่า แอปพลิเคชันไม่ดี หรืออาหารไม่ตรงตามที่ระบุไว้ในแอปพลิเคชัน ถัดมาคือ ความเหมาะสมระหว่างงานและเทคโนโลยี มีค่าอิทธิพล = 0.021 หมายความว่า ถ้าหน้าที่ของแอปพลิเคชันสั่งอาหารไม่มีข้อมูลที่เหมาะสมต่อการใช้งานรวมถึงไม่สามารถช่วยจัดการคำสั่งซื้อให้เสร็จสมบูรณ์ได้ และแอปพลิเคชันไม่ตรงตามข้อจำกัดหรือเงื่อนไขก็จะทำให้ผู้ใช้งานไม่ต้องหารใช้แอปพลิเคชันสั่งอาหาร

8) ข้อเสนอแนะการวิจัย

8.1) ข้อเสนอแนะสำหรับการนำผลวิจัยไปใช้

ผู้เขียนได้ใช้วิธีการสร้างแบบจำลองสมการโครงสร้าง สำหรับการศึกษาครั้งนี้ เนื่องจากมีความเหมาะสมและมีประสิทธิภาพแบบจำลองสมการโครงสร้างมีจุดประสงค์คล้ายกับการถดถอยพหุคูณ แต่มีประสิทธิภาพมากกว่าโดยคำนึงถึง แบบจำลองของการโต้ตอบ ความไม่เชิงเส้น ตัวแปรอิสระที่มีความสัมพันธ์ข้อผิดพลาดในการวัด เงื่อนไขข้อผิดพลาดที่สัมพันธ์กัน ตัวแปรอิสระแฝงหลายตัว (ซึ่งแต่ละตัววัดด้วยตัวบ่งชี้หลายตัว) และตัวแปรตามแฝงหนึ่งหรือหลายตัว (แต่ละตัวมีหลายตัวบ่งชี้) Kline (2011) ข้อมูลเก็บรวบรวมที่ประเทศไทยโดยแบ่งออกเป็น 6 ภูมิภาค ได้แก่ ภาคกลาง ภาคเหนือ ภาคตะวันออก ภาคตะวันออกเฉียงเหนือ ภาคตะวันตกและภาคใต้

จากผลการวิจัยสามารถนำไปใช้ประโยชน์ได้ดังนี้ สามารถจัดอันดับตัวแปรที่เป็นจุดแข็งของปัจจัยที่มีอิทธิพลต่อความพึงพอใจที่ใช้แอปพลิเคชันสั่งอาหาร ผลการวิจัยพบว่า ปัจจัยด้านความพึงพอใจมีอิทธิพลต่อความเคยชินและความตั้งใจที่จะกลับมาใช้แอปพลิเคชันสั่งอาหาร หากผู้ใช้เกิดความพึงพอใจต่อการใช้แอปพลิเคชันสั่งอาหารก็จะส่งผลให้เกิดความเคยชิน โดยที่หากมีความหิวก็จะทำการสั่งอาหารผ่านแอปพลิเคชันอย่างต่อเนื่อง จน

อาจจะเรียกว่าเสพติดการใช้บริการก็เป็นได้ ถัดมาคือ คาดหวังในประสิทธิภาพพบว่าถ้าผู้ใช้รู้สึกว่าการใช้บริการเป็นประโยชน์ต่อชีวิตประจำวันเกิดความสะดวกสบายก็จะส่งผลให้เกิดความพึงพอใจและใช้บริการต่อเนื่อง ถัดมาคือ ความคาดหวังในความพยายาม ถ้าผู้ใช้บริการค้นพบว่าการเรียนรู้วิธีการใช้แอปพลิเคชันเป็นเรื่องง่าย รวมถึงคุณสมบัติของแอปพลิเคชันที่มีการทำงานที่ดีสามารถโต้ตอบสื่อสารกับผู้บริโภคได้ชัดเจนและเข้าใจง่ายก็จะส่งผลให้ผู้บริโภคเกิดความชำนาญในการใช้ส่งผลให้พึงพอใจและใช้บริการต่อเนื่อง ถัดมาคือ ด้านสภาพของสิ่งอำนวยความสะดวก หากเจ้าของธุรกิจทำการพัฒนาแอปพลิเคชันให้มีความง่าย ไม่ซับซ้อนก็จะทำให้ผู้บริโภคหันมาใช้บริการอย่างต่อเนื่องเกิดความพึงพอใจ และการสั่งอาหารผ่านแอปพลิเคชันต้องใช้อินเทอร์เน็ตในการเชื่อมต่อ ดังนั้นหน่วยงานภาครัฐหรือเอกชนควรจะนำผลการวิจัยนี้ไปใช้ประโยชน์ในการกำหนดนโยบายเพื่อเอื้ออำนวยความสะดวกต่อการซื้อขายสินค้าในระบบการตลาดดิจิทัล ถัดมาคือ ปัจจัยด้านแรงจูงใจด้านความเพลิดเพลิน ถ้าผู้บริโภคมีความสนุกและมีความเพลิดเพลินต่อการใช้แอปพลิเคชันสั่งอาหาร เช่น การสร้างโปรโมชันเพื่อดึงดูดผู้บริโภครวมถึงการให้โค้ดส่วนลดค่าอาหารและค่าขนส่งเพื่อให้ผู้บริโภคสามารถเลือกสั่งอาหารได้ตรงตามความต้องการก็จะทำให้ผู้บริโภคพอใจและหันมาใช้บริการอย่างต่อเนื่อง ถัดมาคือ ปัจจัยมูลค่าราคาพบว่า ผู้ใช้บริการเข้าใจถึงการตั้งราคาอาหารในแอปพลิเคชันว่ามีความสมเหตุสมผล เพราะทางร้านค้าก็จะต้องถูกหักค่าคอมมิชชันจากยอดขาย และบางร้านก็ตั้งราคาหรือโปรโมชันใกล้เคียงกับการซื้อจากหน้าร้าน เพราะฉะนั้นผู้ใช้บริการจึงคิดว่าสั่งอาหารออนไลน์คุ้มค่ากว่าการเดินทางออกจากบ้านเพื่อไปซื้อจากหน้าร้านส่งผลให้ผู้ใช้พึงพอใจและใช้อย่างต่อเนื่อง ถัดมาคือ ปัจจัยด้านอิทธิพลจากสังคมมีอิทธิพลทางลบทั้งต่อความพึงพอใจและการใช้บริการอย่างต่อเนื่องคือ ถ้าผู้มีอิทธิพลหรือคนสำคัญบอกต่อว่าไม่ให้สั่งอาหารผ่านแอปพลิเคชันก็อาจจะทำตามก็เป็นได้ แต่ทั้งนี้ทั้งนั้นก็ควรจะมีการทดลองด้วยตนเองเสียก่อน ปัจจัยสุดท้ายจะเป็นด้านความเหมาะสมระหว่างงานและเทคโนโลยี หากแอปพลิเคชันสั่งอาหารเป็นไปตามเงื่อนไขหรือข้อกำหนด รวมถึงสามารถจัดการกับคำสั่งซื้อได้เป็นอย่างดีก็จะส่งผลให้ลูกค้าพอใจและใช้บริการอย่างต่อเนื่อง

8.2) ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

การศึกษานี้เน้นถึงแนวทางในการศึกษาปัจจัยที่มีอิทธิพลต่อความพึงพอใจและความตั้งใจในการใช้บริการอย่างต่อเนื่องของผู้ใช้บริการการสั่งอาหารออนไลน์ผ่านแอปพลิเคชัน แต่การศึกษานี้มีข้อจำกัดบางประการ โดยรวมแล้ว มีความแตกต่างเล็กน้อยระหว่างคำถามที่ใช้ระบุเจตนาแสดงพฤติกรรม ในการวิจัยในอนาคต ควรมีการศึกษาผ่านทฤษฎีอื่น ๆ หรือปัจจัยด้านอื่น ๆ เพื่อจะได้รับรู้ถึงทัศนคติของผู้ที่ใช้บริการที่มีความหลากหลายมากยิ่งขึ้น ข้อจำกัดอีกประการหนึ่งคือขอบเขตของการศึกษาผลลัพธ์ SEM ได้จากการสอบถามผู้ใช้บริการการสั่งอาหารออนไลน์ผ่านแอปพลิเคชันในจังหวัดที่เป็นตัวแทนของแต่ละภูมิภาคเท่านั้น ในประเทศอื่น ๆ ผลลัพธ์หรือน้ำหนักของความสำคัญอาจแตกต่างกัน การศึกษาในอนาคตควรจะสามารถอภิปรายทัศนคติของการใช้งานแอปพลิเคชันที่หลากหลายที่มาจากทฤษฎีอื่น ๆ ที่ส่งผลต่อพฤติกรรมผู้ใช้งานแอปพลิเคชันเพื่อที่จะได้รับรู้ถึงปัจจัย และมุมมองของผู้ใช้งานแอปพลิเคชันสั่งอาหาร

REFERENCES

Agarwal, V., & Sahu, R. (2022). Predicting repeat usage intention towards O2O food delivery: Extending UTAUT2 with user gratifications and bandwagoning. *Journal of Foodservice Business Research, 25*(4), 434–474.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211.

Al Amin, M., Arefin, M. S., Sultana, N., Islam, M. R., Jahan, I., & Akhtar, A. (2021). Evaluating the customers' dining attitudes, e-satisfaction and continuance intention toward mobile food ordering apps (MFOAs): Evidence from Bangladesh. *European Journal of Management and Business Economics*, *30*(2), 211–229.

Alalwan, A. A. (2020). Mobile food ordering apps: An empirical study of the factors affecting customer e-satisfaction and continued intention to reuse. *International Journal of Information Management, 50*, 28–44.

Amarin TV Online. (2024, June 26). Food delivery Thailand 2024: Intense competition and business challenges (in Thai). *SPOTLIGHT*. Retrieved from https://www.amarintv.com/spotlight/business-marketing/detail/66277

Annaraud, K., & Berezina, K. (2020). Predicting satisfaction and intentions to use online food delivery: What really makes a difference?. *Journal of Foodservice Business Research, 23*(4), 305–323.

Chaiyawit Muangmee, Sebastian Kot, Nusanee Meekaewkunchorn, Nattapon Kassakorn, & Bila Khalid. (2021). Factors determining the behavioral intention of using food delivery apps during COVID-19 pandemics. *Journal of Theoretical and Applied Electronic Commerce Research, 16*(5), 1297–1310.

Cho, M., Bonn, M. A., & Li, J. J. (2019). Differences in perceptions about food delivery apps between single-person and multi-person households. *International Journal of Hospitality Management, 77*, 108–116.

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS quarterly, 19(2),* 213–236.

Gunden, N., Morosan, C., & DeFranco, A. (2020). Consumers' intentions to use online food delivery systems in the USA. *International Journal of Contemporary Hospitality Management, 32*(3), 1325–1345.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Confirmatory factor analysis. *Multivariate Data Analysis* (7th ed., pp. 599–638). Upper Saddle River, NJ: Pearson Education.

Hooper, D., Coughlan, J., & Mullen, M. R. (2008). Structural equation modelling: Guidelines for determining model fit. *The Electronic Journal of Business Research Methods, 6*(1), 53–60.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55.

Jutamas Sriratana. (2021). Consumer behavior through online food ordering applications during the virus COVID-19 outbreak (in Thai). *Humanities and Social Science Research Promotion Network Journal, 4*(3), 118–128.

Kadir, R. D., & Ismail, J. (2022). *Millennials adpot online delivery: Analysis using UTAUT2 model during pandemic Covid-19.* Retrieved from https://pdfs.semanticscholar.org/392f/5df5675 57622efb07a4841b1f861b423c0e6.pdf

Karulkar, Y., Pahuja, J., Uppal, B. S., & Sayed, S. (2019). Examining UTAUT model to explore consumer adoption in Online Food Delivery (OFD) services. *Pramana Research Journal, 9*(8), 146–162.

Kasikorn Research Center. (2023, July 21). Food delivery in 2023 tends to slow down, platform accelerates business balance... dealing with challenging issues (in Thai). Retrieved from https://www.kasikornresearch.com/th/analysis/k-social-media /Pages/FOOD-DELIVERY-CIS3423-FB-21-07-2023.aspx

Kittisak Kongka. (2021, September 7). Market share of food delivery application in Thailand (in Thai). Retrieved from https:// www.investerest.co/business/thai-food-delivery/

Kline, R. B. (2011). *Principles and Practice of Structural Equation Modeling* (3rd ed.). New York, NY: Guilford.

Kotler, P. (1999). *Kotler on Marketing: How to Create, Win, and Dominate Markets*. New York, NY: Simon and Schuster.

Kraikrit Bussaban, Thanapat Emin, Ariya Martsiri, & Punporn Ponpitak. (2022). Technology acceptance affecting food order intention via application of employees in Laem Chabang Industrial Estate Chonburi (in Thai). *Journal of Graduate School of Commerce Burapha Review, 16*(2), 45–57.

Lam, T. N., Vuong, T. K., & Tran, S. T. (2023). Key factors influencing customer satisfaction and intention to reuse food ordering apps. *Management Dynamics in the Knowledge Economy, 11*(2), 152–169.

Marsh, H. W., & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First- and higher order factor models and their invariance across groups. *Psychological Bulletin, 97*(3), 562–582.

Mensah, I. K. (2019). Factors influencing international students behavioral intention to order online food delivery services. *International Journal of Strategic Information Technology and Applications (IJSITA), 10*(1), 23–39.

Palau-Saumell, R., Forgas-Coll, S., Sánchez-García, J., & Robres, E. (2019). User acceptance of mobile apps for restaurants: An expanded and extended UTAUT-2. *Sustainability, 11*(4), 1210. doi:10.3390/su11041210

Pasiri Khetpiyarat, Watcharaporn Areerattanasak, Sineenart Vikramprasit, & Apa Saisombut. (2024). Motivation and service marketing strategies affecting the customers' decision to use food delivery applications in Muang district, Uttaradit province (in Thai). *Journal of Management Science Sakon Nakhon Rajabhat University, 4*(1), 59–72.

Pornsupat Sirichoksopon, & Anake Chitkesorn. (2021). The technology acceptance and marketing mix impacting the decision to order food online of consumers in Mueang Chiang Mai district, Chiang Mai province (in Thai). *Suthiparithat Journal, 35*(4), 19–36.

Punyapob Tantipidok, & Pattharapon Yuttharsaknukul. (2021, January 21). Inside Food delivery business: Moving forward to expand the market with a variety of services (in Thai). Retrieved from https://www.scbeic.com/th/detail/file/product/7906/g3uws6soy7/EIC_Note_Food-delivery_20211102.pdf

Rasli, M. A. M., Zulkefli, N. H., Salleh, N. S. A., Ghani, F. A., Razali, N. A., & Idris, R. S. N. R. (2020). Determinants of behavioural intention on Online Food Delivery (OFD) apps: Extending UTAUT2 with information quality. *Global Business and Management Research, 12*(4), 679–689.

Ren, S., Kwon, S.-D., & Cho, W.-S. (2020). *Online Food Delivery (OFD) services in Cambodia: A study of the factors influencing consumers' behavioral intentions to use*. Retrieved from https://www.researchgate.net/profile/SothearinRen/publication/349552360_Online_Food_Delivery_OFD_services_in_Cambodia_A_study_of_the_factors_influencing_consumers'_behavioral_intentions_to_use

Steiger, J. H. (2007). Understanding the limitations of global fit assessment in structural equation modeling. *Personality and Individual Differences, 42*(5), 893–898.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2,* 53–55.

Varithorn Sirisattayawong, & Anantaporn Lapsakkarn. (2024). The food delivery market in 2024 continues to show a decreasing trend (in Thai). *Econ Digest, 30*(3452), 1–3. Retrieved from https://www.kasikornresearch.com/th/analysis/k-social-media/Pages/Food-Delivery-cis3452-FB-2023-02-02.aspx

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27(3),* 425–478.

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly, 36*(1), 157–178.

Weiler, A. S., & Gilitwala, B. (2024). Why Bangkokians use online food delivery services after COVID-19 restrictions have been lifted. *Rajagiri Management Journal, 18*(2), 151–166.

Wijaya, M. D. P., & Sukaatmadja, I. P. G. (2021). Antecedents of intentions and their consequences on the behavior of using online food delivery messaging applications on the island of Bali. *International Journal of Chemistry and Chemical Engineering Systems, 6,* 61–78.

Wilert Puriwat, & Suchart Tripopsakul. (2021). Understanding food delivery mobile application technology adoption: A UTAUT model integrating perceived fear of COVID-19. *Emerging Science Journal, 5*, 94–104.

Yao, P., Osman, S., Sabri, M. F., Zainudin, N., & Li, Y. (2023). Do consumers continue to use O2O food delivery services in the post-pandemic era? Roles of sedentary lifestyle. *Heliyon, 9*(9), e19131.

Yapp, E. H., & Kataraian, S. (2022). Key determinants of continuance usage intention: An empirical study of mobile food delivery apps among Malaysians. *Proceedings of International Academic Symposium of Social Science 2022, 82*(1), 15.

Zanetta, L. D., Hakim, M. P., Gastaldi, G. B., Seabra, L. M. J., Rolim, P. M., Nascimento, L. G. P., ... da Cunha, D. T. (2021). The use of food delivery apps during the COVID-19 pandemic in Brazil: The role of solidarity, perceived risk, and regional aspects. *Food Research International, 149*, 110671. doi:10.1016/j.foodres.2021.110671

Zhao, Y., & Bacao, F. (2020). What factors determining customer continuingly using food delivery apps during 2019 novel coronavirus pandemic period?. *International Journal of Hospitality Management, 91,* 102683. doi:10.1016/j.ijhm.2020.102683

Journal of Business Administration and Languages (JBAL)
Vol.12 No.2 July - December 2024

Secondary Analysis of Interviews About the Factors Driving the Membership Growth of Chess.com

Yu-Chin Wen*

**Thai-Nichi International College (TNIC), Thai-Nichi Institute of Technology, Bangkok, Thailand*

*Corresponding Author. E-mail address: yuchin@tni.ac.th

Received: 1 March 2024; Revised: 2 May 2024; Accepted: 2 May 2024
Published online: 26 December 2024

Abstract

Online gaming companies focus on flashiness and continuous updates, operating more like casinos offering addictive loot boxes, but the recent rise of online chess puts that model into question. This qualitative research study investigates the question of what are the factors that increase or decrease the global number of chess players. Using reflexive thematic analysis on secondary data of interviews with global chess industry experts Erik Allebest, Viswanathan Anand, and Magnus Carlsen revealed 11 themes that affect the growth of Chess.com membership. Factors that increase chess growth were good management, passionate stakeholders, global digital culture, social media marketing, competitive events, game improvements, and India market. Factors that decrease chess growth were cheating, technical difficulties, unsustainable career, and restricted markets. Supported by passionate fans, the free, open-source, 1,500-year-old game of chess can still compete in today's online gaming industry which suggests that previous assumptions about game design and marketing should be revised.

Keywords: Global business, Growth factors, Online chess, Online gaming, Secondary analysis

I. INTRODUCTION

The global online gaming industry is currently one of the fastest growing markets. The global online gaming market size was estimated to be worth 190 billion USD in 2021 and projected to be worth 880 billion USD by 2031 (Business Research Insights, 2024a). Online gaming refers to playing video games on the Internet, whether individually or in multiplayer mode. By connecting with other players around the world via online platforms, online gamers experience interactive gameplay and social interactions. Online gaming has become extremely popular in recent years serving as valuable and time-consuming entertainment for millions of people worldwide. There is a wide range of genres in online gaming, ranging from multiplayer online battle arena (MOBA), first-person shooters (FPS), role-playing games (RPG), and massively multiplayer online games (MMO), with online board games filling a niche market. Online gaming market refers to the industry that develops and provides online gaming platforms, software, and services to serve the growing demand for digital gaming experiences and entertainment. Included in this market are online gaming platforms, service providers, game developers and publishers. There is a diverse range of gaming options offered which ranges from free-to-play games supported by in-game purchases to subscription-based models and digital distribution platforms.

The global online gaming market is experiencing significant growth due to many factors. The increasing accessibility of affordable high-speed Internet as well as the widespread usage of smartphones and other mobile devices are the main driving factors. In fact, just over half of all platforms used for online gaming are done on smartphones (Market.us, 2024). With Internet connections readily available, players with ever more powerful and affordable mobile electronic devices can engage in online gaming practically anytime and anywhere. By connecting and interacting with other players in real-time, online gaming platforms also create valuable social experiences by providing opportunities to join communities and clans, to cooperate or to compete with others. This additional social aspect of online gaming increases player engagement and retention to generate more loyalty and spending. New technologies such as virtual reality and augmented reality are also changing the online gaming market by bringing more realism to upgrade the gaming experience while cloud gaming allows players to stream games without investing too much into hardware. The e-sports industry also has a significant influence on the online gaming market because when the best players or teams in any game compete at the professional level via real-time livestream, valuable experiences and memories are generated for the overwhelming majority of non-professional players to follow and enjoy, not unlike any other real sport.

Chess is an ancient board game for two players that is still being played today and surprisingly is growing in popularity. It is a turn-based strategy game where one side plays as White and the other side plays as Black. Unlike some other games such as Monopoly or Poker where there is some luck involved, chess actually contains no hidden information and no elements of chance. A chess board contains 64 squares arranged in an 8 by 8 grid, with a checkered pattern divided into light squares and dark squares. At the start of each chess game, each side controls sixteen pieces: One king, one queen, two rooks, two bishops, two knights, and eight pawns. Each piece has its own specific way of moving and should be used efficiently in combination with other pieces in order to try to win the game. The goal of each side is to checkmate the other’s side king by attacking it while it cannot escape. If checkmate cannot be achieved, there are several ways a game can end in a draw, which means there is no winner.

Nobody owns chess. In fact, it is one of the truly free, open-source games that is still being played today unlike the many thousands of patented digital games that are sold for profit by gaming companies. The first version of chess originated from India in the 7th century before the game spread to Persia and was later brought over to medieval Europe via trade routes. Other variants of chess also existed depending on where it traveled to, such as Xiangqi or Chinese chess in China and Makruk or Thai chess in Thailand. The most popular variant of chess, sometimes known as international chess or Western chess, had its latest update in Europe in 1475 which greatly empowered the queen piece, and this final version continues to be played globally by millions of players today. For over 1,500 years, chess was played on a physical chessboard with physical pieces made of various materials such as wood or ivory. At first, chess was only played by members of the royal court or nobles but over time as the standard of living improved in the past millennium, chess became more affordable to the general public although physical chess sets still need to be purchased or shared. However, with the recent digital transformation of the global economy, online chess has become more popular due to its convenience and accessibility by anybody's mobile electronic device. Online chess can be played literally for free now anywhere and anytime as long as the player has Internet access on his electronic device. It is interesting how the game of chess that was originally created to educate ancient kings about governance is now readily available for free to billions of people worldwide.

The global online chess instruction and play market size was valued at over 150 million USD in 2021 (Business Research Insights, 2024b). When compared to the global online gaming industry, the chess industry represents a very tiny less than only 0.01% of the entire online gaming market, serving as a niche market that is more appealing to older gamers. Chess.com is the largest online platform for playing chess with currently over 160 million members in February 2024. Chess.com was first founded in May 2007 when the global chess industry was still relatively fragmented but over time became more popular and reached a milestone of over a billion live games played in 2014. During this period, the amount of Internet users worldwide grew from about 1 billion in 2005 to over 5 billion in 2022 (Statista, 2024) which greatly expanded the market potential for online chess. Statistics provided by Chess.com revealed that in 2018, they had about 25 million members but in 2022, that number jumped four times to 100 million members within a period of four years. Chess.com added a further 60 million more members in 2024. In December 2022, Chess.com further consolidated its market share by purchasing its largest competitor, Play Magnus Group, which included various popular chess brands and businesses that include professional chess tournaments and educational content. This merger led to accusations of Chess.com becoming a monopoly in the chess industry with only the comparatively small, free, open-source Lichess as its only realistic competitor. In January 2023, Chess.com became suddenly so popular that its databases crashed, requiring emergency purchases of new server equipment to maintain user experience.

Chess.com uses a freemium business model, in which some features, particularly being able to play unlimited online chess, are free but others such as detailed game analyses are either unavailable or limited until a subscription is paid. Similar to other freemium websites, advertisements are shown regularly unless removed by a paid subscription. Subscription fees range from 30 USD per year to 120 USD per year with higher tier subscriptions unlocking more features. The main feature offered by Chess.com is its online chess gameplay with various time controls. Chess players can choose to play online chess with their preferred time control that is organized into Bullet, Blitz, Rapid, Daily, and Monthly. For example, under a type of Rapid time control, each player has 10 minutes to make all their moves in each game or automatically lose the game on time when the timer reaches 0 seconds. Other chess variants are also available to players who are bored of normal chess as well as the option to play against computer bots that vary from very easy to unbeatable. Besides gameplay, other Chess.com features consist of puzzles, lessons, and events where players can watch live tournaments with the world's best chess players competing in real time.

Two events in the year 2020 turned out to have great impact on the growth of the online chess industry which can be shown by the fact that the number of Chess.com members effectively doubled from 25 million to over 50 million between the years 2019 to 2020. The first impactful event was the COVID-19 pandemic that spread across the world, triggering widespread lockdowns that resulted in billions of people staying inside their homes and being forced to do everything online. With massive amounts of people being forced to stay at home and avoid unnecessary travel, the extra amounts of free time led to more consumption of digital entertainment such as video streaming services or online gaming that also includes chess. The second impactful event was the release of The Queen's Gambit miniseries about a female chess prodigy on Netflix on October 23, 2020. Within four weeks of release, The Queen's Gambit show became Netflix's most watched program in over 50 countries which greatly increased public interest in chess and contributed to existing chess streamers and Chess.com receiving a sudden, massive increase in the number of following subscribers within this boom period.

Interestingly, the ancient board game of chess has a relationship with the field of computer science. Chess was used by computer scientists to develop their artificial intelligence programs to be tested against the world's best human chess players also known as grandmasters. In 1997, an IBM supercomputer called Deep Blue finally won a match under tournament conditions against the reigning world champion Garry Kasparov, which was a significant milestone in proving that artificial intelligence has caught up to human intelligence in making chess calculations. Ever since then, chess engines such as Stockfish have kept improving and became unbeatable to the best human grandmasters. Nevertheless, millions of people around the world still play chess competitively or as a hobby even though chess has literally already been solved by computers.

Besides human dignity, another huge downside of chess engines being unbeatable to human chess players is that it can lead to accusations of cheating against opponents in professional chess tournaments since any grandmaster secretly using a chess engine would gain an unfair advantage versus any human opponent and win significant prize money if not caught. This paranoia towards cheating amongst grandmasters in tournaments has infected the professional chess scene to the point that it is considered an existential threat to the chess industry. This is why Chess.com management has made significant investments to detect and discourage any forms of cheating by hiring a specialized team of anti-cheating experts and enforcing their Fair Play policy. In fact, many videos uploaded on YouTube by chess.com are specifically dedicated to addressing the issue of cheating by having transparent discussions of their actions and policies to counter cheating. As an example, during the Champions Chess Tour Finals in 2023 that contained a 500,000 USD prize pool, Chess.com posted a video that openly displayed how they prevent cheating with fair play screening, using a hi-tech detector to detect possible electronic devices that can be used for cheating, many cameras covering every angle, and strict movement restrictions for competing grandmasters. Despite this, cheating continues to be a constantly discussed issue during tournaments which damages the reputation of the chess industry and threatens to limit its growth.

A knowledge gap exists in understanding the relationship between the online gaming industry and the online chess industry. Most of previous research literature about chess focuses on chess for educational purposes rather than on the business applications or marketing of chess, which is understandable because online chess only just became popular recently in the past five years as well as online chess making up only a tiny percentage of the global online gaming industry. The key factors behind the successful growth and marketing of the online chess board game by Chess.com as well as the factors that threaten to limit the growth of chess should be investigated. The benefit of filling this knowledge gap about the factors contributing to the growth of online chess is this research finding can demonstrate the possibility that gaming businesses do not have to fixate on hiring video game programmers to constantly develop new games with continuous updates when a free, open-source game like chess can still compete in the online gaming industry.

The purpose of this study was to examine the factors driving the membership growth of Chess.com. Since Chess.com is such an overwhelmingly dominant player in the chess industry with monopoly-like power, the number of accounts created on its website in any given year should be a representative indicator of how many people worldwide are interested to play online chess though with varying levels of activity ranging from monthly to daily. This study not only examines factors that increase the growth of online chess but also includes factors that limit the growth of online chess as well. With this in mind, the following conceptual framework is created to demonstrate the relationship between the two main types of factors that can either positively increase or negatively decrease the membership growth of Chess.com.

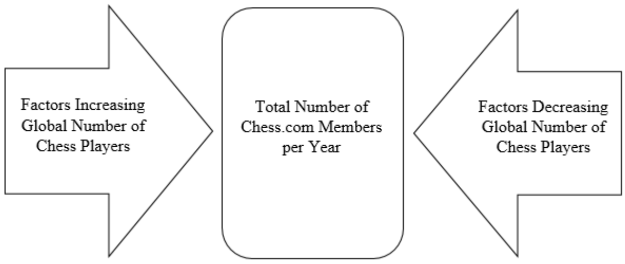


Figure 1: Chess growth conceptual framework

The two independent variables to be studied are factors increasing global number of chess players and factors decreasing global number of chess players. The dependent variable is the total number of Chess.com members and its yearly growth is dependent on the forceful effect of the two independent variables. Based on previous background information, there are already four factors that can be assumed to contribute to the increase in the global number of chess players, which are the global increase in the accessibility of affordable high-speed Internet that favors online chess, the relatively low cost of online chess compared to other online games, COVID-19 lockdowns increasing the consumption of digital entertainment such as online chess, and Queen’s Gambit show on Netflix triggering worldwide interest in online chess. One very important factor that can be assumed to decrease the global number of chess players is the possibility of secretly using chess engines to cheat in tournaments which negatively affects the reputation and integrity of professional chess, leading to a decrease in the number of players in online chess due to lack of trust.

However, there are still other various unknown factors that can either positively increase or negatively decrease the number of global chess players, which can be revealed by interviews with chess industry experts. This research study is therefore an exploratory research to investigate the research question of what are the various factors that can increase or decrease the global number of chess players.

II. LITERATURE REVIEW

A review about recent research literature about the online gaming industry with several sample studies in Asian countries is first provided before narrowing down to the online chess industry and its effects on chess players.

A study by Meagher and Teo (2005) confirmed a model of the gaming industry being determined by creative destruction where game makers experienced market power within a genre until replaced by a new game. Additionally, existence of opponents increases the attractiveness of playing an online game while technical and reputational problems eventually reduces online gaming attractiveness. Another study that explores the factors affecting consumers' loyalty toward online games (Huang & Hsieh, 2011) revealed that players' sense of control, perceived entertainment, and challenge affected their loyalty toward an online game while sociality and interactivity had negligible effects on loyalty. A study by Mariano and Koo (2015) about cloud gaming, which is a system that allows video games to be played on almost any client regardless of system requirements, has the potential to remove costs from consumers by not requiring expensive gaming hardware while revolutionizing future game design. Another study about the role of mobile and video games within the media industry and IT sector (Simon, 2018) revealed that video games are now clearly a vital part of digital content production and distribution in emerging economies.

Various studies have been conducted about the online gaming industry in several countries in Asia. South Korea was one of the pioneers in growing the online gaming industry. In another study (Peichi, 2008) about the historical context of cultural policy in South Korea and Singapore, it was discovered that state and local companies in South Korea shaped the dynamics of the local industry while in Singapore, state and multinational companies play key roles in development, which demonstrated the significance of localization in determining the global online gaming industry. In another particular study (Jin, 2011) about the global spread of the digital Korean wave, a process is mapped out where local online games in South Korea are appropriated for Western gamers through content hybridization and glocalization. In a case study (Chi, 2009) about the value chain in the Asian online gaming industry in Taiwan, it was revealed that Taiwan is the biggest export market for China's gaming industry with its unique wuxia genre and acts as a stepping stone for Chinese game firms wishing to expand into wider regional and global markets. Another related study by Liou and Gao (2011) about competitive advantage in the online gaming industry in Taiwan determined that firms leading with two dimensions of intellectual property and relationship assets performed better than other firms. In China, a study by Kshetri (2009) indicated that innovative business models of Chinese companies led to rapid growth in the Chinese online gaming industry involving new technologies, which resulted in domestic players replacing the previous dominance of foreign players. Later in India, a study (Amin, Griffiths, & Dsouza, 2022) about online gaming during the COVID-19 pandemic in India, revealed that while the online gaming industry is one of the few global industries unaffected by COVID-19, minorities who have used gaming as an unhealthy coping mechanism may suffer from mental health issues and other negative consequences requiring help from mental health experts.

There are other research studies about factors contributing to the growth of the global online gaming industry. In a study by Zackariasson and Wilson (2010) about paradigm shifts in the video game industry, the findings showed clear shifts in the fast-growing industry, switching from gaming in the arcade sector to the development of home-based gaming consoles before further shifting to the development of massively multiplayer online role-playing games (MMORPGs) to change the way games are played. In another study (Davidovici-Nora, 2013) about innovation in business models in the video game industry, the evolution of the video game industry has changed from physical to digital platforms which transformed entertainment from a commodity into a service, leading to a new business model of Free-To-Play (F2P) showing that the new value chain is structured around gaming experience as a service with potential managerial consequences. In India, the gaming industry used to face challenges such as high tax rates, lack of support and awareness, but with Internet being more accessible and smartphones becoming more affordable, the rise of mobile gaming became a popular source of entertainment. A related study (Kumar, 2021) about growth trends in India's gaming industry revealed that localized games based on a sense of familiarity and the development of Online Fantasy Sports Platforms for India's huge sports fan base along with an increasing user base, emerging technologies, and government support are among the numerous factors behind growing investment in India's gaming industry. In another study (Palma-Ruiz, Torres-Toukoumidis, González-Moreno, & Valles-Baca, 2022) about the gaming industry across nations, the results showed that the industry's growth can be explained by possible key influencers such as the games' market revenues, total number of players, Google trends data, GDP per capita and online population, while a positive correlation existed between GDP per capita and market revenues and players in Western countries but in Asia, it was the opposite. Finally, in a study by Wallinheimo et al. (2023) about how online gaming enhances career prospects, the results showed that IT professionals who played puzzle games enhanced their spatial skills, managers who played action role-playing games improved organizational and planning skills, and engineers were associated with strategy games that required problem-solving and spatial skills. Online gaming behavior was found to vary between different job categories, allowing participants to gain different soft skills which could assist gamers with training that leads to a particular career path. If online gaming can develop soft skills that are used in jobs across various professions, it would also be a factor contributing to growth in the global online gaming industry because both employers and employees have the incentive to encourage certain types of productive or educational online gaming.

Chess is only one of millions of games around the world that is being played more online and therefore is a part of the online gaming industry. Previous literature about chess mainly focused on using chess for educational purposes instead of the business or marketing applications of chess. Chess is traditionally a board game that was played with physical pieces for centuries but in recent years has been played digitally online due to more convenience and beginner-friendliness. However, a study (Fang, Chen, & Huang, 2016) that compared digital and traditional board games revealed significant differences that include lower degrees of satisfactions in visceral, behavioral, and reflexive levels for digital games while traditional games evoked stronger emotional reactions. Playing chess also makes kids smarter, which was confirmed by a study (Poston & Vandenkieboom, 2019) that compared child chess players to other child non-chess peers and the results confirmed that playing chess increased academic performance. In a further multidisciplinary review of recent research about examining board gameplay and learning (Bayeck, 2020), the results revealed that board games are educational and help to simplify complex issues and systems to learn concepts such as motivation and computational thinking in formal and informal settings. Another study about intervention effectiveness with board games (Noda, Shirotsuki, & Nakao, 2019) showed that board games can be used as tools to improve understanding of knowledge, enhance interpersonal interactions and motivations. In addition, other educational benefit of chess training is the reduction of risk aversion for primary school students which was mentioned by another study (Islam, Lee, & Nicholas, 2021). Finally, in a study about the relationship between chess and management (Senthil, & Ravindran, 2023), it was discovered that chess helps to improve decision making and situational analysis which not only links chess with management but also to real life as well.

Additional literature about online chess and its related benefits to players is provided. A study by van Harreveld, Wagenmakers, & van der Maas (2007) about the effects of time pressure on chess skill discovered that skill differences between players become less predictive of game outcome as the time controls are tightened while slow processes are at least as important for strong players as they are for weak players compared to fast processes of pattern recognition. Another study (Redding, 2007) discusses that international business competition is often compared to the game of chess with one clear set of rules, but there are also similarities to poker due to more complexity that involves reading of others' minds, characters, behavior patterns and interactions. Another study by Miric, Lu, and Teodoridis (2020) about decision-making skills in an AI world using lessons from online chess where decision-making skills are critical to winning, the results showed that AI advancements not only increase the importance of decision-making skills as complements, but also provide a new benchmark against which organizations can evaluate talent instead of relying on automation. Even though machines have already surpassed humans in chess skill, a study by Kulikov (2020) showed that people still prefer to play online chess against other people due to psychological affordances and psychological interplay that make human to human interaction more meaningful. Another study (Holdaway & Vul, 2021) about risk-taking in competitive games revealed that according to data from over 1 billion online chess games, players exhibit state-dependent risk preferences and change their risk-taking strategy depending on opponents with differing effects depending on skill level. Finally, in a study by Majhi (2023) about the implications of online chess after the COVID-19 pandemic, the findings had important implications for sports management, leading to the need to balance entertainment and tradition to pursue popularity to market the unconventional sport of chess.

Previous literature suggests that the global online gaming industry is still rapidly growing due to various mentioned factors. However, existing literature about online chess was more focused on education or behavioral effects rather than the business aspects. The current knowledge gap in the business potential of chess presents an opportunity for new research such as this one to fill in the void for future similar studies.

III. RESEARCH METHODOLOGY

This research study is an exploratory research to investigate the research question of what are the various factors that can increase or decrease the global number of chess players. The methodology used to answer the research question was qualitative research, which involves collecting non-numerical data and identifying patterns in language, theme, and structure in order to understand human experiences. The reasons qualitative research was used for this particular research study was due to a lack of research literature about the niche market of chess in the overall online gaming industry as well as there being a near limitless amount of available and easily accessible data on YouTube provided by chess content creators including Chess.com that are waiting to be analyzed by online gaming researchers. Quantitative research was not suitable for this exploratory research because numerical responses give lesser details and much fewer context than what is required for answering the research question. The instrument that was used to collect the qualitative data was semi-structured interview.

The secondary data collected for this research came from a sample of publically available interviews of chess industry experts on YouTube. Chess industry experts such as the CEO of Chess.com and former Chess World Champions would obviously have far more knowledge and insights about the global chess industry. With their many years of business management or competitive experience, these chess industry experts are therefore more likely to provide the most relevant and accurate answers to the research question. The small sample was conveniently selected based on meeting two conditions of having relevance to answering the research question and having YouTube popularity based on at least 1,000 views to indicate that the interview was impactful online. The secondary data for each of the four interviews was recorded by professional interviewers and uploaded onto the YouTube social media platform. Secondary data was used instead of primary data because of cost considerations, lack of accessibility to busy interviewees, and possible answers already being available from previous interviews on YouTube. Since the interviewees are public figures and the videos are uploaded onto YouTube for public dissemination, there should be no ethical concerns or expectations of privacy when using this secondary data for research purposes and not for profit. Due to the data being secondary, there was no control over the interview type and questions asked, but by examining and targeting specific, interesting segments of each interview, possible answers to the research question can be gathered, collected, and analyzed.

Secondary data from four interviews on YouTube were selected for this research study. The first YouTube interview with over 31,000 views was Chess.com CEO Erik Allebest and Chief Chess Officer (which functions as a chess ambassador) Danny Rensch being interviewed by VP of Content Sam Copeland where they discussed about the history of Chess.com to celebrate 100 million members back in December 2022. The second YouTube interview with over 3,000 views was between Chess.com CEO Erik Allebest and Russian chess YouTuber Ilya Levitov where they discussed about Chess.com's success story, future plans, and the threat of cheating in January 2024. The third YouTube interview with over 29,000 views was between former five-time Chess World Champion Viswanathan Anand and his interviewer, chess commentator Tania Sachdev about India's past, present, and bright future in chess. The fourth YouTube interview with over 390,000 views was between another former five-time Chess World Champion Magnus Carlsen and a Chess.com interviewer about his motivation and vision for chess. Four interviews were considered to be enough data and no other interviews are needed because the previous list already includes Erik Allebest, Viswanathan Anand, and Magnus Carlsen who are among the top three most influential and knowledgeable people in the global chess industry with significant impact on Chess.com's growth. Transcripts of these interviews are auto-generated by YouTube with some errors which required additional proofreading to remove typos, filler words, and grammar mistakes.

The qualitative research method of thematic analysis was selected to investigate the factors driving the growth of Chess.com members. Thematic analysis is a data analysis process that involves examining through a data set to identify patterns, systematically coding and deriving themes to create a narrative. In this exploratory research study, a particular type of thematic analysis called reflexive thematic analysis was used in which an inductive approach was selected to derive meanings and themes without any preconceptions, allowing any codes or themes to emerge from the data. Reflexive thematic analysis was first developed by Braun and Clarke (2006) for psychology research and this research method soon became popularized in other fields of social science due to its flexibility. There are six steps in thematic analysis. The first step is to familiarize with the data by transcribing audio data into transcripts which are read through to look for meanings and patterns. The second step is to create a set of initial codes that represent the meanings and patterns from the data. The third step is to decide what to code after reading through the data again to identify any interesting excerpts to apply appropriate codes to them where excerpts with similar meanings have the same code applied while new codes can be added as needed. The fourth step is when codes are collated with supporting excerpts so all the excerpts can be organized by code to gain better understanding. The fifth step is when codes are grouped into themes with each theme going beyond just describing a topic area by adding nuance, increasing complexity, and giving meaningful answers to the research question. The sixth step is when the themes are evaluated and revised. Thematic analysis is an iterative process where each step and each theme is repeatedly reviewed and revised. Each theme needs to have enough data to support it, is distinct, and the boundaries of each theme are clear. Data analysis was analyzed manually by hand using reflexive thematic analysis. After the themes are developed, the research question of what are the various factors that can increase or decrease the global number of chess players can be answered with a chronological narrative about the growth of Chess.com.

IV. RESULTS AND DISCUSSION

Quotes from the interview transcripts that are most relevant to answering the research question are selected, paraphrased without losing meaning, and then converted into various codes for further analysis. Quotes with similar codes that were already mentioned by previous interviews are removed to avoid being repetitious.

The first YouTube interview to be coded was Chess.com CEO Erik Allebest and Chief Chess Officer Danny Rensch's interview by VP of Content Sam Copeland where they discussed about the history of Chess.com to celebrate 100 million members back in December 2022.

The second YouTube interview was between Chess.com CEO Erik Allebest and Russian chess YouTuber Ilya Levitov where they discussed about Chess.com's success story, future plans, and the threat of cheating in January 2024.

The third YouTube interview was between former five-time Chess World Champion Viswanathan Anand and his interviewer, chess commentator Tania Sachdev about India's past, present, and bright future in chess. Viswanathan Anand's country of origin is India and his interview gave many insights about the India's chess industry which is currently the fastest growing chess market.

Table 1: First coded transcript of Erik Allebest (Allebest, 2022)

Transcript Excerpts	Codes
"I was in business school and I ended up buying the domain name chess.com so we started building like the Myspace of Chess we were building a chess community it was doing with Jay the guy who kicked my butt at freshman year and that's kind of how chess.com got born at the very beginning and that's kind of my interest in chess was like as a business as an e-commerce as a fan as a community member as someone who was playing on other sites like Yahoo chess and stuff and was very unhappy with it I wanted a place that felt like home for me and that's my relationship with chess and chess.com in a nutshell."	- CEO is passionate about chess - CEO has previous experience managing chess businesses - Vision to build a community - Online chess provided by earlier competitors was inconvenient and difficult to use
"We couldn't afford a place for people to work couldn't afford to hire people in Silicon Valley so what did we do in basically 2006 was started a totally remote totally global company where we hired from our fans and people who were already coming in and using the site and that's kind of how we started it was like a minimal burn that I was paying out of pocket and from this loan from my friend's mom and we were just like working literally till like 3 A.M every day just like working building and it was very small and so we built a sustainable business where we weren't like just spending tons and tons of money we were doing it in a sustainable way and just out of like passion and with the group the totally distributed thing."	- Low budget start-up that is sustainable - Remote workplace hired from global fans - Employees are passionate about chess working all night
"When all the other chess companies out there at the time and there were more than there are now back then they all had logos of you know Kings where they had Knights or whatever and we were like we're doing the pawn and the reason we're doing the pawn is because we're doing chess for everyone we're not doing chess just for professionals we're not doing chess like just for beginners we're doing chess for everyone starting with the pawns and on up and that's why you know people like well that's not that's not the strongest piece it's not the most commanding piece I'm like no but it's the piece of everyone the piece of everybody and that's why we started that way."	- Reason behind green pawn logo of Chess.com is that pawn represents everyone in community
"I want to say one of the thing is like we've thought about this and the journey of a chess player and typically in the past a journey of a chess player has been your journey toward mastery or you know your journey from a beginner to a thing. I have a different definition of what the journey of a chess player is first you like kind of get interested then you learn the rules and then you like play chess that okay I play chess at some point you transition to I'm a chess player which is different from I play chess you self-identify I'm a chess player but instead of the next step from chess player being chess master I like it being chess fan because then you enjoy the game at any level whether you're rated 400 or 1400 or 2400 you can enjoy and appreciate the game and that's the journey that Chess.com is trying to help you on."	- Chess experience should focus on becoming a fan rather than a master - Enjoying chess is more important than becoming better at chess
"I'm like oh my gosh we're gonna be down a whole day no way this we're gonna die one day turned into two days turned into three days turned into four days. I'm like we should just close down like no one's gonna ever come back we're gonna turn the site back on everyone's like oh chess.com never came back online that was one of the most terrifying you can imagine I literally was like awake every hour for four days wondering when we were coming back on."	- Growing membership requires more investment in hardware - Chess.com being offline for too long is existential threat

Table 1: First coded transcript of Erik Allebest (Allebest, 2022) (Cont.)

Transcript Excerpts	Codes
"We built an amazing team around this and we've invested so much time and money and resources just to protect this game that we love but you know I immediately knew how dangerous this could be and remember that very first cheater it was such a painful experience to see so it's been at the core of what we've done and it's challenging because it's not preventable in that we can't stop somebody from opening their browser and pulling out their phone at the same time like we just you can't stop it you can only catch it after and so there is some damage and loss as you go through and I apologize to the community because I know the feeling."	- Cheating threatens the enjoyment of online chess - Cheating is not preventable because of easy access to chess engines
"I think we immediately started investing in the technology that would go on to power what is the best cheat detection system in the world. Our ability to grow as a company to improve our reputation and to invest in what would become the future ecosystem of events which allowed the future ecosystem of streaming and content it's based on people wanting to follow and understand and get entertained by chess that matters and you can't have just that if at the core of that product it doesn't have any integrity the chess doesn't matter if it's cheated."	- Investment in cheat detection system to protect online chess
I remember where I was in my basement when we covered the first world championship we ever did on chess.com which was 2010 Anand vs. Topalov I covered it with David and we saw a bump that November. I remember we were getting like 13,000 new members a day and 8,000 of them were directly attributed to India and so we started to see that events done right were not just a service to the chess community because we always knew they were kind of a money loser and but they were great for entertainment made us all love the game but they also were bringing in new interest in chess enthusiasts and so I think that it just became its own self-fulfilling thing and over time we naturally became the chess events company because of that process.	- Coverage of professional chess tournaments creates more value for chess fans - Attractive events can create sudden increase in membership count especially from India

Table 2: Second coded transcript of Erik Allebest (Allebest, 2024)

Transcript Excerpts	Codes
"Everybody who works at chess.com knows it's not their highest paying job like they could all go out and work somewhere else and make more money doing something else that's the facts like chess is not you know the most lucrative of uh business opportunities or careers that said we do exist we do want to be self-sustaining and to make money and you know create value and you know be able to give raises and hire people."	- Passionate employees who don't just work for money - Vision to become economically sustainable
"We have three missions which is to serve our audience and the community to grow the game and then to be the best partner to work with whether you're a team member and an employee whether you're a title player whether you're another company whether you're a content creator we want to be the best possible partner for you. Grow the game means the number of people who love chess so when we first started chess.com our mission was just to serve the community and then we actually realized oh we don't have to just serve the existing audience we can make the audience bigger and so we've started to do a lot of things to try to grow the game so that more people can enjoy chess."	- Vision to grow the game by making more people love chess - Vision to be the best partner to work with

Table 2: Second coded transcript of Erik Allebest (Allebest, 2024) (Cont.)

Transcript Excerpts	Codes
"Frankly we're 10 times bigger in terms of revenue now than we were in say like 2018. COVID was the first boom, Queens Gambit was another PogChamps was another, media cycle was another, Mittens was another, creators and short form content was another school boom in the US where suddenly when you're in high school in the US you know 10 years ago chess was for nerds now everybody plays chess and so there's been some big changes and things that happened um that and that have all contributed to the really changing perspective and generational change of how people you know perceive and enjoy chess."	- Social media marketing of chess - Mittens computer bot feature - Short-form content of chess - Cultural acceptance of chess
"Massive great growth in India as well absolutely I mean we're seeing growth everywhere um but the two to highlight are yes American schools changed a lot and then secondly India uh significant growth there those where else I mean it's all of it has risen but those are primarily two of the biggest areas but you know again most of our user base has become more geographically diverse meaning it used to be at the beginning much more American Centric over 50% was America now you know us is you know 30% or something like that and massive growth elsewhere India is obviously number two uh but you know there's so many countries where chess is thriving you know turkey and Brazil and Philippines and you know in so many so many places so places it's not thriving surprisingly China uh is interestingly uh two world champions from China now men and women but uh I have tried very hard to reach through to China and it's been extremely difficult I mean you know they are it's not easy to work through to their market."	- Massive growth in India market - Initially American-centric to more global-centric - China is a difficult to access market
"We don't have any Russian subscribers so no one can pay from Russia. We also have an official stance toward the Ukraine war that is pretty clear and because of that stance you know the Russian government has decided to you know block the service which I heard really they just wanted to block one web page that we posted but they ended up blocking the whole site because of it."	- Russia market is blocked due to international politics about Ukraine war
"I do think people don't give us enough credit in some ways for the capabilities and the investment that we have made that said they're focusing on things that are particularly painful to them a particular loss and so sometimes that clouds out the overall view of what we're doing and the thing that does bother me a little bit is that it can sometimes then create a cycle of paranoia where it doesn't need to be there so and I don't think that's particularly healthy for the game."	- Losses in competitive events may lead to cheating accusations that harm the reputation of online chess - Despite investment in anti-cheating measures, cheating paranoia still exists

Table 3: Third coded transcript of Viswanathan Anand (Anand, 2023)

Transcript Excerpts	Codes
"The speed of chess it's both good and bad it's good they have so many more opportunities so many more tournaments at the same time I don't know that necessarily um that their careers can be as long as the previous generation, the retirement age is beginning to drop. I think their careers will be faster but they are also burning out fast I don't know fully how that will shape up but we will see it's hard to believe that and talent is emerging much faster as well and new countries much younger they pop up and how long are you going to eventually all this takes a toll so I think the replacement rate will be much faster."	- Chess is becoming faster with lower time controls allowing for more tournaments - Shorter career cycles and earlier retirements due to speed chess

Table 3: Third coded transcript of Viswanathan Anand (Anand, 2023) (Cont.)

Transcript Excerpts	Codes
"Mostly in the very competitive environment, we have so many people trying for so few seats that they're already shaped by this competition and parents have this ability to dedicate a lot of energy and time not that other cultures don't do it, but the way we come to chess tournaments or cricket events and you bring your kid along and you try to do this our way of approaching this itself tends to produce this sort of and you see Indian youngsters very often the parents will arrange coaches with them very quickly and very seriously and the second thing is the ecosystem is very good. There was already a previous generation of grand masters who start an academy. They help the youngsters along and then some of these youngsters start academies of their own by now we have a very good setup we don't even need to go outside for much maybe at the final stages you want to compete against you travel but otherwise most of the training coaching all this stuff it's pretty good right here."	- Indians treat chess like other serious, competitive sports - Previous generations of Indian grandmasters train promising youngsters in a continuous cycle

Table 4: Fourth coded transcript of Magnus Carlsen (Carlsen, 2024)

Transcript Excerpts	Codes
"I do get the chance in February to do something that I've never done before and that really hasn't been done before in chess either which is to play Fischer random chess or freestyle chess as it's called in this tournament at the classical time control I'm really looking forward to do that because Fischer random chess I think it's always been played in rapid time control which never made a lot of sense to me since you have to think for move one then you lead then you need more time to think and for classical chess there's a lot of theory so you would need less time so it's better to play rapid and blitz there um instead and that's one of the visions that I have for the future that there will be more um Fischer random chess or other variants for classical and that regular chess will be more rapid and blitz which I think it's better suited for."	- Future chess tournaments should include more variants such as Fischer random
"I do want to have events as well that look more like chess boxing where there are a lot of fans maybe the players can play with um noise cancelling headphones so that uh you know people around can make as much noise as they want so I do think that that's something that could be exciting for chess as well yeah I still think most of um the chess fan experience is going to be online."	- Chess events such as chess boxing create valuable online fan experiences
"Chess.com has been a really good partner last year it's made my life a bit easier since things are um sort of more centralized they definitely have lot of ideas and visions for the future and many of them correspond um pretty well with uh with mine in what ways is chess.com sort of helping to evolve the game do you think I think chess.com has a great reach obviously and they're also making the game faster and more fun."	- Merger and partnership with Chess.com was beneficial

The fourth YouTube interview was between another former five-time Chess World Champion Magnus Carlsen and a Chess.com interviewer about his motivation and vision for chess. Magnus Carlsen is still currently considered to be the world's best chess player with a FIDE rating that is consistently over 2820 even though he voluntarily gave up his chess world championship title in 2023. He maintains immense influence on the chess world due to his unmatched skill, popularity, and charisma

The codes created from the interview transcripts are first grouped under a variety of diverse themes which are then divided into two tables in order to continue the process of answering the research question about factors that increase or decrease the global number of chess players. The first group of themes are considered to be factors that help to increase the global number of chess players and the second group of themes are considered to be factors that can limit or decrease the global number of chess players. The codes of each themes are then combined and reorganized to provide a more coherent explanation of each theme. Each theme represents an important factor that affects the global number of chess players.

Table 5: Definitions and labels for themes that increase global number of chess players (Braun & Clarke, 2006)

List of Themes That Increase Chess Growth
1) Good management: Chess.com was well-managed by Erik Allebest since the beginning. It began as a low budget start-up which continued growing at a sustainable pace. He believed that chess experience should focus on becoming a fan rather than a master, and had a vision to build a global chess community which was symbolized by the Chess.com's logo of the pawn that represents everyone. Chess.com provided a better online experience compared to earlier competitors but the discovery of cheaters required substantial investment in cheat detection to protect online chess. He also wanted to make Chess.com the best partner to work with. Even though Play Magnus Group, previously Chess.com biggest competitor, was acquired by Chess.com, Magnus Carlsen still considered it beneficial to merge and partner with Chess.com. All of these actions were indications of good management.
2) Passionate stakeholders: Everyone working in Chess.com is passionate about chess. Chess.com started as a remote workplace hired from global fans who were willing to work all night. All employees knew that working at Chess.com is not their highest paying job but they do it because they love the game and they want to grow the game by making more people love chess. The goal of enjoying chess is more important than becoming better at chess.
3) Global digital culture: As the Internet became more accessible and smartphones became more affordable, a growing number of people worldwide has the opportunity to play online chess. Online chess is currently played more on mobile phones than computers. With the digital infrastructure available, significant booms happened during COVID lockdown, PogChamps tournament between Twitch streamers, and Queen's Gambit Netflix show. As online chess became more popular worldwide, it became culturally acceptable to play chess.
4) Social media marketing: Online chess content became popular on a variety of social media marketing platforms such as YouTube and Twitch. Chess.com encouraged popular grandmasters such as Hikaru Nakamura to live stream online chess. Short-form content of chess also became more popular with the rise of TikTok. Scheduled online chess events such as chess boxing also create valuable online fan experiences.
5) Competitive events: Coverage of professional chess tournaments creates more value for chess fans. Attractive events can create sudden increases in membership count especially from India. Classical chess tournaments can take up to six hours which is boring for viewers so competitive chess is now becoming faster with lower time controls to allow for more tournaments. Future chess tournaments should include more variants such as Fischer random to keep the game fresh.
6) Game improvements: Online chess on Chess.com is not only free-to-play and available 24 hours every day but also offers growing features as well. Chess.com features include being able to play different variants of online chess under different time controls, puzzles, learn how play chess better, and watch events online. Puzzle rush was an especially fun game feature for live streaming. There are also dozens of computer bots of various difficulties to play against with the Mittens cat bot becoming a popular meme. Fantasy chess may be introduced soon to make chess more similar to real sports to create additional value.
7) India market: The global chess market transitioned from initially American-centric to become more global-centric with recent massive growth in the India market. Indians treat chess like other serious, competitive sports and previous generations of Indian grandmasters train promising youngsters who will grow up to teach future generations in a continuous cycle.

Table 6: Definitions and labels for themes that decrease global number of chess players (Braun & Clarke, 2006)

List of Themes That Decrease Chess Growth
8) Cheating: Cheating is considered by all chess industry experts to be an existential threat to online chess. Cheating threatens the enjoyment of online chess and is unfortunately not preventable because of easy access to chess engines. Whenever grandmasters experience tough losses in competitive online events, there is always the possibility of instinctively making cheating accusations that harm the reputation of online chess. Despite investment in anti-cheating measures, cheating paranoia still exists.
9) Technical difficulties: Previous sudden, unexpected booms in the number of Chess.com members have created technical difficulties. Growing membership requires more investment in hardware because Chess.com being offline or unavailable for too long is an existential threat.
10) Unsustainable career: With chess become faster with lower time controls where each player has less than half an hour to make all their moves, older grandmasters can no longer keep up. This era of speed chess leads to faster career cycles and earlier retirements which can make the career of chess even more unsustainable. The tournament for classical world championship is also too long and boring so that's why the world's best chess player Magnus Carlsen even gave up his title because it was not enjoyable for him.
11) Restricted markets: Despite online chess being free-to-play, some countries are still difficult to access. China has unfriendly restrictions against American companies like Chess.com and Russia market is blocked due to international politics about Ukraine War.

A chronological narrative is provided based on the development of the 11 themes. The protagonist of the story behind the growth of Chess.com is Erik Allebest along with key supporting characters, Viswanathan Anand and Magnus Carlsen. Erik Allebest first bought the domain name of Chess.com in 2005 and relaunched the website in 2007. Built upon his previous experiences of managing other chess businesses and motivated by his passion, he established a low budget startup working with remote fans and employees who were willing to work all night based on their love for the game. His vision of building a community for global chess fans is symbolized by his choice of the pawn as Chess.com's logo to represent everyone. He wanted chess players to become chess fans rather than chess masters because the ultimate goal is to enjoy the game of chess. He personally considers himself to be the guardian or steward of chess. This combination of good management and passionate stakeholders are the first two significant factors that contribute to the increase of global chess players.

Meanwhile, between the years 2010 to 2020, the world economy became more digitalized with ever more accessible Internet and more affordable smartphones. As more work, entertainment, and social activities are done on smartphones, it became culturally and socially acceptable to play online games such as chess, which was formerly considered a game for nerds. Social media marketing of chess and live streaming of competitive events also create enjoyable content and memorable experiences for chess fans which lead to more loyalty and increased player base. All of these digital cultural factors laid the foundation for further booms in the number of chess players afterwards. There were initial booms in chess such as when Chess.com convinced grandmaster Hikaru Nakamura to start live streaming on Chess.com back in 2017 and the introduction of puzzle rush feature where players solve as many chess problems as they can in a short time in 2018. At first, Erik Allebest was worried that online chess already peaked back in 2018 but it was not until 2020 when chess experienced even bigger booms. In the eventful year of 2020, when COVID lockdowns happened worldwide and millions of people were forced online, the digital infrastructure for online chess already existed for new players to join easily. Starting in May 2020, Chess.com invited internet personalities and Twitch streamers to participate in the PogChamps tournament for two weeks to create valuable experiences for chess fans as part of social media marketing. In October 2020, Netflix released the Queen's Gambit show which became immensely popular, won many awards and triggered massive interest in chess. However, the suddenly explosion in the number of online chess players overloaded Chess.com servers requiring sudden, substantial investment in new hardware to maintain player base and user experience. This experience served as a warning that even during booming phases, the threat of technical difficulties can still be a factor to decrease number of global chess players.

In September 2022, Magnus Carlsen accused Hans Niemann of cheating during the 2022 Sinquefield Cup which led to a scandal that was widely covered and shed some light on the threat of cheating in online chess. Cheating is an existential threat to the game of chess and is a factor that can decrease number of global chess players. Consequently, Chess.com management had already invested in cheat detection systems with a public education campaign about the transparent steps and actions they take to discourage cheating. In December 2022, Play Magnus Group, previously Chess.com biggest competitor, was acquired by Chess.com and two years later, Magnus Carlsen still considered it beneficial to merge and partner with Chess.com which are further examples of good management.

Coverage of professional chess tournaments in the past decade also creates more value for chess fans. Examples of popular livestreams of tournaments covered by Chess.com with over 500,000 views each were the Speed Chess Championship Final in 2023 and Champions Chess Tour in 2023. Attractive events can also result in sudden increases in membership count. Future chess tournaments might include more chess variants such as Fischer random where the backrow pieces of each color are randomly shuffled at the start of each game to avoid importance of memorization to make the game fresh. Introducing fantasy chess as a new game feature will also make chess more similar to real sports to create value for fans. Introduction of new game features can sometimes lead to sudden growth when covered by social media like in the case of what happened with the introduction of the Mittens cat bot that was almost unbeatable. The combination of competitive events and continuous game improvements makes the game of chess more enjoyable and therefore serve as two more significant factors that contribute to the increase of global chess players. However, due to viewership boredom with classical chess where each game can take up to six hours and with chess becoming faster with lower time controls allowing for more tournaments, it will lead to faster career cycles and earlier retirements. This makes a career in chess more unsustainable and is a factor that decreases global number of chess players.

Chess experienced massive growth in the India market over the past decade owing to Viswanathan Anand's promotion of Indian chess and the ever increasing digitization of global economy. Indians treat chess like other serious, competitive sports and previous generations of Indian grandmasters train promising youngsters in a continuous cycle. Just to show how strong Indian chess players have become, in February 2024, 5 out of the top 20 grandmasters according to FIDE rating are from India. While the promising India market serves as a factor that increases the global number of chess players, other countries are not as welcoming to chess. Even though both the male and female world champions of chess are currently from China, the Chinese market is difficult to access for an American company like Chess.com. The Russia market is also blocked to Chess.com due to Chess.com's vocal support of Ukraine. Restricted markets, namely China and Russia serve as another factor that limits the global number of chess players because their populations do not have easy access to Chess.com's services without using a VPN. If Chess.com can become more persuasive with the Chinese and Russia governments, then unrestricted access to both the China and Russia market would substantially increase Chess.com's player base.

A summary of the research findings from all interviews is provided. The first video revealed factors about good management, passionate stakeholders, global digital culture, social media marketing, competitive events, game improvements, cheating, and technical difficulties. The second video revealed factors about good management, global digital culture, India market, restricted markets, and cheating. The third video revealed factors about competitive events, India market, and unsustainable career. The fourth video revealed factors about game improvements and cheating. Overall, the factors that increase global number of chess players are good management, passionate stakeholders, global digital culture, social media marketing, competitive events, game improvements, and India market. Factors that decrease global number of chess players are cheating, technical difficulties, unsustainable career, and restricted markets. The qualitative research data results provided these answers to the research question about what are the various factors that can increase or decrease the global number of chess players.

A further explanation of the findings is provided. Knowledge about these factors that affect the global number of chess players can provide a guideline and point of reference to Chess.com and other businesses affiliated with the global chess industry about management actions that should be taken in order to maintain chess growth as well as respond to threats that limit chess growth. In order to continue increasing the global number of chess players, good management must be maintained and an enjoyable environment should be provided to all stakeholders in the chess industry to sustain their passion. Attractive content and daily updates about chess should be continuously posted on social media for fans to enjoy to continue growing chess under the reality of the current global digital culture. New ways of playing chess should be explored to improve the game so that both old and new players can maintain their interest. Competitive events should be maintained to allow fans to follow and watch professional chess like other sports but should also be kept sustainable so competing grandmasters can still make a viable living without burnout. The largest recent growth in the global number of chess players came from the India market so Chess.com can learn from this experience and attempt to grow the number of chess players from restricted markets such as Russia and China. Cheating is the most serious threat to the growth of chess so anti-cheating measures must be constantly updated and announced to the public to protect the game and maintain players' trust while technical difficulties should be kept to a minimum.

V. CONCLUSION

Chess is an ancient board game that can still compete with other flashy games in the online gaming industry. Perhaps the only upgrade chess had was the evolution to its digital form of online chess that can be played on touchscreen or a computer with a mouse and only requiring any electronic device with Internet connection. The gameplay is essentially the same, although probably more convenient due to not requiring a physical board and pieces. Not many games have the same resiliency as chess except for similar ancient board games like Go or Xiangqi.

One main reason why Chess.com currently has over 160 million members is passion. Passion for the game is the reason why the CEO of Chess.com did not choose to work in another more profitable career in Silicon Valley and why Chess.com employees were willing to work overtime for less pay. Obviously passion alone is not the sole reason for the growth of chess. Other important factors such as good management, global digital culture, social media marketing, and competitive events work together to grow the game of chess but ultimately they are fueled by passion. This passion of chess along with the rich chess history and global communities of older chess players is not something that can be replicated by online gaming companies that focus more on trying to make their players addicted to their casino-like games with loot boxes that encourage gambling behavior. These companies view their customers more as cash cows to be milked to the limit rather than as passionate fans, which is not sustainable.

There are threats to the growth of chess as well, particularly on the issue of cheating which is being addressed by Chess.com's ever improving cheat detection system. Technical difficulties must be quickly responded to and resolved while the unsustainability of a career in chess should be responded to with the creation of viable jobs in chess. Ideally, online chess should be available in every country but there is restricted access in China and Russia so hopefully, the international politic situation may improve in the future.

At first glance, chess might seem like a boring game compared to other online games. However, the social media marketing efforts of Chess.com and other chess content creators create memorable experiences to drive up the value of chess and convert chess players or viewers into passionate chess fans. The growth of online chess demonstrates that gaming businesses do not have to fixate on hiring video game programmers to constantly develop new games with continuous updates. If the 1,500-year-old game of chess can continue to survive and even compete in today's online gaming industry that prioritizes hi-tech animations and flashy explosions, then previous assumptions about game design and marketing should be revised.

It is important to acknowledge the limitations of this study. First of all, the sample size was small and conveniently selected based on popularity so they might not represent global chess industry experts. Secondly, while this qualitative research study provided a lot of detailed context, there is a lack of generalizability and scientific evidence based on numerical values. Thirdly, the data was secondary so there was no control over the interview questions and answers. Future studies can go in more details about specific factors contributing to chess growth. A quantitative research version of this study is recommended in the future if the numerical data becomes available.

REFERENCES

Allebest, E. (2024, January 7). An interview with Erik Allebest, CEO of chess.com [Video file]. Retrieved from https://youtu.be/cZDRrWAx2Rk

Allebest, E., & Rensch, D. (2022, December 16). The history of chess.com: Celebrating 100 million members! [Video file]. Retrieved from https://youtu.be/dR0r1rOSzWI

Amin, K. P., Griffiths, M. D., & Dsouza, D. D. (2022). Online gaming during the COVID-19 pandemic in India: Strategies for work-life balance. *International Journal of Mental Health and Addiction*, *20*(1), 296–302.

Anand, V. (2023, September 21). Viswanathan Anand on India's past, present, and bright future in chess [Video file]. Retrieved from https://youtu.be/giCkVWeuK8M

Bayeck, R. Y. (2020). Examining board gameplay and learning: A multidisciplinary review of recent research. *Simulation & Gaming, 51*(4), 411–431.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101.

Business Research Insights. (2024, February 1). Global digital gaming market size, 2031 [Infographic]. Retrieved from https://www.businessresearchinsights.com/market-reports/digital-gaming-market-100509

Business Research Insights. (2024, February 1). Global online chess instruction and play market size, 2031 [Infographic]. Retrieved from https://www.businessresearchinsights.com/market-reports/online-chess-instruction-and-play-market-102675

Carlsen, M. (2024, January 25). Magnus Carlsen on cheating in chess, being the goat, and retiring from the game [Video file]. Retrieved from https://youtu.be/CWP1phkx2I0

Chi, C. L. (2009). *The value chain in the Asian online gaming industry: A case study of Taiwan* (Doctoral dissertation). Retrieved from https://westminsterresearch.westminster.ac.uk/item/90w54/the-value-chain-in-the-asian-online-gaming-industry-a-case-study-of-taiwan

Chung, P. (2008). New media for social change: Globalisation and the online gaming industries of South Korea and Singapore. *Science, Technology and Society, 13*(2), 303–323.

Davidovici-Nora, M. (2013). Innovation in business models in the video game industry: Free-to-play or the gaming experience as a service. *The Computer Games Journal, 2*, 22–51.

Fang Y.-M., Chen K.-M., & Huang Y.-J. (2016). Emotional reactions of different interface formats: Comparing digital and traditional board games. *Advances in Mechanical Engineering, 8*(3). doi:10.1177/1687814016641902

Holdaway, C., & Vul, E. (2021). Risk-taking in adversarial games: What can 1 billion online chess games tell us?. *Proceedings of the Annual Meeting of the Cognitive Science Society, 43,* 986–992.

Huang, L. Y., & Hsieh, Y. J. (2011). Predicting online game loyalty based on need gratification and experiential motives. *Internet Research, 21*(5), 581–598.

Islam, A., Lee, W.-S., & Nicholas, A. (2021). The effects of chess instruction on academic and non-cognitive outcomes: Field experimental evidence from a developing country. *Journal of Development Economics, 150*. doi:10.1016/j.jdeveco.2020.102615

Jin, D. Y. (2011). The digital Korean wave: local online gaming goes global. *Media International Australia, 141*(1), 128–136.

Kshetri, N. (2009). Growth trends in the gaming industry of India. *International Journal of Social Science and Economic, 4*(2), 158–179.

Kulikov, V. (2020). Preferential engagement and what can we learn from online chess?. *Minds and Machines, 30*(4), 617–636.

Kumar, K. (2021). Growth trends in the gaming industry of India. *International Journal of Social Science and Economic Research, 6*(7), 2500–2510.

Liou, F., & Gao, Y. (2011). Competitive advantage in the online game industry in Taiwan. *Journal of Strategy and Management, 4*(2), 136–154.

Majhi, S. G. (2023). *'A brave new world': Exploring the implications of online chess for the sport post the pandemic*. In B. Basu, M. Desbordes, & S. Sarkar (Eds.), *Sports Management in an Uncertain Environment* (pp. 255–270). Singapore: Springer.

Mariano, B., & Koo, S. G. (2015). Is cloud gaming the future of the gaming industry?. *Proceedings of 2015 Seventh International Conference on Ubiquitous and Future Networks,* 969–972. doi:10.1109/ICUFN.2015.7182690

Market.us. (2024, February 1). Global online gaming market share by platform, 2023. [Infographic]. Retrieved from https://market.us/report/online-gaming-market/

Meagher, K., & Teo, E. G. (2005). Two-part tariffs in the online gaming industry: The role of creative destruction and network externalities. *Information Economics and Policy, 17(*4), 457–470.

Miric, M., Lu, J., & Teodoridis, F. (2020). *Decision-making skills in an AI world: Lessons from online chess*. Retrieved from https://ssrn.com/abstract=3538840

Noda, S., Shirotsuki, K., & Nakao, M. (2019). The effectiveness of intervention with board games: a systematic review. *BioPsychoSocial Medicine, 13*, 22. doi:10.1186/s13030-019-0164-1

Palma-Ruiz, J. M., Torres-Toukoumidis, A., González-Moreno, S. E., & Valles-Baca, H. G. (2022). An overview of the gaming industry across nations: using analytics with power BI to forecast and identify key influencers. *Heliyon, 8*(2), e08959. doi:10.1016/j.heliyon.2022.e08959

Poston, D. I., & Vandenkieboom, K. K. (2019). The effect of chess on standardized test score gains. *Sage Open, 9*(3). doi:10.1177/2158244019870787

Redding, G. (2007). The chess master and the 10 simultaneous opponents: But what if the game is poker? Implications for the global mindset. *The Global Mindset (Advances in International Management), 19*, 49–73. doi:10.1016/S1571-5027(07)19003-3

Senthil, B. A., & Ravindran, D. (2023). Relationship between chess and management–An overview. *Formation of Competencies of Gifted Individuals in the System of Extracurricular and Higher Education*, *1*, 8–15. doi:10.18372/2786-823.1.17464

Simon, J. P. (2018). Triggering the emergence of digital ecosystems: the role of mobile and video games in emerging economies. *Digital Policy, Regulation and Governance, 20*(5), 449–478.

Statista Search Department. (2024). Number of internet users worldwide from 2005 to 2023. Retrieved from https://www.statista.com/statistics/273018/number-of-internet-users-worldwide/

van Harreveld, F., Wagenmakers, E.-J., & van der Maas, H. L. J. (2007). The effects of time pressure on chess skill: An investigation into fast and slow processes underlying expert performance. *Psychological Research, 71,* 591–597.

Wallinheimo, A.-S., Hosein, A., Barrie, D., Chernyavskiy, A., Agafonova, I., & Williams, P. (2023). How online gaming could enhance your career prospects. *Simulation & Gaming, 54*(1), 28–44.

Zackariasson, P., & Wilson, T. L. (2010). Paradigm shifts in the video game industry. *Competitiveness Review, 20*(2), 139–151.

Strategic Planning in Homemade Food Industry: A Case Study of "Mama Agym's Business" in Batam, Kepulauan Riau, Indonesia

Vily Windani[1*] Sakchai Jarernsiripornkul[2]

[1*,2]*College of Graduate Study in Management (CGSM), Khon Kaen University, Khon Kaen, Thailand*

*Corresponding Author. E-mail address: vily.w@kkumail.com

Received: 24 July 2024; Revised: 12 October 2024; Accepted: 15 October 2024
Published online: 26 December 2024

Abstract

The purpose of this study was to analyze and identify the business strategies used by Micro, Small and Medium Enterprises (MSMEs) for homemade food business Fish Cake Soup "Mama Agym", in developing business which includes marketing, production and operational distribution process. This analysis method uses descriptive qualitative research with the aim of describing the external environment, circumstances and social fact of the business. The qualitative research that seeks to collect facts and circumstances as they should be through interviews, moreover the interviews were conducted with business owners, employees, and several consumers where informants were taken using purposive sampling technique. Then identify the business's environmental conditions using SWOT analysis, Porter's Five Forces and PEST Analysis. Based on the results of evaluation analysis, the strategies that have been implemented by the business have not worked optimally and have not maximized existing resources. For example, some methods such as payment systems and distribution still do not work optimally following existing technological developments. Through this research study, researchers can provide recommendations to business regarding alternative strategic planning that can be used in the future.

Keywords: Micro small and medium enterprises (MSMEs), PEST analysis, Porter's five forces, Strategic planning, SWOT analysis

I. INTRODUCTION

Business people must identify the strengths and weaknesses they have to run their business activities effectively. They must minimize their weaknesses so that they are not easily read by competitors. Then, the existing opportunities can be utilized to attract more consumers, on the part of threats to be a significant obstacle to business operations (Pramayanti, Rachmawati, Sudrajat, Permana, & Sutisna, 2021). If the entrepreneur knows the strengths and weaknesses of the business owned, as well as knowing the circumstances of the scope of the business that is being carried out, the entrepreneur can know the current position of the company in the middle of business competition. Strategic planning is very important for businesses because it provides a design plan to achieve long-term goals, then identify opportunities, and reduce risks that will be faced. Obviously this is compiled based on the strengths, weaknesses, opportunities, and threats of the current company or business. Entrepreneurs also need to make efforts such as providing excellent products, utilizing existing opportunities to continue to developing their business while making a profit. But unfortunately, there are some things that small businesses often face in growing and develop their business for the better. The issue that is often faced by Micro, Small and Medium Enterprises (MSMEs) is how and where the product is marketed, then whether the product can meet customer needs. How the distribution process has not been optimized so that it cannot reach a wider range of customers. Another problem is that operational management in utilizing technology is not maximally developed. An effective business strategy can stabilize the level of sales from year to year in accordance with the quantity of products that a business can produce. Micro, Small and Medium Enterprises (MSMEs) at Fish Cake Soup “Mama Agym”, which sells homemade food, already has customers who are always consistent in making purchases. But customers are only from that area and nearby, there is no expansion in distribution and very minimal product marketing. The business uses a make-to-order system and has not seen significant development in the last three years. So, the author wants to know how the business's environmental conditions strategy is carried out by Fish Cake Soup “Mama Agym” using SWOT analysis, Porter's Five Forces and PEST Analysis. Through the analysis, external and internal factors of the Fish Cake Soup “Mama Agym” business environment can be obtained which will later be used to formulate a suitable business strategic planning carried out in this business with the intention of developing and growing the business being operated.

II. LITERATURE REVIEW

A. Strategic Management

According to Wheelen, Hunger, Hoffman, and Bamford (2015) a collection of managerial choices and actions known as “strategic management” contribute to the long-term success of a business. It includes evaluation and control, formulation of strategies (long-term or strategic planning), strategy implementation, and environmental scanning internal and external. Strategic management consist of:

1) Environmental Scanning: The process of monitoring, evaluating, and communicating information to important individuals within the company from both the external and internal settings is known as environmental scanning. Its goal is to identify strategic factors, those internal with external components that will support an analysis of the company's decision-making process.

2) Strategic Formulation: The process of research, analysis, and decision-making known as the research, analysis, and decision-making procedure referred to as “strategic formulation” gives the business the framework it needs to gain a competitive advantage. It involves defining the company's competitive advantages, identifying inefficiencies that affect the business, developing the corporate mission, outlining realistic goals, and establishing policy standards.

3) Strategic Implementation: The process of positioning plans and policies into action through the setting up of budgets, schedules, and procedures is known as strategy implementation. This process may include modifications to the organization's general culture, structure, or management system. Moreover, according to Wheelen, Hunger, Hoffman, and Bamford (2015) a business's strategy outlines a thorough plan that outlines how the company will carry out objectives and missions. It reduces and optimizes competitive disadvantages and competitive advantages. Furthermore, there are three types of strategy: corporate strategy, business strategy, and functional strategy.

To have effective strategic management requires a systematic approach in the form of strategic planning, which in this research study involves analyzing the internal and external environment of the business to be identified. Strategic planning being an important component of the strategic management part, as it enables a business to set clear goals and objectives that help the business in decision-making. According to Thompson, Scott, and Martin (2022) stable conditions lend themselves best to the employment of formal strategic planning methods. Forecasts of environmental possibilities and dangers are followed, as we have seen previously, by the planning and execution of strategies. It is most likely that strategies that are acceptable, feasible, and desirable will aid the company in accomplishing its goals Systems of strategic planning suggest that plans be methodically and thoroughly chosen through an analytical process.

B. The External Environment Scanning

Environmental scanning to identify an organization's external surroundings and changes in the environment of the business. In this research study, external environments were selected to be analyzed as an illustration to show how MSMEs in Batam, Indonesia, are doing. They include the following:

1) Industry Environment: Understanding the external environment in which their firm competes is necessary before starting any kind of strategy plan. According to Wheelen, Hunger, Hoffman, and Bamford (2015) since developing a plan is impossible without having an in-depth understanding of the current situation of the external environment. Industry analysis is an in-depth examination of important elements inside the job environment of a firm and is referred to as an industry analysis. The natural, social, and task settings need to be kept an eye on in order to assess the strategic elements that have a significant influence on business success or failure.

2) Industry's Key Success Factors: According to Thompson and Strickland (2003) Industry's key success factors are those that have the biggest impact on an industry member's capacity for success in the marketplace. These factors include the specific strategy element, product attributes, resources, competencies, competitive capabilities, and business outcomes that ultimately determine whether a company succeeds or fails in the marketplace.

3) General Environment: The numerous external influences impact a company's decision-making about direction and action, which in turn affects its internal processes and organizational structure. These elements can be separated into elements in the distant environment, contributing to the external environment. The environment: elements that come from outside of and typically independent of any one firm's operational environment, including economic, social, political, and technological (Pearce & Robinson, 2009) these factors are as follows:

Political factors, which define the legal and regulatory framework that businesses need to operate inside are determined by political considerations.

Economic factors, the kind, and the direction of the economy in which a company operates are considered economic considerations. Every company needs to consider the economic developments in the market segments that have an impact for business, as the relative wealth of different market groups influences consumption habits.

Social factors, which impact a company include people's views, values, attitudes, opinions, and way of life as shaped by their cultural, ecological, demographic, religious, educational, and ethnic upbringing.

Technological factors, define a company as a must be informed about technological advancements that might impact its business in order to prevent obsolescence and foster innovation. Innovative technology modifications can offer opportunities for brand-new items, enhancements for current products, or advancements in production and marketing techniques.

4) Competitive Environment: The general competitive conditions affect all companies offering comparable goods and services. Michael E. Porter, a professor at Harvard, thrust the idea of the industrial environment into the core of company planning and strategic thinking (Pearce & Robinson, 2009).

The threat of new entrants in an industry, newcomers bring with them fresh capabilities, the will to increase their market share, and frequently significant resources.

Bargaining power of suppliers that can influence industry participants through price increases or a decline in the quality of goods and services acquired. As a result, strong suppliers have the capacity to extract profits from a sector of the economy that cannot absorb cost rises through increases in prices.

The bargaining power of buyers refers at the expense of industry profits, customers may also drive down prices, demand better quality or more services, and push rivals against one another.

Threat of substitute products defined as the replacement items that need the most strategic attention are those that: (a) are produced by profitable industries; or (b) are prone to developments that improve their price-performance trade-off with the industry's product. When a breakthrough in their industry enhances competition and leads to price reductions or performance improvements, substitutes frequently enter the picture quickly.

The threat of new entrants, bargaining power of suppliers, bargaining power of buyers, and threat of substitute products are all significant factors in an industry. Newcomers bring new capabilities and resources, while suppliers can influence industry participants through price increases or quality declines. Buyers may drive down prices, demand better quality, and push rivals against each other.

C. SWOT Analysis

Gain insight and help the organization for the current and future position with SWOT analysis. According to Pearce and Robinson (2009) internal analysis, another crucial paradigm is the resource-based view of a company. By looking at a range of distinct yet related resources and competencies that each company has, and then assessing the extent to which they serve as the foundation for a long-term competitive advantage based on industry and competitive factors, this method outperforms SWOT analysis. Managers use the SWOT analysis approach to quickly summarize the strategic position of a firm.

D. TOWS Matrix

TOWS Matrix to assess external environmental factors, identifying opportunities, threats, strengths, and weaknesses to optimize a business's advantages and minimize its inadequacies. According to David (2011) the most challenging aspect of creating a matrix is matching important external and internal aspects. This involves decision-making, and there is no one ideal set of matches. Most of the time, internal and external interactions are more complicated, matching demands for several alignments for every plan that is developed. The fourth strategies factors:

1) Strengths-Opportunities (SO): Strategies capture outside chances. Every management wants to see his company in a position where it can use its internal resources to make the most of external developments and trends.

2) Weaknesses-Opportunities (WO): Strategies seek to improve internal shortcomings, by capturing external possibilities. Important external opportunities may present themselves, but a company's internal shortcomings keep it from taking advantage of them.

3) Strengths-Threats (ST): Strategies make use of the strengths of a business to keep away from or minimize the effects of external threats. This does not suggest that a powerful organization must constantly face external threats head-on.

4) Weaknesses-Threats (WT): Strategies are preventative measures used to minimize weaknesses within and keep away external threats. An organization may be in a risky situation if it is dealing with a lot of external threats in addition to internal weaknesses.

III. RESEARCH METHODOLOGY

A. Data Collection Method

This study the authors used several methods as a process of collecting data from all relevant sources and then analysis research study. The data can be collected in a variety of ways, including:

1) Interviews: In this study analyzing data or information in the form of narratives from semi-structured interviews related to Micro, Small and Medium Enterprises (MSMEs) in Fish Cake Soup "Mama Agym" along with documentation related to the business. Interviews are conducted via Google Meet and Zoom, and also ask questions on the form provided.

2) Informants: In this study using purposive sampling by conducting interviews with business owners, employees, and 10 consumers from Fish Cake Soup "Mama Agym" business customers. Informant was chosen with consideration, namely someone who knows very well about the problem of the object under study.

3) Data Source: The primary data sources used in this research study were obtained directly from informants without intermediaries, and the data was gathered from responses to questions related to the research study. The primary data in this research was obtained through interviews with several informants. Moreover, this section employs documentary research, utilizing existing documents like journals and books for review and analysis, as well as supporting data for the study.

B. Data Analysis Method

This study the authors used several methods as process of analysis data method, including:

1) Type of Data Qualitative: This study uses qualitative data, specifically research conducted through qualitative descriptive research produced through semi-structured interviews. Through this method, the author will analyze the data obtained from the field in detail and comprehensively. The data analysis in this study employs descriptive analysis and utilizes SWOT analysis.

2) Triangulation Data: This analysis method uses triangulation to determine the authenticity of data obtained from several sources. Triangulation data source in this study rechecks and compares the level of reliability of the information obtained. Thus, the author obtained data sources from business owners, employees, and several consumers of the Fish Cake Soup business which were then analyzed and compared to one another.

3) Techniques Analysis Data: In this research study using model techniques Milles and Huberman. According in Saleh (2017) describe model techniques Milles and Huberman, data are collected in a variety of ways, which are usually processed before use, but qualitative analysis still uses words which are usually arranged in expanded text. In this model there are three components of analysis, namely: *data reduction, data display and concluding drawing.*

IV. RESULTS AND DISCUSSION

A. Industry Environment Analysis

The analysis focuses on identifying key success factors in Mama Agym's industry, analyzing growth prospects, competitive strategies, and external industry factors.

1) Market Growth: Each year, the development of the market always experiences ups and downs, when the pandemic in 2020 hit Indonesia, business development experienced severe obstacles. In 2021, the MSE-scale business experienced quite low growth.

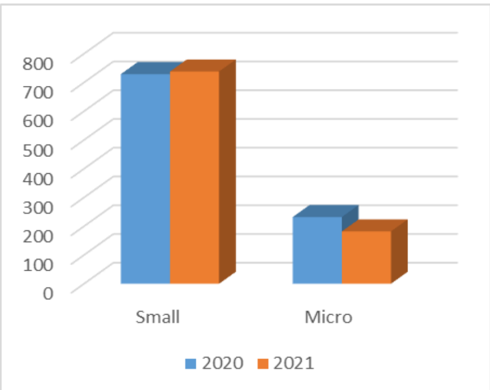


Figure 1: Number of business in industry of MSE in Batam City 2019–2022

Figure 1 shows a slight increase in Small Enterprise from 729 in 2020 to 738 in 2021, while Micro Enterprise declined from 232 in 2020 to 182, indicating a need for support and resources.

2) Scope of Competitive Rivalry Enterprise: The intense competitive rivalry among Micro-Small Enterprise (MSEs) companies in Batam is driven by their commitment to providing superior products and services to their customers. According to Department of Communication and Information Batam City (2022) the competition from several businesses in the Batam city MSEs industry has diversity and is divided into 3 parts or groups.

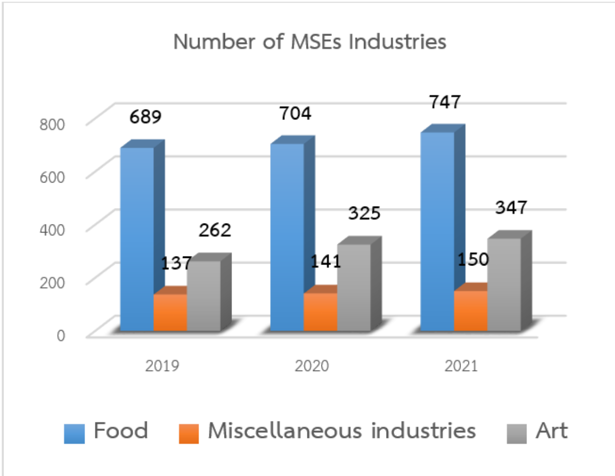


Figure 2: MSE industry in Batam City 2019-2021

The data shows a steady increase in Micro Small Enterprises (MSEs) in Batam, Indonesia, from 2019 to 2021. Figure 2 data show food sector saw a significant increase, with 747 MSEs in 2021. Miscellaneous industries also saw a positive trend, with 50 MSEs in 2021. The art industry also experienced significant growth, with 347 MSEs in 2021. Competition in all three industries is increasing, with the food industry being the most superior.

3) Barriers to Entry: Starting an MSME faces obstacles like initial capital preparation, but the government aims to reduce entry barriers for small business owners. Since 2021 provincial government Kepulauan Riau has a capital assistance program for MSMEs with 0 percent interest in collaboration with banks for the public. Assistance from the local government in an effort to restore the economy during the pandemic (Bani, 2023).

4) Key Success Factors: Strategic Location: Batam City's strategic location on the Malaysia-Singapore border offers opportunities for economic growth, influencing the success of MSEs in the region, affecting visibility, accessibility, and potential customer base Singapore. Activity of MSME entrepreneurs, the aim is to introduce main products in Batam to neighboring countries. The main products are culinary and there are also handicrafts.

Business License/Permit: A business permit safeguards a MSME's legal operations, promoting trust with customers, suppliers, and stakeholders by ensuring compliance with regulations and preventing fines or closures.

Moreover, continues activities to provide direct socialization to the community and provide facilities in making electronic business permit cards or *Number Identification Business* (NIB). Batam local government, especially the Batam Integrated Business Service Center, provides free NIB registration services through an online system, as well as offers coaching for businesses and consultants to assist in various aspects, including quality improvement and effective marketing strategies (Yuliandra, 2024).

Digital Training and Seminars: The development of the times and digitalization is increasingly advanced, it will affect and have an impact on businesspeople, especially in Batam City.

Furthermore, in 2023, a national seminar was held for small and medium enterprises in the Kepulauan Riau, Batam. This activity organized by the government aims to develop MSMEs by providing education and training for business owners in expanding the market. MSMEs in the Kepulauan Riau region also have a geographical location that supports the expansion of the market to export (Ekobrurianto, 2023).

B. Competitive Analysis

Mama Agym's business analysis utilizes Michael Porter's Five Forces Porter framework, gathered through interviews with business owners, and external environmental analysis, highlighting advantages for increased profitability, as follow:

Table 1: Porter's five forces

Indicators	Conclusions
The threat of new entrants	High
The threat of substitute products	High
The bargaining power of buyers	Low
The bargaining power of suppliers	Low
Industry rivalry for competitors	High

Based on table 1 find that Porter's Five Forces Analysis approach was used to analyze Mama Agym's business environment. The study found high threats of new entrants, high threat of substitute products, low bargaining power of buyers and suppliers, and high industry rivalry due to the availability of affordable raw materials and easy access to competitors.

1) The Threat of New Entrants: To get into the fish cake business competition is not difficult because the raw materials are easy to find in the market. Based on the results of the owner interview, starting with a capital of IDR 150,000 means that starting this business does not require a large amount of capital. But the competitor of this household business is another business that also sells snacks at a cheaper price. The owner continues to try to maintain the quality and taste of the food produced. Newcomers who enter sell food that has a varied menu and varied food processing. Meanwhile, Mama Agym's business has not had a variety of menus and is focused only on one meal.

2) The threat of substitute products: The main competitors are the big restaurants in the mall and the food court that also sells fish cake soup. But based on the results of the interviews, it has no impact on Mama Agym's own business. Because it is a very distant location, and it has different target customers. Mama Agym's business faces intense competition from big restaurants that have large resources and maintain their performance at the market. The competitive rivalry for Mama Agym's business is high, some restaurants sell this menu, especially in Batam. But compared with the competitors who sell fish cake soup in the residential area and the number of residential blocks, no one has sold traditional food like this. Some sell food, snacks, and traditional foods, but not fish cake soup.

3) The bargaining power of buyers: Mama Agym's business only works with one supplier local to buy fish and a raw material store to buy other supplements. However, in the market there are a lot of fish suppliers because Batam, known as Island City has so many suppliers that sell the kind of fish on the market. But in an interview, the owner said that only bought from one supplier. Since the start of the business, the supplier who always supplied fish has remained the same, even before the business started. The owner considers that the quality of the fish provided by the supplier is very good and the price is not too expensive, for prices to be adjusted to market conditions. The prices to be adjusted to market conditions where prices change every day.

4) The bargaining power of suppliers: Consumers who buy fish cake soup do not have the strong bargaining power of buyers. Based on the results of interviews, the prices offered by Mama Agym's are very affordable for customers. So, a low-priced offer by a customer never happened. Even though the initial price was Rp 8,000 and incease to Rp 10,000, customers still bought. It is evident from the interest of customers who still keep buying so far, so the bargaining power of buyers can be said not to happen to Mama Agym's home business.

5) Industry rivalry for competitors: At the fish cake soup business, Mama Agym has not offered any other products or menus; the focus of the business for the moment is only selling fish cake soup. In an interview, the owner said that in the residential district, no one has sold the same menu as Mama Agym's business. Even in the other houses that are in one area, no one sells. But the threat comes from replacement products from small as well as large restaurants that sell food made from processed chicken or meat. Processed fish products also have a variety of choices. Some sellers also sell foods like meat ball soup and other high-quality processed foods that sell around in the residential area every day. The threat of substitution products does not have much influence on business because consumers still buy products offered by Mama Agym businesses.

C. General Analysis

The food homemade business is influenced by political, economic, social, and technological factors, affecting market competitiveness if unsatisfied factors are not addressed, as follows:

Table 2: General analysis

PEST Analysis	Conclusions
Politic	Medium
Economic	Medium
Social	High
Technology	Low

Based on table 2, find that Mama Agym's home business impacts political and economic factors with stable sales of fish cake soup, despite inflation and religious celebrations. Socially, the endemic era influences flexible food purchasing, with low technology impact.

1) Politics: There are no political regulations that affect Mama Agym's home business or are directly connected. This business has not been registered as a business entity and has not been able to follow the trade regulations made by the government. But what is interesting is that, in this political year and close to the end of the year, the price of basic commodities tends to increase. From the interview results, the owner said that some raw materials prices are rising and candidates from political parties will promise to make the price cheaper. This has become something interrelated; during the political year, the price of commodities will increase not only on important days such as religious celebrations but also at the end of the year.

2) Economic: In the economic sector, Mama Agym's business is still stable in terms of selling fish cake soup. According to the results of the interviews, the business is affected by the increase in the price of basic ingredients. Because this will affect suppliers, who will also increase the selling price of their products.

During religious celebrations, commodities will rise, but this is also proportional to the increase in the amount of money circulating in the community. This economic cycle is vulnerable to inflation which leads to an increase in other raw materials as raw materials for making fish cake soup. The prices offered in 2021 have increased, but by 2023 and 2024 the sales prices offered by Mama Agym's business remain the same and keep the quality of the product.

3) Social: The change to the endemic era has affected consumer behavior, where consumers are more flexible in buying food. From the interview results, the owner said that customers sometimes pick up the order directly. Then the majority of customers use online food delivery as a preference in shopping. Mama Agym Business has not worked with a third party and still distributes food manually by delivering directly to consumers.

When the business started, orders were only for a few servings that were consumed personally. However, as demand increased, customers also ordered for specific events and in large quantities. Finally, Mama Agym's business also follows consumer behavior and fulfills the demand for those who order a certain amount for an event or small-scale party.

4) Technology: In terms of technology, all production carried out is still conventional and has not used the technology that has developed to the fullest. According to the results of interviews with the owner, he does not record expenses and income in the bookkeeping. The promotions carried out are also still limited to WhatsApp only and have not used other social media. Payment has also not been used non-cash.

Mama Agym's business has not been open to utilizing technology in the production and distribution processes. Everything is still using conventional methods, but it does not rule out the possibility that in the future it will utilize technology in conducting promotions or in the food distribution process, such as collaborating with online food delivery, for example.

D. SWOT Analysis

Table 3: SWOT of the business

Strengths	Weaknesses
S.1 The prices offered are competitive and affordable	W.1 Packaging that is still less attractive
S.2 The savory and delicious taste of fish cake soup	W.2 There are no other food product options, and the menu is not varied
S.3 Provides good service to the buyer	W.3 Businesses are not yet working with online food delivery services

Table 3: SWOT of the business (Cont.)

Strengths	Weaknesses
S.4 The use of good quality raw materials	W.4 Does not have a label or brand as an identifier
S.5 Introducing the taste of traditional food from Palembang	W.5 Do not yet have a specialized social media account to promote products
S.6 The business's location is in a residential area	W.6 The business does not yet have a purposeful and organized management system
S.7 This business does not yet have many competitors selling the same products	W.7 There is no activity to record the accumulated profit per month
S.8 The raw materials to make fish cake soup are easy to find in the market	W.8 Raw material purchasing activities to prepare fish cake soup are not recorded in detail and clearly
S.9 The production process is easy to make and uses original recipes from the region	W.9 Product promotion activities are still very low, and are not carried out regularly and massively
S.10 The capital required to start this food business is not large and is still relatively small	W.10 The food delivery area has not been arranged and only accepts residential areas that are not too far away
Opportunities	**Threats**
O.1 Able to expand target area customers for fish ball soup sales	T.1 The price of raw materials continues to rise
O.2 Create a selection of frozen food products so that customers can customize their own food according to their taste	T.2 Customers who choose to buy other food through online food delivery
O.3 Adding other menu options while still using fish-based ingredients	T.3 Competition with culinary foods that have low calories and are healthy
O.4 Create special social media as a promotion besides WhatsApp	T.4 The ever-growing development of fast foods options
O.5 Open opportunities for cooperation with online food delivery	T.5 A very approachable and more interesting frozen food option based on fish
O.6 Potential to grow because it does not have many competitors in selling fish cake soup, especially in residential areas	T.6 Sales will decline if there are competitors selling the same product in the same area
O.7 Consumer interest in ordering large quantities for important events	T.7 There is a change in taste from consumers who buy food and switch to other products
O.8 Convenient food serving can help consumers to save time	T.8 There is a growing trend to choose healthy foods that are low in salt
O.9 Use food packaging that has an attractive appearance and is safe to use	T.9 Government regulations related to business or trade licenses that must be followed
O.10 Flexible payment by adding cashless option in payment	T.10 Other types of food businesses that have excellent distribution and promotional planning activities

E. TOWS Matrix Analysis

Table 4: TOWS of the business

Strengths-Opportunities (SO)	Weaknesses-Opportunities (WO)
1. Identify traditional food products that can be developed and made into new products	1. The packaging also contains product information such as the flavor or weight of the product and the cellphone or social media that can be followed
2. Collaborate with third parties.	2. Businesses can also recruit people as special couriers to deliver food far away

Table 4: TOWS of the business (Cont.)

Strengths-Opportunities (SO)	Weaknesses-Opportunities (WO)
3. Fish cakes are sold in frozen form, then there are complementary seasonings.	3. Creating a timeline of which days to post available products, fixed schedules about operating day
4. Utilize features from social media such as WhatsApp that have special business account features.	4. Recording how much capital spent on each stock product made. Cash and flow of the business.
Weaknesses-Threats (WT)	**Strengths-Threats (ST)**
1. Businesses must choose an area that has easy access.	1. Recognize existing competitors as looking for product differences to focus on the advantages that make this business different from other businesses.
2. Conducting an evaluation to pay attention to the capital and operational costs for each month.	2. The choice of time in conducting promotions must also be considered, such as choosing prime time.
3. Packaging that is able to keep the frozen food product.	3. Business will follow the applicable government regulations.
4. Conduct planning and prioritize the establishment of a comprehensive and systematic management system within the business to navigate effectively.	4. Create a monthly schedule to conduct business evaluations, analyze customer responses and plan to maintain existing quality.

F. Strategic Action Planning

1) SO - Identify traditional food products that can be developed and made into new products: New menu options using fish-based ingredients, including soup and dry options with added sauces, are offered at different prices. To determine customer satisfaction, a free trial of fish-based meals can be conducted and based on the free trial that has been carried out can ask how the evaluation of the taste to the customer. Whether the new menu will be liked by customers or not.

2) SO - Collaborate with third parties: The third party can be chosen based on the delivery application that is most widely used by most people in Indonesia.

3) SO - Fish cakes are sold in frozen form, then there are complementary seasonings: This option will make it easier for customers who want to store food in advance and do not want to consume it on the same day.

4) SO - Utilize features from social media such as WhatsApp that have special business account features: The food business, with few competitors, can leverage social media platforms like WhatsApp, Facebook, and Instagram for promotion, with a focus on updating product stock and scheduling promotional activities accordingly.

5) WO - The packaging also contains product information such as the flavor or weight of the product and the cellphone or social media that can be followed: A clear product logo or brand aids in easy product identification. Packaging should include this visual identifier, along with product information like flavor, weight, contact information, and social media for customer inquiries.

6) WO - Businesses can also recruit people as special couriers to deliver food far away: Businesses do not have to pay fees through the application but can pay directly for courier services that deliver food with an agreed agreement at the beginning.

7) WO - Creating a timeline of which days to post available products and fixed schedules about operating day: The business plans to post product availability, store closures, operating hours, and customer reviews, while updating stock on social media to maintain a made-by-order system.

8) WO - Recording how much capital spent on each stock product made. Cash and flow of the business:

Recordkeeping, including capital spent on stock products, raw material prices, and production quantities, is crucial for tracking growth and ensuring the business can meet customer needs.

9) WT - Businesses must choose an area that has easy access: Businesses need to define the boundaries of the delivery area on the products sold. Because businesses still make deliveries independently to customers directly.

10) WT - Conducting an evaluation to pay attention to the capital and operational costs for each month: Businesses evaluate capital and operational costs, daily and monthly income, and raw material purchases to ensure they align costs with growth goals and profits, recording purchases until the product is ready for market sale.

11) WT - Packaging that is able to keep the frozen food product: Frozen food products must have special packaging and require standardized, standardized packaging with expiration dates and proper storage to prevent damage and ensure good use before the expiry date. The packaging of frozen food should have instructions on how to keep it fresh and safe.

12) WT - Conduct planning and prioritize the establishment of a comprehensive and systematic management system within the business to navigate effectively: Implementing clear protocols and procedures, the business must ensure that it will evaluate and then focus on the growth and development of the products it already has. Business has a business license related to trade, the business can ensure to obey the regulations and legal requirements of trade that have been made by the government.

13) ST - Recognize existing competitors as looking for product differences to focus on the advantages that make this business different from other businesses: Maintain the taste and quality of the product itself and maintain good relationships with customers. To maintain brand image and maintain customer relationships, businesses must innovate, pay attention to customer reviews, and focus on product differences.

14) ST - The choice of time in conducting promotions must also be considered, such as choosing prime time: Promotional activities are conducted to increase brand awareness to customers by creating engaging content and appealing captions. Timing, such as a crucial for effective promotion, attracting customers to purchase, post an upload on social media such as before lunch or before the night rest.

15) ST - Business will follow the applicable government regulations: Businesses comply with government regulations, including obtaining a business license and registering a trademark, to ensure good products and raw materials, and follow to halal logo standards.

16) ST - Create a monthly schedule to conduct business evaluations, analyze customer responses, and plan to maintain existing quality. Optimizing evaluation business activity: This process is an effort to improve the daily operational management and gain value-added because it can help to find factors that have a low value or high value in the business general analysis obtained from business identification, then look for the solution to solve the challenge.

V. CONCLUSION AND SUGGESTIONS

This qualitative research explores the business plan strategy of Mama Agym fish cake soup, utilizing direct interviews, customer reviews, and customer reviews to develop a comprehensive strategy plan.

Conclusions: Kepulauan Riau region, particularly Batam, is experiencing strong market growth, with competition in food, art, and miscellaneous industries. Key success factors include strategic location, government support, ease of business licenses, and entrepreneurial training. Also, Mama Agym's business offers competitive prices, delicious fish cake soup, good customer service, and quality raw materials. However, it lacks attractive packaging, diverse menu options, online food delivery services, labeling, and a purposeful management system. Opportunities include expanding sales through customizable frozen food options and online delivery partnerships. Threats include rising raw material prices and competition. Following this research study, the authors were able to describe some of the potential challenges that micro and small enterprises may face. In this research study, one of the challenges faced by micro and small-scale business entrepreneurs is, as follows:

First, there are limitations in reaching the market: Micro businesses may find it difficult to reach out to a wider market due to limited resources, making it difficult to compete with larger businesses.

Secondly, limitations in adapting to change: Small micro enterprises find it difficult to adapt to changes in the market or industry, as well as technology or changes in marketing due to their limited size and resources.

Suggestions: Business should focus on product development, inventory review, sales tracking, growth potential, long-distance delivery estimates, customer trust, distribution processes, third-party assistance, and participating in government-created small business development activities to increase brand awareness. Here are some more specific recommendations: Expand market reach through e-commerce platforms, and then use environmentally friendly packaging. Businesses can evaluate through regular customer surveys to gather feedback on products, as well as business services, and overall customer experience. One that could be considered is mobile payment options to increase convenience and reduce transaction time.

Suggestion for next study: Future researchers should consider selecting multiple informants to gain diverse perspectives and aid in the analysis process of their research. Also, the study can be extended to include micro-based, other scales, culinary, art, miscellaneous, established, and new businesses, as well as businesses in various fields and categories. Moreover, researchers can examine the government's role in micro-small-scale businesses, revealing that business owners directly benefit from government programs.

ACKNOWLEDGEMENT

Thank you to all those who have contributed to the process of completing this manuscript, as well as would like to thank the business owner, also the members of the editorial team of Journal of Business Administration and Languages (JBAL). The author is very grateful to the advisors, the committees, for their kind and thoughtful guidance. Furthermore, to the faculty of the College of Graduate Study in Management and Khon Kaen University, gratefully for giving the opportunity to continue learning and enhancing knowledge.

REFERENCES

Bani, B. (2023, January 4). Zero percent interest subsidy program for MSMEs in Kepulauan Riau returns this year (in Indonesian). *Bisnis Sumatra.* Retrieved from https://sumatra.bisnis.com/read/20230104/534/1615198/program-subsidi-bunga-nol-persen-untuk-umkm-di-kepri-kembali-hadir-tahun-ini

David, F. R. (2011). *Strategic Management: Concepts and Cases* (13th ed.). Upper Saddle River, NJ: Pearson Education.

Department of Communication and Information Batam City. (2022). *Buku Statistik Sektoral Pemerintah Kota Batam Tahun 2022* [Batam City Goverment Sectoral Statistics Book 2022]. Batam, Indonesia: Dinas Komunikasi dan Informatika.

Ekobrurianto. (2023, October 28). Through entrepreneurship training, it is hoped that reliable and competitive young entrepreneurs will be created (in Indonesian). *Media Center Pemko Batam.* Retrieved from https://bit.ly/Melalui-Pelatihan

Pearce, J. A., & Robinson, R. B. (2009). *Strategic Management, Formulation, Implementation and Control* (11th ed.). Boston, MA: McGraw-Hill Education.

Pramayanti, D. I., Rachmawati, M., Sudrajat, J., Permana, I. A., & Sutisna, E. (2021). Business Development Strategy Using Swot Analysis at Home Business Lilis Bolu Purwasari Karawang. *Proceedings of the 1st International Conference on Law, Social Science, Economics, and Education*, 1–5. doi:10.4108/eai.6-3-2021.2305930

Saleh, S. (2017). *Analisis Data Kualitatif* [Analysis of Qualitative Data]. Bandung, Indonesia: Pustaka Ramadhan.

Thompson, A. A., & Strickland, A. J. (2003). *Strategic Management: Concept and Cases* (13th ed.). Boston, MA: McGraw-Hill Education.

Thompson, J. L., Scott, J., & Martin, F. (2022). *Strategic Management: Awareness and Change* (10th ed.). Hampshire, England: Cengage Learning.

Wheelen, T. L., Hunger, J. D., Hoffman, A. N., & Bamford, C. E. (2015). *Strategic Management and Business Policy: Globalization, Innovation, and Sustainability* (14th ed.). Boston, MA: Pearson Education.

Yuliandra, R. (2024, September 11). Free NIB registration for MSMEs, 148 businesses in Batam officially registered (in Indonesian). *Batam Pos.* Retrieved from https://batampos.jawapos.com/infokota/2425075797/pendaftaran-nib-umkm-gratis-148-pelaku-usaha-di-batam-resmi-terdaftar

Success Factors Influencing Digital Transformation: An Exploratory Study of Street Food Businesses in Yaowarat Area

Kultida Malison[1*] Kanchaya Chaivirutnukul[2]

[1*,2] *Faculty of Business Administration and Information Technology,*
Rajamangala University of Technology Tawan-ok, Chakrabongse Bhuvanarth Campus, Bangkok, Thailand

*Corresponding Author. E-mail address: kultida_ma@rmutto.ac.th

Received: 28 May 2024; Revised: 9 September 2024; Accepted: 11 September 2024
Published online: 26 December 2024

Abstract

This study aims to investigate the factors influencing digital transformation for street food businesses in the Yaowarat or China Town Area and propose guidelines for promoting the effective use of digital technology in this context. Data were collected from 120 street food vendors in Yaowarat or China Town Area using a mixed-method approach. The results revealed four success factors influencing digital transformation for street food businesses including 1) Learning and Growth Perspective; 2) Financial and Internal Business Process Perspective; 3) Culture and Data Security Perspective, and 4) External Environment and Policy Perspective. These findings shed light on the motivations behind the implementation of digital technology among street food business owners in Thailand. Additionally, suitable guidelines for promoting and enhancing the effective use of digital technology for street food businesses were derived from both quantitative and qualitative results including 1) The government sector or related organizations should facilitate the business owners in learning about the financial benefits and security prevention in order to increase the use of digital transformation; 2) The digital transformation should be a top-down policy since it should be driven and supported by the highest levels of leadership; and 3) The government should give rewards or some benefits for the street vendors from some competitive campaigns and facilitate knowledge sharing and collaboration among street food vendors in order to make them learn from culture and external environment. These guidelines aim to support street food vendors in leveraging digital technologies to improve their operations and competitiveness.

***Keywords*:** Digital transformation, Street food, Success factors

I. INTRODUCTION

In this era, technological advancements influence the way of doing business in Thailand and in the world rapidly. The emergence and spread of digital technology seem to affect the way of digitalization for all businesses. Especially in the post COVID-19 period, the desire to use digital transformation journey is considerable for food and beverage businesses (Chatterjee, Chaudhuri, & Vrontis, 2022). In the last few years, digital transformation has become crucial, and the organizations must embrace to respond to today's digital world's new demands (Alhubaishy & Aljuhani, 2021). This is a trend that is being used by almost every industry to increase its competitiveness (Weerasinghe & Nirere, 2022). So, implementing digital technology becomes important since it involves making changes or transformations of businesses to at least one of three important aspects of the organizational functioning system: the customer experience, the operations processes, and the business model (Westerman, Calméjane, Bonnet, Ferraris, & McAfee, 2011). This means that the digital technology seems to be motivating factors for businesses in order to increase convenience and satisfactions of customers, record reliable and checkable transactions, and decrease time for getting changes between owners and customers. In addition, the development and implementation of digital technology aimed at promoting the offered services, attracting and retaining customers, and improving the level of service (Pyanikova, Kovaleva, & Bykovskaya, 2019). It is accepted that digital technology assists to increase convenience for food and beverage businesses. The government has seen that digital technology and innovation is beneficial for food and beverage businesses, so they form the national strategic plan and action plan in order to change the government to become digital transformation organization. This transformation begins with laying the foundation, setting goals, and operating all sections respectively to add value for consumers (Russell Reynolds Associates, as cited in Watcharapoj Sapsanguanboon & Wethaya Faijaidee, 2020).

The restaurant industry has considerable quantitative importance in many economies, especially in those with a tourism specialization (García, Martin-Martin, & Romero, 2022). This industry is a fast-growing industry, which is trending to adopt digital technologies and need technological adaptation to overcome their competitive advantages (Verevka, 2019). The street foods businesses or street food stalls are micro businesses which are important business sector in Thailand. The street food businesses provide convenient, delicious, and cheap meals (Pearrada Gaterak, Wassana Srisuk, Ploylalynn Gaterak, & Chidchanok Anantamongkolkul, 2020). Providing not only for food, but the street food businesses also reflect Thai food culture. It tends to be a traditional way to experience local culture among consumers. Beginning in late 2019, the world experienced the respiratory disease COVID-19, and street food is one of the important service industries affected by COVID-19. Because of the lockdown policy and the closure of the country, the street food businesses were inevitably impacted. After the period of COVID-19 pandemic, the restrictions were eased, the people can live a normal life (Patchareeya Kaewchoo, 2022).

Since digital technology has improved rapidly, the use of digital payment affects customers' behavior (Li, 2024). After the pandemic of COVID-19, the customers prefer contactless payment because it simplifies transaction process and helps avoid disease infection. Providing that the street food vendors accept the use of digital technology and use it comprehensively, it can satisfy the customers and can enhance the decision-making process for vendors, allowing them to better meet consumer demands continuously (Wu, Hsiao, & Xiao, 2016).

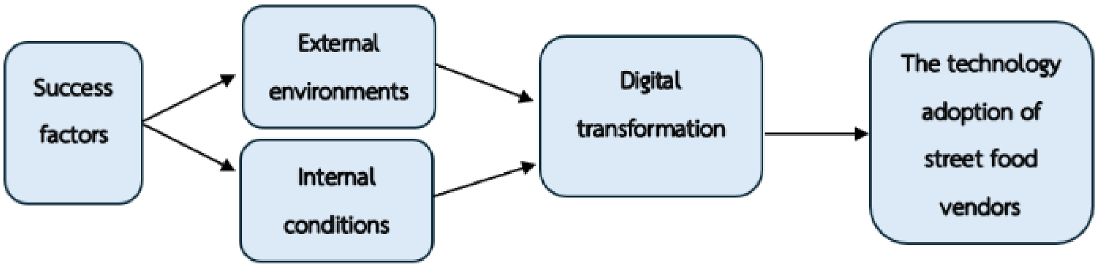


Figure 1: The research model of factors influencing digital transformation of street food businesses

Moreover, the numbers of visiting foreigners have rose dramatically. Therefore, the use of digital technology in terms of mobile transactions needs to be investigated. To fill the gap that exists in the digital transformation field of research, success factors influencing the digital transformation for street food businesses may shed light on the guideline or model of food and beverage businesses in order to make both Thai and foreign consumers satisfied, and finally make profits value for our country.

The aims of this study are 1) investigating factors influencing the digital transformation for street food businesses in Yaowarat or China Town Area and 2) proposing guideline for promoting the effective use of digital technology for street food businesses.

The research is guided by the following questions:

RQ1: Which factors are stated in the literature influencing the digital transformation for street food businesses in Yaowarat or China Town Area?

RQ2: What is suggested guideline for promoting the effective use of digital technology for street food businesses in Yaowarat or China Town Area?

The research framework was developed and shown in figure 1.

II. LITERATURE REVIEWS

A. Digital Transformation

In the era of the digital economy, digital transformation has become a new approach for companies or businesses to gain competitive advantages in a context of intense and dynamic market competition. Companies in almost all industries have undergone or are currently undergoing the digital transformation (Zhang, Xu, & Ma, 2022). Digital transformation is the process of adoption and implementation of digital technology by an organization in order to create new or modify existing products, services and operations by the means of translating business processes into a digital format. Digital transformation is the process by which companies embed technologies across their businesses to drive fundamental change. The starting process of the digital transformation adoption requires a new mindset, and it is a chance to reimagine how companies do things, often from the ground up. Hence, digital transformation is the changes of ideas and the use (Russell Reynolds Associates, as cited in Watcharapoj Sapsanguanboon & Wethaya Faijaidee, 2020). In addition, digital transformation can be applied in business entrepreneurship in order to create opportunities and competitive abilities under technological environment changing rapidly (Watcharapoj Sapsanguanboon, Wethaya Faijaidee, & Preeyakamon Auanguai, 2020). Digital transformation includes more than the adoption of new technologies; it also involves embracing new business models in order to drive innovation, efficiency, and value creation (Saarikko, Westergren, & Blomquist, 2020). It tends to be the process of using digital technologies to improve the overall processes, culture, services, and customer experiences. Absolutely, understanding digital transformation comprehensively is essential for organizations to navigate the process effectively. This understanding should encompass not only the technical aspects but also the human and customer impacts.

B. Digital Transformation Challenges

It is expected that businesses will experience various challenges and difficulties when they go through fundamental changes. This also applies to digital transformation. If the transition does not happen smoothly, the business's owners may encounter some challenges. The availability of new technologies such as artificial intelligence, cloud computing, and data analytics reveals new opportunities that enable value creation and increase the flexibility of a business's operational processes (Weerasinghe & Nirere, 2022). Business owners must adopt these new technologies and adapt to related changes to fit in today's digital environment. Otherwise, they may not survive (Brunetti et al., 2020). Adopting digital technologies enables business owners with new capabilities which can increase their circulation. However, obtaining the expected digital transformation benefits requires not only to align information technology but also to have capabilities and skills. By adopting digital transformation, organizations may encounter so many challenges that can prevent them from progressing (Watcharapoj Sapsanguanboon et al., 2020). Most of them may be related to lacking the capability to afford new technological equipment, being afraid of system security, and involving complicated processes. Therefore, studying or revealing factors which impact the adoption of digital technologies may reflect important angles to increase or motivate business owners to have open-mindedness and learn to use digital technologies.

C. Digital Transformation of Street Foods Businesses

Digital transformation has had a significant impact on the restaurant industry (Taweerat Jiradilok, Settapong Malisuwan, Navneet Madan, & Jesada Sivaraks, 2014; Weerasinghe & Nirere, 2022). It can be implied that the restaurant business can be justified in both the industrial age and the digital age. Starting from the industrial age, it was difficult to estimate the number of customers who could visit the restaurant since the business owners did not have regular customers data. This may make restaurant owners prepare too much or less food for the customers they expected to have, which resulted in food wastage or food insufficiency. Importantly, it was difficult for restaurant owners to check their income or circulation. In today's digital era, restaurants that digitally transformed their working systems can identify the regular customers with their food preferences as well as the days on which they usually visit the restaurants. Although digital transformation increases the system performance of restaurants, some customers still complain and prefer to keep having physical interactions with waiters rather than digital devices (Beling & Flink, 2017). In addition, the restaurants can check their income or circulation together with calculate budgets from the records. This has become a source of challenge not only for restaurant owners but also for the customers. For restaurant owners, digital transformation seems to be challenging because it requires acquiring new skills maybe in a short period of time to match with the new working digital environment. For these reasons, coping with a digital culture being adopted in the restaurant industry is still challenging (Beling & Flink, 2017). The restaurant owners must be attentive to the challenges associated with digital transformation. This will be a critical input for them to attain a successful digital transformation associated with expected benefits.

According to the Ministry of Commerce, the restaurant industry can be divided into four types: 1) Fine Dining; 2) Casual Dining; 3) Fast Dining, and 4) Footpath or Kiosk. Additionally, the restaurant industry can be divided into 5 types according to their food's types: 1) General national food such as Thai food, Korean food, and Japanese food; 2) Local food such as Isan food and southern food; 3) Specialized food such as vegetarian food and Keto food; 4) Food divided according to cooking methods such as Sukiyaki and Grilled food and 5) International buffet. Street foods or Footpath food businesses are challenging with the digital technology adoption. Even though their businesses are quite small scale, the customers buying their food and beverage tended to unexpectedly. Since the use of digital transformation may make restaurant owners estimate sufficient food, check their income or circulation, increase their sales, promote their business and so on, the adoption of it among street food stalls seems to be challenging and interesting. After post COVID-19 period, tourists seem to return to Thailand and take experience with various kinds of Thai street food. The post-COVID street food landscape may favor technologically agile owners looking towards more socially shareable food experiences (Aquino, 2021).

D. Success Factors for Thai Restaurant Business

The implementation of digital technology is a complex process and is accompanied by many internal and external factors which seem to be likely leading to the success or failure of digital technology (Neirotti & Pesce, 2019). Success factors tend to increase the likelihood of success. These factors are the key areas that must be exceptionally completely operate for an organization to be successful. It is one of the most important drivers for companies seeking to implement digital technology (Lucas, Agarwal, Clemons, El Sawy, & Weber, 2013). Therefore, identifying success factors and related leadership practices, as well as understanding their nature and root causes, are important prerequisites for achieving the adoption of digital technology (Zhang et al., 2022). After the spread of COVID-19, restaurant businesses probably changed their operating process. The change is the step for leading the business to the period of Next Normal. As stated in Prutchaya Heonsawang and Chanchai Jewjinda (2020), the fundamental success factors for operating a Thai restaurant business in foreign country were labor, investment, materials, and tools and equipment respectively.

According to previous studies, digital transformation in various business types was influenced by internal and external factors.

In terms of environmental context, competitive pressure was viewed as factors influencing digital transformation of construction enterprises (Zhang et al., 2022). Competition pressure describes the degree to which companies are motivated by their competitors to adopt new technologies (Westerman, as cited in Zhang et al., 2022). In addition, the educational level of entrepreneurs or managers, their levels of motivation, and their ambition for growth favor the digital transformation of their restaurant companies (García et al., 2022). So, one of reasons for using digital technology was because of learning and growth perspective.

Moreover, the perception of top management or policy support is also reflected in the organization of the enterprise. Policy support refers to the assistance offered by governments or related organizations to encourage businesses accomplish digital transformation. In terms of policy, governments or related organizations can encourage or prohibit businesses from adopting new technologies by implementing relevant policies. For example, Luo and Yu (2022) found that the influencing factors of digital transformation for enterprises were the external environment including customer needs, market competition, government policy and digital technology, while the internal conditions include digital strategy, leadership, and organization capability.

Specifically, government policy support has a positive effect and can promote the digital transformation of enterprises. If the government supports enterprise digital transformation in terms of finance and technology standards, top management of companies often respond positively, increasing the possibility of promoting digital transformation. The need for customer satisfaction is a major influencing factor of the current dramatic shift that the world is experiencing (Eluekezi Nnewuku & Tuncay, 2021).

Additionally, data security, the process of transforming the organization digitally implies that several data will be gathered, is crucial for adoption of new technologies. This data must be understood and properly stored for the digital transformation process to be successful. This factor deals with the safety of all data obtained from the process.

Culture seems to be an influencing factor for technology implementation. Culture refers to overall attitude with regards to digital transformation. It is linked with how the people in the community behave. It affects the communication level of communication and affects the choice of technology made (Santos & Martinho, 2020).

It was also found that social support, government support, private sector support, and community leaders support influenced the operating process of Thai restaurant business in foreign country. As stated in Gaterak et al. (2020), digital technology is used as a way to promote the products for street food vendors during the pandemic of COVID-19 in Phuket. Although many dimensions of success factors were revealed, the factors influencing the street food vendors in Thailand were rarely found.

III. RESEARCH METHODOLOGY

A. Population and Sampling

This study was conducted on the ground of exploratory research because it aims to uncovers new ideas and patterns of factors influencing digital transformation of street food vendors in Thailand which rarely found. If unexpected factors were discovered, it can help to develop strategies and policies in order to make digital transformation successfully. This research employed a mixed method in order to have a better understanding and provide conclusive results of the existing research problem, here is the adaptation of digital technology among street food vendors. The target population were the street food vendors in Yaowarat or China Town Area. For the purpose of this study, factor analysis was used to investigate the dimensions of success factors influencing digital transformation. It was suggested that sample size for conducting factor analysis should be at least 100 (Gorsuch, as cited in MacCallum, Widaman, Zhang, & Hong, 1999). In addition, when the number of samples increases, factor analysis solutions are more stable and accurate. Then, purposive sampling, which seems to be a selective sampling process where units are selected for inclusion in the sample due to their characteristics, was employed in order to select a good representative of street food business owners. Purposive sampling was used because it allows for the selection of participants who are most relevant to the research question. It seems to be an effective method for small samples, but it is also an inherently biased method (Campbell et al., 2020). The samples were chosen consciously according to their presence. The three characteristics of owners were designed. Firstly, they should be the vendors of street food businesses in Yaowarat Area. Next, they were at their stalls on the dates of collecting data. Finally, they were comfortable answering the questions and giving information.

B. Instrumentation

The questionnaires and semi-structure interviews were used in order to triangulate data. The questionnaires consisted of three parts: 1) demographic data questions; 2) investigate the factors influencing the digital transformation; 3) open-ended questions. The questionnaire for investigating the success factors influencing digital transformation was adapted from Technology Acceptance Model (TAM) questionnaire of Astiti, Prayoga and Imbayani (2023); Ghani, Hamzah, Ramli, Daud, Romli and Mokhtar (2019); Masihuddin, Khan, Mattoo and Olanrewaju (2017); Park, D. Kim, Moon, Kim, Kang and Bae (2022). Responses of the second part were given according to a five-point Likert-type scale. In order to reduce confusion for respondents who was Thai street food vendors, the questionnaire was constructed in both Thai and English. Then, the items were sent to five raters in order to evaluate validity by using Index of Consistency Values (IOC). The IOC values of all question items were more than 0.6. Yet, some items were suggested to edit in terms of ambiguous words. After the improvement of questionnaire items, they were piloted among 30 vendors for finding the reliability by using Cronbach's alpha and the 30 owners were excluded in the study. The reliability of the questionnaire was 0.838 which was acceptable since 0.7 is an acceptable reliability coefficient (Nunnally & Bernstein, 1994).

The completed questionnaires were administered to the street food vendors by hands based on the criteria as they should be the vendors of street food businesses in Yaowarat Area at the presence of their stalls on the dates of collecting data and were comfortable answering the questions and giving information. After the quantitative data were collected, the interview was conducted from representatives of each type of food by asking for their comfortability to interview.

According to the collecting data process, the samples were 120 street food vendors. Exploratory factor analysis and descriptive statistics were used to analyze quantitative data, while content analysis was used to interpret the interview, gather key words and prioritize by frequency.

IV. RESULTS

As shown in table 1, the results of 120 street food vendors were analyzed. The majority of respondents were female, the age was between 36-45 years. Most of them graduated from primary education. The business type was specific food and had 51-100 customers per day.

1. Lower than primary education

Table 1: Ranking of demographic data

Variables	Frequency	Proportion (%)
Gender		
1. Female	100	83.33
2. Male	20	16.67
3. Others	0	0.00
Total	120	100.00
Age		
1. < 25 years	12	10.00
2. 25–35 years	15	12.50
3. 36–45 years	38	31.67
4. 46–55 years	22	18.33
5. > 55 years	33	27.50
Total	120	100.00
Educational background		
1. Lower than primary education	8	6.67
2. Primary education or equivalent	49	40.83
3. Secondary education or equivalent	31	25.83
4. Bachelor's degree or equivalent	32	26.67
5. Higher than bachelor's degree	0	0.00
Total	120	100.00

Table 1: Ranking of demographic data (Cont.)

Variables	Frequency	Proportion (%)
Types of food		
1. Chinese food	24	20.00
2. Seafood	12	10.00
3. Specific food such as shark fin, bird's nest health drink, and noodles	46	38.33
4. Desserts and drinks	38	31.67
Total	120	100.00
Numbers of customers per day		
1. 1–50 customers	22	18.33
2. 51–100 customers	38	31.67
3. 101–150 customers	24	20.00
4. More than 150 customers	36	30.00
Total	120	100.00

RQ1: Which factors are stated in the literature influencing the digital transformation for street food businesses in Yaowarat or China Town Area?

In order to answer the first research question, the results were analyzed by a factor analysis technique. After collecting data process, the data of all 120 respondents were analyzed by Principal Component Analysis (CPA) with varimax rotation. To assess whether the set of items in the correlation matrix was suitable for principal components analysis, the Kaiser-Meyer Olkin (KMO) measure of sampling adequacy was computed. The KMO computed for this study was 0.926 which yields high values above 0.70, then the correlations among items are sufficiently high to make factor analysis suitable (de Vaus, 2002). In order to investigate the success factors influencing the digital transformation for street food businesses in Yaowarat or China Town Area, the 20 questionnaire items were extracted factors. To determine the number of factors, three criteria were used: Eigenvalues, scree plot and interpretability of the dimension meaning. According to determination based on Eigenvalues, only dimensions with Eigenvalues greater than 1.0 were retained (Field, 2018; Rietveld & van Hout, 2011). In the principal component analysis, the first factor accounted for the most part of the whole variance, so most items loaded on this factor. Varimax rotation was used to ensure that most variables have high loadings on the most important factors and small loadings on all other factors. According to eigenvalues, there were four factors greater than 1.0 as shown in table 2.

The results in table 2 show that there are four success factors extracted from the questionnaire. The first factor accounted for 33.21%, the second factor accounted for 28.51%, the third factor accounted for 15.41%, and the last factor accounted for 9.10%. Thus, four factors accounted for 85.96% of the whole variance. Then, the scree plot was used to determine the best number of factors and keep factors that occur before it was flattened.

Table 2: Eigenvalues of factor analysis

Total Variance Explained						
Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.40	57.02	57.02	6.64	33.20	33.20
2	2.69	13.48	70.50	5.70	28.50	61.71
3	1.99	9.95	80.45	3.02	15.14	76.85
4	1.10	5.50	85.95	1.82	9.09	85.95
5	0.96	4.81	90.76			
Extraction Method: Principal Component Analysis.						

Table 2 and the scree plot in figure 2 show that the first factor accounts for the largest proportion of variance. Besides, the scree plot gradually flattens from the fourth factors. For interpretations of factor loadings, the criterion of .40 or above was employed (Field, 2018). Thus, there were four factors to label.

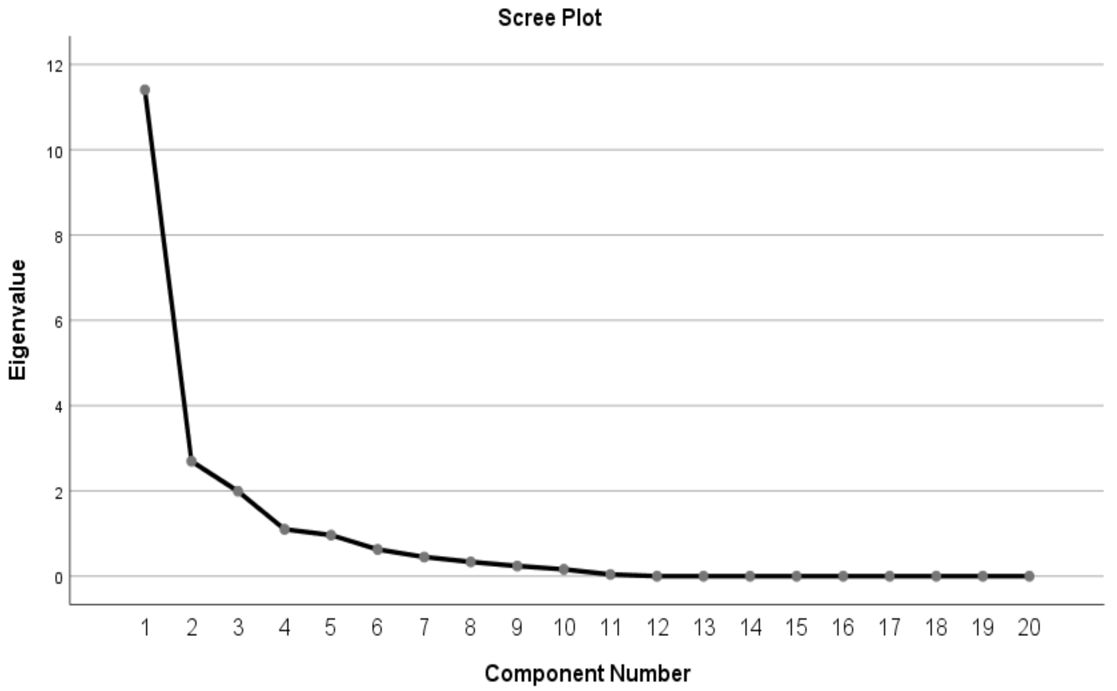


Figure 2: Scree plot of eigenvalues

Table 3: Dimensions of success factors influencing the digital transformation

Factors and Items	Dimension 1: Learning and Growth Perspective	Dimension 2: Financial and Internal Business Process Perspective	Dimension 3: Culture and Data Security Perspective	Dimension 4: External Environment and Policy Perspective
15. The use of digital technology helps businesses to stay modern.	.910	-	-	-
4. The use of digital technology helps create customer awareness or perception.	.868	-	-	-
17. The use of digital technology helps restaurant/ business owners to enhance their digital skills.	.866	-	-	-
16. The use of digital technology simplifies store management.	.816	-	-	-
18. The use of digital technology helps restaurant and business owners stay informed about media and scams.	.790	-	-	-
20. The use of digital technology is flexible and open.	.735	-	-	-

Table 3: Dimensions of success factors influencing the digital transformation (Cont.)

Factors and Items	Dimension 1: Learning and Growth Perspective	Dimension 2: Financial and Internal Business Process Perspective	Dimension 3: Culture and Data Security Perspective	Dimension 4: External Environment and Policy Perspective
10. The use of digital technology helps to increase sales.	.635	-	-	-
11. The use of digital technology is driven by social necessity.	.619	-	-	-
19. The use of digital technology facilitates positive societal changes.	.611	-	-	-
3. The use of digital technology reduces the duration of work processes.	-	.917	-	-
1. The use of digital technology in business facilitates faster business operations.	-	.816	-	-
5. The use of digital technology helps to reduce costs.	-	.816	-	-
2. The use of digital technology helps create a positive customer experience.	-	.790	-	-
8. The use of digital technology stems from government policies.	-	.735	-	-
6. The use of digital technology enables efficient inspection and analysis of data.	-	.695	-	-
13. The use of digital technology is caused by customer demands or pressures.	-	-	-.927	-
12. The use of digital technology is caused by the pressure exerted by restaurants in the same area.	-	-	-.871	-
9. The use of digital technology helps to enhance financial security.	-	-	.542	-
14. The use of digital technology reduces the spread of infectious diseases.	-	-	-	.878
7. The use of digital technology stems from government support.	-	-	-	.706

As shown in table 3, there are four factors influencing the digital transformation for street food businesses in Yaowarat or China Town Area. They include Factor 1) Learning and Growth Perspective, 2) Financial and Internal Business Process Perspective, 3) Culture and Data Security Perspective, and 4) External Environment and Policy Perspective.

A. Factor 1 Learning and Growth Perspective

There were nine important loading features in this factor. They were all positive loadings. This factor contained item question 15 (The use of digital technology helps businesses to stay modern.), 4 (The use of digital technology helps create customer awareness or perception.), 17 (The use of digital technology helps restaurant/business owners to enhance their digital skills.), 16 (The use of digital technology simplifies store management.), 18 (The use of digital technology helps restaurant and business owners stay informed about media and scams.), 20 (The use of digital technology is flexible and open.), 10 (The use of digital technology helps to increase sales.), 11 (The use of digital technology is driven by social necessity.), and 19 (The use of digital technology facilitates positive societal changes.). Question item 15 contained the highest loading in this factor (.910). All of these important loading variables can be implied that the street food business owners decided to use digital technology because they perceived that the digital transformation improved their learning level, motivated them to learn with self-directedness and grew their businesses. Thus, this factor was labelled as Learning and Growth Perspective.

B. Factor 2 Financial and Internal Business Process Perspective

There were six important loading features in this factor. They were all positive loadings. This factor contained item question 3 (The use of digital technology reduces the duration of work processes.), 1 (The use of digital technology in business facilitates faster business operations.), 5 (The use of digital technology helps to reduce costs.), 2 (The use of digital technology helps create a positive customer experience.), 8 (The use of digital technology stems from government policies.), and 6 (The use of digital technology enables efficient inspection and analysis of data.). Question item 3 contained the highest loading in this factor (.917). All of these important loading variables can be implied that the street food business owners decided to use digital technology because it tended to be helpful and they received the financial and internal benefits of system since it helps reducing duration of process, facilitating faster operations, reducing costs, creating impressive experiences, following government campaigns, and obtaining valuable data. Thus, this factor was labelled as Financial and Internal Business Process Perspective.

C. Factor 3 Culture and Data Security Perspective

There were three important loading features in this factor. Two of them were negative loadings, while another one was positive loadings. This factor contained item question 13 (The use of digital technology is caused by customer demands or pressures.), 12 (The use of digital technology is caused by the pressure exerted by restaurants in the same area.), and 9 (The use of digital technology helps to enhance financial security.). Question item 13 contained the highest loading in this factor (-.927). The first two items that is the cause of customer demands or pressures and the pressure exerted by restaurants in the same area are negative, so it can be implied that the adoption of digital technology among street food business owners is not influenced by the pressures from customers or restaurants nearby. It seems to be the way of life, social behavior, and norms found in human societies. It can be seen as culture. The other one factor is the benefit of enhancing financial or data security. Thus, this factor was labelled as Culture and Data Security Perspective.

D. Factor 4 External Environment and Policy Perspective

There were two important loading features in this factor. They were all positive loadings. This factor contained item question 14 (The use of digital technology reduces the spread of infectious diseases.), and 7 (The use of digital technology stems from government support.). Question item 14 contained the highest loading in this factor (.878). All of these important loading variables can be implied that businesses owners intended to use digital technology to reduce the spread of diseases and is supportive by the government. This factor seems to indicate the external environment of health and policy from the government. Thus, this factor was labelled as External Environment and Policy Perspective.

In order to triangulate quantitative results, semi-structured interviews with purposively selected participants were employed. The participants were selected randomly from each type of business. So, there were four participants in the interview section. The findings have emerged in order to provide a complete picture of the success factors influencing the digital transformation for street food businesses.

E. Interview and Content Analysis

RQ2: What are suggested guideline for promoting the effective use of digital technology for street food businesses in Yaowarat or China Town Area?

According to the findings from the quantitative research survey regarding success factors influencing the digital transformation for street food businesses in Yaowarat or China Town Area were found. The factors include 1) Learning and Growth Perspective; 2) Financial and Internal Business Process Perspective; 3) Culture and Data Security Perspective; and 4) External Environment and Policy. Then the interview was analyzed in order to determine the presence of certain factors found in quantitative data. For this part, the researchers can quantify and analyze the presence, meanings, and relationships of each success factor.

For the first factor, the reason that street food owners transform into digital technology was mainly because of learning and growth perspective among owners and customers. As they said: “The use of digital technology is a good thing changing our society modern, more convenient, increasing sales and we need to adapt it in a business.” In addition, they stated “After the spread of COVID-19, we learn that digital technology is an important tool to connect with owners and customers. It is necessary for our lives and can’t reject.”. They also think that “digital technology helps restaurant/business owners be more aware of the media and scammers and when we learn about this, we have more knowledge of digital. Then, we are proud of ourselves.”

For the second factor, the reason that street food owners transform into digital technology was because of the financial and internal business process perspective (Eluekezi Nnewuku & Tuncay, 2021; Luo & Yu, 2022). The interview with vendors revealed that the first step of using digital technology was because of government policy. Yet, after they passed the period of trials, they said: “The use of digital technology can speed up our business. They can monitor and analyze data efficiently, then can reduce costs.”. One of the vendors also added “They can easily get a refund if something goes wrong.”. So, they concluded that the reason they use digital technology was because it helps them in finance and business processes.

For the third factor, the reason that street food owners transform into digital technology was because of the culture and data security perspective (Santos & Martinho, 2020). As they said: “We use digital technology not because of people influencing their behavior probably suggested that they should do financial transactions on their mobile phone, yet we learned that they conveniently use it, and it has the advantage to keep data security.”.

For the fourth factor, the reason that street food owners transform into digital technology was because of the external environment and policy perspective. As they said: “Digital technology reduces the spread of diseases, and the business owners were supported by the government campaign to get the benefits.”. They also explained that the adoption of digital technology reduces contact with money and hands, then they seem to be reassured that it is difficult to get infected.

In order to answer research question 2: the suitable guideline for promoting or increasing the effective use of digital technology for street food businesses was gathered from quantitative and qualitative results. The street food business owners revealed that the reasons of implementing digital technology will be considered in four points: 1) Learning and Growth Perspective; 2) Financial and Internal Business Process Perspective; 3) Culture and Data Security Perspective; and 4) External Environment and Policy. Therefore, the guideline should be as follows:

1. Because the factors motivating the use of digital technology is learning and growth together with financial and internal business process, we should facilitate the business owners in learning about the financial benefits and security prevention if we need to increase the use of digital transformation. If there is a need to enhance digital transformation, it is important to help business owners understand both the financial advantages and the security precautions associated with it. According to the results, the street food business owners have self-directedness and openness to learning. By facilitating this learning process, business owners can make informed decisions about adopting digital technologies and being aware of the risks.

2. The digital transformation should be a top-down policy. It means that the initiative to implement digital technologies should be driven and supported by the highest levels of leadership. Since the street food vendors accepted that they use the digital technology and the use of digital technology is easily driven by the government campaigns, the top-down support is crucial for overcoming resistance, ensuring commitment across all levels, and achieving a successful digital transformation.

3. Digital transformation can instill a sense of pride among people; the government should give rewards or some benefits for them. It is suggested that the government should incentivize this process by supporting. In addition, culture and external environment are crucial factors. The government should facilitate knowledge sharing and collaboration among street food vendors by providing a platform for them to learn from each other and stay informed about important topics relevant to their businesses. The proposed monthly sessions would be a suitable way for vendors to share insights, best practices, and warnings which will benefit the entire street food community.

V. CONCLUSION AND DISCUSSION

The fact that technological advancements influence the way of doing business broadly leads the researchers to pay attention to revealing the factors affecting the use of digital technology. The adoption of digital technology is the acceleration process of using the benefits of change in order to create opportunities for business and competitive ability under the technological environments (Taweerat Jiradilok et al., 2014). In the post COVID-19 period, the desire to use digital transformation journey is considerable for food and beverage businesses. It seems to be complex to understand what factors influence the use of digital technology successfully. Moreover, technology plays a significant role in increasing confidence and affecting the experiences of individuals and businesses after the COVID-19 pandemic (Patchareeya Kaewchoo, 2022). In this study, several success factors influencing the digital transformation for street food businesses in Yaowarat or China Town Area including 1) Learning and Growth Perspective, 2) Financial and Internal Business Process Perspective, 3) Culture and Data Security Perspective, and 4) External Environment and Policy were found.

The fact that learning and growth perspective was highly influential towards digital transformation among street food owners is consistent with previous studies. Watcharapoj Sapsanguanboon et al. (2020) studied the digital transformation to enhance competitiveness for food and beverage business and found that key success factors of digital transformation are management support for changes allowing organizations to benefit in the data validation conveniently, quickly and with accurate information. In addition, García et al. (2022) identified the factors influencing the digital transformation process in the restaurant industry and revealed that the education of entrepreneurs or managers, their entrepreneurial motivations, and their ambition for growth of the digital transformation was one of the affecting factors. Consequently, learning and growth perspective is the fundamental factor in shaping the success and extent of digital transformation efforts.

Apart from learning and growth perspective, financial and internal business process perspective was considered to be another success factor of digital technology adoption. This is in line with considerable previous studies (Neirotti & Pesce, 2019; Pyanikova et al., 2019; Saarikko et al., 2020; Watcharapoj Sapsanguanboon et al., 2020). In terms of financial and internal business process perspective, the results of this study overlapped with the motivation of using digital technology of Watcharapoj Sapsanguanboon et al. (2020). They found that one of the benefits of digital transformation was cost reduction. Since one of the fundamental factors for success in operating a Thai restaurant business overseas was investment, technology adaptation helps the owners to analyze and plan for investment. Then, the owners were probably motivated to use it. This means that financial considerations and operational efficiency are critical factors for business owners when implementing changes or innovations. Business owners prioritize these aspects because they directly impact the profitability, sustainability, and effectiveness of their businesses. Therefore, any new initiative or technology must demonstrate its potential to improve financial performance to gain adoption. This aspect is supported by the interview of the street food owners in the current study as they said that they use digital technology because it helps to manage income effectively. In addition, the customers prefer using online payments via the digital tool. They were satisfied with the use of digital order and payment. Specifically, digital transformation can lead to dismantle incumbents' competitive advantages, with uncertain consequences for existing firms (Neirotti & Pesce, 2019; Saarikko et al., 2020). Likewise, Pyanikova et al. (2019) found that the introduction and use of digital technologies in the restaurant business will have an impact on the financial activities of public catering enterprises and allow creating permanent customers. They also stated the digital technologies play a crucial role in enhancing various aspects of the restaurant industry including improved service, cost reduction, increased profits, and simplified operations.

The third success factor was culture and data security perspective which similarly found in previous studies. It was vividly found that organizational culture seems to be both an accelerator and inhibitor of digital transformation (Arissara Ngowboonlom, 2023; Plekhanov, Franke, & Netland, 2023). The transition toward an organizational culture that favors change and supports the digital transformation requires constant adjustments, while avoiding a follower culture that will struggle to achieve overarching strategic objectives (Eden, Jones, Casey, & Draheim, 2019; Westerman & Bonnet, 2015). Cultural agility, an organization's ability to effectively understand, adapt to, and engage with diverse cultural contexts, is essential for organizations to incorporate and interact with diverse cultural contexts. By embracing cultural diversity and fostering an inclusive environment, organizations can enhance their adaptability, innovation, and overall performance.

The fourth success factor was external environment and policy. This factor matched with that found in the previous studies (Prutchaya Heonsawang & Chanchai

Jewjinda, 2020; Arissara Ngowboonlom, 2023). The study of Prutchaya Heonsawang and Chanchai Jewjinda (2020) revealed that the environmental factors including social support, government support, community leaders' support are the high-level success factors of operating a Thai restaurant business in USA. As the street food owners said, they were governed by the policy. It is suggested that they feel their activities are influenced or regulated by government policies. This could imply that they perceive government regulations, rules, or guidelines as having a significant impact on their business operations and practices. According to the study of Arissara Ngowboonlom (2023), the support from external factors such as the budget from government is able to increase the tendency of using digital transformation.

VI. IMPLICATIONS AND RECOMMENDATIONS

Exploring the accelerating factors towards the use of digital transformation among street food vendors will benefit not only for street food owners, but also for other businesses, tourism, and economic growth in Thailand. The tendency of using digital transformation seems to be crucial since it has benefits in many angles. Therefore, this study shed light on both theoretical and managerial implications.

The success of digital transformation depends on several factors. It has been learned that digital transformation would be successful since it provides learning and growth for business owners. It also offers the advantage of financial and internal business processes. Thus, we should facilitate the business owners in learning about the financial benefits and security prevention if we need to facilitate the use of digital transformation. In addition, digital transformation should be driven and supported by the government. Top-down support is indeed crucial for the successful implementation of digital transformation. Finally, facilitating knowledge sharing and collaboration among street food vendors can have numerous benefits for both vendors and the wider community, by providing a platform for this, the government can play a pivotal role in supporting the growth and success of street food vendors.

The current study has identified certain findings, but it's important to note that these findings are based on a limited sample size. Therefore, further research studies should be conducted with a larger and more diverse group of street food vendors, or in different geographical areas, to validate and expand upon these findings. It can also be investigated among vendors who are successful in digital transformation in order to shed light on stronger findings and fill the gaps of digital transformation study. This broader scope of research may uncover additional significant findings and provide a more comprehensive understanding of the topic.

REFERENCES

Alhubaishy, A., & Aljuhani, A. (2021). The challenges of instructors' and students' attitudes in digital transformation: A case study of Saudi Universities. *Education and Information Technologies, 26*(4), 4647–4662.

Aquino, M. (2021, September 13). How the pandemic has changed street food in Asia: Hard choices have been made in a devastating tourist downturn. *TripSavvy.* Retrieved from https://www.tripsavvy.com/how-the-pandemic-has-changed-street-food-5200248

Arissara Ngowboonlom. (2023). *Factors supporting an organization change into a digital transformation* (in Thai) (Master's thesis). Retrieved from https://archive.cm.mahidol.ac.th/bitstream/123456789/5109/1/TP%20HOM.016%202566.pdf

Astiti, N. P. Y., Prayoga, I. M. S., & Imbayani, I. G. A. (2023). Digital transformation through technology acceptance model adoption for SME recovery economy during the COVID-19 pandemic. *Jurnal Aplikasi Manajemen*, *21*(1), 153–166. doi:10.21776/ub.jam.2023.021.1.11

Beling, C., & Flink, M. G. (2017). *Food for thought: A study on the digitalization of restaurant interactions* (Master's thesis, Uppsala University). Retrieved from https://uu.diva-portal.org/smash/get/diva2:1152667/FULLTEXT01.pdf

Brunetti, F., Matt, D. T., Bonfanti, A., De Longhi, A., Pedrini, G., & Orzes, G. (2020). Digital transformation challenges: Strategies emerging from a multi-stakeholder approach. *The TQM Journal, 32*(4), 697–724. doi:10.1108/TQM-12-2019-0309

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S, ..., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing, 25*(8), 652–661. doi:10.1177/1744987120927206

Chatterjee, S., Chaudhuri, R., & Vrontis, D. (2022). Does remote work flexibility enhance organization performance? Moderating role of organization policy and top management support. *Journal of Business Research, 139,* 1501–1512. doi:10.1016/j.jbusres.2021.10.069

de Vaus, D. (2002). *Surveys in Social Research* (5th ed.). doi:10.4324/9780203501054

Eden, R., Jones, A. B., Casey, V., & Draheim, M. (2019). Digital transformation requires workforce transformation. *MIS Quarterly Executive, 18*(1), 1–17.

Eluekezi Nnewuku, R., & Tuncay, H. (2021). *Factors affecting digital transformation in manufacturing companies* (Master's thesis, Malardalen University). Retrieved from https://mdh.diva-portal.org/smash/get/diva2:1617622/FULLTEXT01.pdf

Field, A. P. (2018). *Discovering Statistics Using IBM SPSS Statistics* (5th ed.). New York, NY: Sage Publications.

García, J. M., Martin-Martin, D., & Romero, I., (2022). Determinants of digital transformation in the restaurant industry. *Amfiteatru Economic, 24*(60), 430–446. doi:10.24818/EA/2022/60/430

Ghani, M. T. A., Hamzah, M., Ramli, S., Daud, W. A. A. W., Romli, T. R. M., Mokhtar, N. N. M. (2019). A questionnaire-based approach on technology acceptance model for mobile digital game-based learning. *Journal of Global Business and Social Entrepreneurship (GBSE), 5*(14), 11–21.

Li, S. (2024). The principles of digital transformation on China's street vendor economy. *Proceedings of the Area International Conference on Digital Economy and Artificial Intelligence (DEAI 2024).* 115–120. doi:10.1145/3675417.3675437

Lucas, H. C., Jr., Agarwal, R., Clemons, E. K., El Sawy, O. A., & Weber, B. (2013). Impact research on transformational information technology: An opportunity to inform new audiences. *MIS Quarterly, 37*(2), 371–382.

Luo, X., & Yu, S.-C. (2022). Relationship between external environment, internal conditions, and digital transformation from the perspective of synergetics. *Discrete Dynamics in Nature and Society, 2022*(3), 1–12. doi:10.1155/2022/6756548

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods, 4*(1), 84–99. doi:10.1037/1082-989X.4.1.84

Masihuddin, M., Khan, B. U. I., Mattoo, M. M. U. I., & Olanrewaju, R. F. (2017). A survey on E-Payment systems: Elements, adoption, architecture, challenges and security concepts. *Indian Journal of Science and Technology, 10*(20), 1–19.

Neirotti, P., & Pesce, D. (2019). ICT-based innovation and its competitive outcome: The role of information intensity. *European Journal of Innovation Management, 22*(2), 383–404. doi:10.1108/ejim-02-2018-0039

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). New York, NY: McGraw-Hill.

Park, I., Kim, D., Moon, J., Kim, S., Kang, Y., Bae, S. (2022). Searching for new technology acceptance model under social context: Analyzing the determinants of acceptance of intelligent information technology in digital transformation and implications for the requisites of digital sustainability. *Sustainability, 14*(1). doi:10.3390/su14010579

Patchareeya Kaewchoo. (2022). Factors influencing change in new normal tourism behavior after COVID-19 (in Thai). Retrieved from Ramkhamhaeng University, Retrieved from https://mmm.ru.ac.th/MMM/IS/vlt15-1/6114993619.pdf

Pearrada Gaterak, Wassana Srisuk, Ploylalynn Gaterak, & Chidchanok Anantamongkolkul. (2020). How local street food vendors responded to the COVID-19 pandemic: A story from Phuket. *Proceeding of 1st International Conference on Business & Social Sciences,* 927–932. Retrieved from https://ojsicobuss.stiesia.ac.id/index.php/icobuss1st/article/view/87

Plekhanov, D., Franke, H., & Netland, T. H. (2023). Digital transformation: A review and research agenda. *European Management Journal, 41*(6), 821–844. doi:10.1016/j.emj.2022.09.007

Prutchaya Heonsawang, & Chanchai Jewjinda. (2020). Success factors of operating a Thai restaurant business in the United States (in Thai). *Journal of Administrative and Management Innovation, 8*(3), 106–115.

Pyanikova, E. A., Kovaleva, A. E., & Bykovskaya, E. I. (2019). Digital technologies in public catering industry (regional aspect). *Proceedings of the 1st International Scientific Conference "Modern Management Trends and the Digital Economy: from Regional Development to Global Economic Growth" (MTDE 2019), 81,* 482–488. doi:10.2991/mtde-19.2019.96

Rietveld, T., & van Hout, R. (2011). *Statistical Techniques for The Study of Language and Language Behaviour*. Berlin, Germany: Mouton de Gruyter.

Saarikko, T., Westergren, U. H., & Blomquist, T. (2020). Digital transformation: Five recommendations for the digitally conscious firm. *Business Horizon, 63*(6), 825–839.

Santos, R. C., & Martinho, J. L. (2020). An industry 4.0 maturity model proposal. *Journal of Manufacturing Technology Management, 31*(5), 1023–1043. doi:10.1108/JMTM-09-2018-0284

Taweerat Jiradilok, Settapong Malisuwan, Navneet Madan, & Jesada Sivaraks. (2014). The impact of customer satisfaction on online purchasing: A case study analysis in Thailand. *Journal of Economics, Business and Management, 2*(1), 5–11.

Verevka, T. V. (2019). Development of industry 4.0 in the hotel and restaurant business*. IBIMA Business Review, 2019*, 1–12. doi:10.5171/2019.324071

Watcharapoj Sapsanguanboon, & Wethaya Faijaidee. (2020). Digital transformation for government agencies to enhance Thailand's competitiveness (in Thai). *Modern Management Journal, 18*(1), 15–22.

Watcharapoj Sapsanguanboon, Wethaya Faijaidee, & Preeyakamon Auanguai. (2020). Digital transformation to enhance enterprise competitiveness: A case study of food and beverage business (in Thai). *Kasetsart Applied Business Journal, 14*(20), 25–44.

Weerasinghe, L., & Nirere, B. (2022). *Challenges of digital transformation: A case study of the restaurant industry* (Master's thesis, Umea University). Retrieved from https://umu.diva-portal.org/smash/get/diva2:1709073/FULLTEXT01.pdf

Westerman, G., & Bonnet, D. (2015). Revamping your business through digital transformation. *MIT Sloan Management Review, 56*(3), Retrieved from https://sloanreview.mit.edu/article/revamping-your-business-through-digital-transformation

Westerman, G., Calméjane, C., Bonnet, D., Ferraris, P., & McAfee, A. (2011). *Digital Transformation: A Roadmap for Billion-Dollar Organizations*. Retrieved from MIT Sloan School of Management, MIT Center for Digital Business and Capgemini Consulting website: https://www.capgemini.com/wp-content/uploads/2017/07/Digital_Transformation__A_Road-Map_for_Billion-Dollar_Organizations.pdf

Wu, P.-K., Hsiao, T.-C., & Xiao, M. (2016). A stochastic artificial neural network model for investigating street vendor behavior in a night market. *International Journal of Distributed Sensor Networks, 12*(10), 1–11. doi:10.1177/1550147716673371

Zhang, X., Xu, Y., & Ma, L. (2022). Research on successful factors and influencing mechanism of the digital transformation in SMEs. *Sustainability*, *14*(5), 1–18. doi:10.3390/su1405254

อิทธิพลการอุปถัมภ์จากองค์กรและสมรรถนะที่ส่งผลกับประสิทธิภาพการผลิต กรณีศึกษา บริษัทผลิตชิ้นส่วนยานยนต์องค์กรญี่ปุ่น

กฤษณ ลิ่วเฉลิมวงศ์[1] บุญญาดา นาสมบูรณ์[2*]

[1,2*] *สาขาบริหารธุรกิจญี่ปุ่น คณะบริหารธุรกิจ สถาบันเทคโนโลยีไทย-ญี่ปุ่น, กรุงเทพมหานคร, ประเทศไทย*

*ผู้ประพันธ์บรรณกิจ อีเมล : boonyada@tni.ac.th

รับต้นฉบับ : 6 สิงหาคม 2567; รับบทความฉบับแก้ไข : 16 พฤศจิกายน 2567; ตอบรับบทความ : 18 พฤศจิกายน 2567
เผยแพร่ออนไลน์ : 26 ธันวาคม 2567

บทคัดย่อ

การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อศึกษาอิทธิพลของการอุปถัมภ์จากองค์กรและสมรรถนะที่ส่งผลต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิตในบริษัทผลิตชิ้นส่วนยานยนต์องค์กรญี่ปุ่นแห่งหนึ่ง เป็นการวิจัยเชิงปริมาณโดยใช้แบบสอบถามเป็นเครื่องมือเก็บรวบรวมข้อมูลจากพนักงานฝ่ายผลิตบริษัทผลิตชิ้นส่วนยานยนต์องค์กรญี่ปุ่นที่เป็นผู้ผลิตชิ้นส่วนลำดับที่ 1 (Tier 1) แห่งหนึ่ง จำนวน 430 ตัวอย่าง เลือกกลุ่มตัวอย่างโดยใช้ความน่าจะเป็นแบบชั้นภูมิ สถิติที่ใช้ได้แก่ ความถี่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน การวิเคราะห์องค์ประกอบเชิงยืนยัน และการวิเคราะห์สมการโครงสร้างด้วยการวิเคราะห์เส้นทาง

ผลการตรวจสอบโมเดลแบบจำลองสมการโครงสร้างกับข้อมูลเชิงประจักษ์ของพนักงานฝ่ายผลิตบริษัทผลิตชิ้นส่วนยานยนต์องค์กรญี่ปุ่นซึ่งเป็นผู้ผลิตชิ้นส่วนลำดับที่ 1 แห่งหนึ่งอยู่ในเกณฑ์ที่ดี โดยมีค่าสถิติ Chi-Square = 213.517, df = 52, Chi-Square/df = 4.106, p = 0.00, CFI = 0.96, GFI = 0.93, RMSEA = 0.08, RMR = 0.03 ผลการทดสอบ พบว่า 1) การอุปถัมภ์จากองค์กรมีอิทธิพลทางตรงต่อประสิทธิภาพการผลิตมีค่าเท่ากับ 0.28 2) สมรรถนะมีอิทธิพลทางตรงต่อประสิทธิภาพการผลิตมีค่าเท่ากับ 0.65 3) การอุปถัมภ์จากองค์กรมีอิทธิพลทางตรงต่อสมรรถนะมีค่าเท่ากับ 0.56 4) การอุปถัมภ์จากองค์กรมีอิทธิพลทางอ้อมต่อประสิทธิภาพการผลิตผ่านตัวแปรคั่นกลางสมรรถนะ โดยมีค่าอิทธิพลทางตรง 0.28 ค่าอิทธิพลทางอ้อม 0.36 และอิทธิพลรวมเท่ากับ 0.64

ดังนั้น จึงแสดงให้เห็นว่า องค์กรที่ต้องการเพิ่มประสิทธิภาพการผลิต องค์กรต้องให้การสนับสนุนทรัพยากรที่ใช้ในการทำงาน พนักงานต้องได้รับการสนับสนุนจากหัวหน้างาน และได้รับการสนับสนุนในการฝึกอบรมพัฒนา นอกจากนั้น พนักงานต้องมีความรู้ ทักษะ และคุณลักษณะที่ตามค่านิยมหลักขององค์กร

คำสำคัญ : สมรรถนะ การอุปถัมภ์จากองค์กร ประสิทธิภาพการผลิต

The Influence of Organizational Sponsorship and Competency that Affects Production Efficiency: A Case Study of a Japanese Automotive Parts Manufacturing Company

Krisna Lewchalermvongse[1] Boonyada Nasomboon[2*]

[1,2*]*Japanese Business Administration Program, Faculty of Business Administration, Thai-Nichi Institute of Technology, Bangkok, Thailand*

*Corresponding Author. E-mail address: boonyada@tni.ac.th

Received: 6 August 2024; Revised: 16 November 2024; Accepted: 18 November 2024
Published online: 26 December 2024

Abstract

The purpose of this research was to investigate organizational sponsorship and competency in the production efficiency of production staff at a Japanese automotive parts manufacturing company. This quantitative research was conducted using a questionnaire as an instrument to collect data from production staff in the Japanese automotive parts manufacturing company, which is a Tier 1 manufacturer. 430 samples were selected using stratified random sampling. Data were analyzed using frequency, percentage, mean, standard deviation, data screening, confirmatory factors analysis (CFA), and structural equation modeling (SEM) using path analysis.

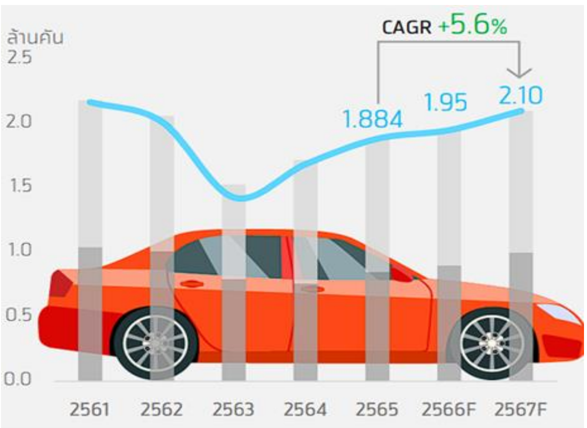
The causal structural relationship model of organizational sponsorship and competency in the production efficiency showed a well-fitted Chi-Square = 213.517, df = 52, Chi-Square/df = 4.106, p = 0.00, CFI = 0.96, GFI = 0.93, RMSEA = 0.08, RMR = 0.03. The research result showed that 1) Organization has a direct influence on production efficiency with a value of 0.28. 2) Competency has a direct influence on production efficiency, with a value of 0.65. 3) Organization has a direct influence on competency with a value of 0.28. Equal to 0.56 4) Organization has an indirect influence on production efficiency through competency as a mediating variable with a direct influence value of 0.28, an indirect influence value of 0.36, and a total influence value of 0.64.

Therefore, it can be concluded that an organization that wants to increase production efficiency must support the resources used in the work, including support from the supervisor and support in training and development. In addition, employees must have knowledge, skills, and characteristics that are in accordance with the organization's core values.

Keywords: Competency, Organizational sponsorship, Production efficiency

1) บทนำ

อุตสาหกรรมยานยนต์เป็นอุตสาหกรรมขนาดใหญ่ที่มีความสำคัญต่อการพัฒนาด้านเศรษฐกิจของหลายประเทศทั่วโลกรวมทั้งประเทศไทย สะท้อนจากการที่ไทยมีการผลิตรถยนต์ต่อปีมากถึง 1.9 ล้านคัน ซึ่งสูงที่สุดในอาเซียนและเป็นอันดับ 10 ของโลก สินค้ากลุ่มยานพาหนะ อุปกรณ์และส่วนประกอบ ยังเป็นสินค้าส่งออกอันดับหนึ่งของไทย โดยในปี พ.ศ. 2565 การฟื้นตัวของตลาดรถยนต์ในประเทศตามภาวะเศรษฐกิจไทยที่มีแนวโน้มฟื้นตัวที่ระดับร้อยละ 3.40 เช่นเดียวกันกับตลาดส่งออกรถยนต์ที่สำคัญของไทย ได้แก่ ออสเตรเลีย ฟิลิปปินส์ เวียดนาม ซาอุดีอาระเบีย ญี่ปุ่น ซึ่งมีสัดส่วนการส่งออกกว่าร้อยละ 50 ของมูลค่าการส่งออกรถยนต์ทั้งหมด ยังมีแนวโน้มขยายตัวต่อเนื่อง โดยในช่วงเดือนแรกของปี พ.ศ. 2566 ขยายตัวถึงร้อยละ 24.20 เมื่อเปรียบเทียบในช่วงเวลาเดียวกัน นอกจากนั้นนโยบายสนับสนุนยานยนต์ไฟฟ้าทำให้หลายค่ายรถยนต์ที่เข้าร่วมโครงการเริ่มมีแผนการลงทุนที่ชัดเจนและบางค่ายเริ่มเดินสายการผลิตรถยนต์ไฟฟ้าแล้ว นอกจากนี้คาดว่าในปี พ.ศ. 2566–2567 ยอดการผลิตรถยนต์และรถจักรยานยนต์จะมีแนวโน้มเติบโตอย่างต่อเนื่องทั้งภาคการส่งออกชิ้นส่วนยานยนต์ของไทยมีแนวโน้มขยายตัวต่อเนื่องร้อยละ 2.80 และร้อยละ 3.70 เมื่อเปรียบเทียบในช่วงเวลาเดียวกันตามลำดับ ดังรูปที่ 1 (Weeraya Tongsuar, 2023)



รูปที่ 1 : แนวโน้มการผลิตรถยนต์

ทั้งนี้ อดิศักดิ์ โรหิตะศุน กรรมการสถาบันยานยนต์ ผู้ทำการแทนผู้อำนวยการสถาบันยานยนต์ (Thailand Automotive Institute, 2018) ได้แสดงความเห็นและมุมมองของสถาบันยานยนต์ต่ออุตสาหกรรมยานยนต์ในยุค 4.0 รวมถึงการปรับตัวของผู้ผลิตชิ้นส่วนยานยนต์ในปัจจุบันไปสู่การเป็นผู้ผลิตชิ้นส่วนยานยนต์อนาคตว่า ผู้ผลิตจะต้องมีความตื่นตัวและเปิดใจยอมรับเทคโนโลยีใหม่ พร้อมทั้งพิจารณาเรื่องของความชำนาญ เพื่อนำไปต่อยอดการผลิตชิ้นส่วนในยานยนต์ไฟฟ้า อย่างไรก็ตาม ในการเข้ามาอย่างรวดเร็วของอุตสาหกรรม 4.0 นั้นย่อมส่งผลต่อการเปลี่ยนแปลงทั้งวิทยาการเครื่องจักร และพนักงาน โดยเฉพาะที่เกี่ยวข้องกับพนักงานนั้น การเปลี่ยนแปลงอย่างรวดเร็วของลักษณะงานส่งผลให้ทักษะ ทัศนคติ ประสบการณ์นั้นเกิดความเปลี่ยนแปลง ซึ่งอุตสาหกรรมใหม่จะมีแนวโน้มใช้แรงงานเข้มข้นน้อยลงและมีทักษะสูงขึ้น ในอนาคตอาจกล่าวได้ว่างานหลายประเภทอาจจะหายไป หรือแรงงานอาจต้องทำงานร่วมกับหุ่นยนต์หรือปัญญาประดิษฐ์มากขึ้น โดยงานที่จะถูกทดแทนอย่างรวดเร็ว คืองานที่ต้องทำเป็นประจำ (routine) ตั้งแต่งานระดับไร้ฝีมือไปจนถึงงานมีฝีมือ แรงงานจะมีความเสี่ยงจะตกงานมากขึ้น แต่แรงงานในอุตสาหกรรมยานยนต์ในปัจจุบันนั้นไม่สามารถปรับเปลี่ยนทักษะได้ในทันที ต้องอาศัยเวลาในการทักษะฝีมือ และนอกจากนี้อุตสาหกรรม 4.0 จะส่งผลกระทบต่อแนวโน้มการจ้างงาน ถึงร้อยละ 44 แรงงานในภาคอุตสาหกรรมการผลิตจะเปลี่ยนจากแรงงานฝีมือเป็นแรงงานที่ต้องมีความรู้ด้านการติดตั้งโปรแกรมและควบคุมเครื่องจักรที่มีประสิทธิภาพสูง ทั้งทักษะเชิงปริมาณและคุณภาพ ทักษะฝีมือที่มีความจำเป็น ซึ่งความมีคุณภาพและความพร้อมใช้งานของแรงงานที่มีทักษะและความสามารถจะมีอิทธิพลอย่างมากต่ออุตสาหกรรม 4.0 ที่ประสบความสำเร็จในระดับจุลภาคและมหภาค จากข้อมูลที่ศึกษาแสดงให้เห็นว่าอุตสาหกรรมยานยนต์เป็นอุตสาหกรรมที่ต้องใช้แรงงานที่มีสมรรถนะในการทำงานสูง (Department of Employment, 2022)

สภาเศรษฐกิจโลก ได้ทำการสำรวจและวิเคราะห์ความต้องการของตลาดแรงงาน รวมทั้งแนวโน้มของเทคโนโลยีในองค์กรใหญ่ทั่วโลก ผลการศึกษาได้สรุปทักษะที่จำเป็นในศตวรรษที่ 21 ว่าในการเติบโตของเศรษฐกิจที่ขับเคลื่อนด้วยนวัตกรรม ปัจจุบันคนงานจำเป็นต้องมีการผสมผสานระหว่างทักษะที่แตกต่างจากในอดีต นอกเหนือจากทักษะพื้นฐาน เช่น การรู้หนังสือและการคำนวณ องค์กรยังต้องการความสามารถ เช่น การทำงานร่วมกัน ความคิดสร้างสรรค์การแก้ปัญหา รวมถึงคุณสมบัติเฉพาะตัว เช่น ความพากเพียร ความอยากรู้อยากเห็น และความคิดริเริ่ม จากการสำรวจและวิเคราะห์ความต้องการของตลาดแรงงาน รวมทั้งแนวโน้มของเทคโนโลยีในองค์กรใหญ่ทั่วโลก สรุปทักษะที่จำเป็นในศตวรรษที่ 21 ออกมาเป็น 16 ทักษะ โดยสามารถแบ่งออกได้เป็น 3 กลุ่มใหญ่ 1) Foundational Literacies กลุ่มทักษะพื้นฐาน

ที่จำเป็นต้องใช้ใน 'การปฏิสัมพันธ์กับบริบทที่แตกต่างกัน' 2) Competencies กลุ่มทักษะที่ต้องนำมาใช้ใน 'การจัดการกับปัญหา' 3) Character Qualities กลุ่มทักษะที่ใช้ใน 'การจัดการตัวเองกับสภาพสังคม' ที่เปลี่ยนแปลงไปอย่างรวดเร็ว (World Economic Forum, 2016) Paramate Wareevanich, Chuleewan Chotiwongand, and Preeda Attavinijtrakarn (2022) ได้ศึกษารูปแบบการพัฒนาศักยภาพกำลังคนเพื่อการเพิ่มผลิตภาพในกลุ่มพนักงาน หัวหน้างาน วิศวกร และผู้บริหารระดับสูง ผลการศึกษาพบว่า ทักษะด้านศักยภาพการจัดการองค์กร ด้านการจัดงาน และด้านการจัดการผลิต มีความจำเป็นมากที่สุดต่อการพัฒนาศักยภาพกำลังคนเพื่อเพิ่มผลิตภาพในอุตสาหกรรมการผลิตชิ้นส่วนยานยนต์ในยุคดิจิทัล ซึ่งผู้วิจัยไม่พบการศึกษาที่แยกกันหรือเปรียบเทียบกันระหว่างบุคลากรแต่ละระดับในบทความวิจัยนี้ ในขณะที่ Hata (2016) ได้กล่าวว่า บุคลากรในระดับพนักงาน หัวหน้างาน และผู้จัดการมีลักษณะงานที่แตกต่างกัน ดังนั้น ผู้วิจัยจึงมีความสนใจศึกษาทักษะของบุคลากรในแต่ละระดับแยกออกจากกัน

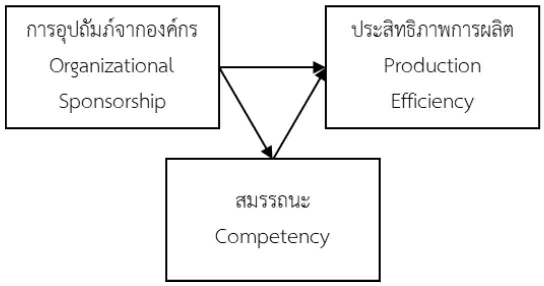
ในขณะเดียวกันการที่องค์กรต้องรับมือกับการเปลี่ยนแปลงอย่างรวดเร็วสู่อุตสาหกรรม 4.0 นั้นทำให้องค์กรไม่เพียงแต่ต้องการพนักงานที่มีความรู้ ความชำนาญ และปฏิบัติงานที่ได้รับเพียงอย่างเดียว องค์กรยังคงต้องพัฒนาระบบที่สามารถสนับสนุนการทำงานของพนักงานให้มีประสิทธิภาพมากยิ่งขึ้นโดย Eisenberger, Huntington, Hutchison, and Sowa (1986) ได้เสนอทฤษฎีการสนับสนุนจากองค์กร (organizational support theory) ที่เสนอว่าเมื่อองค์กรให้การสนับสนุนแก่พนักงานด้วยความสมัครใจและจริงใจ พนักงานจะเกิดการรับรู้ขึ้น พนักงานจะเชื่อและมองว่าการสนับสนุนจากองค์กรดังกล่าวคือการให้คุณค่าและจะเกิดความเคารพอย่างแท้จริงต่อองค์กร

Chiang and Hsieh (2012) พบว่าการรับรู้การสนับสนุนจากองค์กรและการเสริมพลังทางจิตวิทยาส่งผลต่อการปฏิบัติงาน นอกจากนั้น Kraikhun Karnjanaprapas and Boonyada Nasomboon (2021) พบว่า บทบาทของการรับรู้การสนับสนุนจากองค์กร การรับรู้การสนับสนุนของเพื่อนร่วมงานและการรับรู้การสนับสนุนของผู้บังคับบัญชาส่งผลต่อประสิทธิภาพการทำงานและความสำเร็จในอาชีพของผู้จัดการระดับกลาง จากการทบทวนวรรณกรรมยังไม่พบการศึกษาการสนับสนุนจากองค์กรกับพนักงานฝ่ายผลิตที่ทำงานอยู่หน้างาน

จากที่กล่าวมาข้างต้น งานวิจัยฉบับนี้จึงมุ่งศึกษาสมรรถนะที่จำเป็นสำหรับพนักงานฝ่ายผลิตที่อยู่หน้างาน ปัจจัยอุปถัมภ์จากองค์กรที่ส่งผลต่อการเพิ่มประสิทธิภาพการผลิต (production efficiency) ของอุตสาหกรรมชิ้นส่วนยานยนต์ญี่ปุ่น เพื่อนำผลที่ได้จากการศึกษาไปกำหนดแนวทางการสนับสนุนและพัฒนาสมรรถนะเพื่อเพิ่มประสิทธิภาพและขีดความสามารถในการแข่งขันและเป็นต้นแบบในการพัฒนาต่อยอดไปในอุตสาหกรรมอื่น ๆ ของประเทศไทยต่อไป

2) วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาการอุปถัมภ์จากองค์กรที่ส่งผลต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิต
2. เพื่อศึกษาสมรรถนะที่ส่งผลต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิต
3. เพื่อศึกษาการอุปถัมภ์จากองค์กรที่ส่งผลต่อประสิทธิภาพการผลิตผ่านตัวแปรคั่นกลางสมรรถนะของพนักงานฝ่ายผลิต



รูปที่ 2 : กรอบแนวคิดในการวิจัย

โดยมีสมมติฐานในการวิจัยดังนี้

สมมติฐานที่ 1 การอุปถัมภ์จากองค์กรส่งผลทางตรงต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิต

สมมติฐานที่ 2 สมรรถนะส่งผลทางตรงต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิต

สมมติฐานที่ 3 การอุปถัมภ์จากองค์กรส่งผลทางอ้อมต่อประสิทธิภาพการผลิตผ่านตัวแปรคั่นกลางสมรรถนะของพนักงานฝ่ายผลิต

3) การทบทวนวรรณกรรม

3.1) ประสิทธิภาพการผลิต (Production Efficiency)

ประสิทธิภาพการผลิตเป็นแนวคิดที่คนทำงานทุกคนควรยึดถือปฏิบัติเพื่อการเพิ่มผลผลิตในตนเองและองค์กรอย่าง

ต่อเนื่องโดยประสิทธิภาพการผลิตประกอบด้วย 7 องค์ประกอบ ดังนี้ 1) คุณภาพ หมายถึง ระดับของคุณลักษณะหรือคุณสมบัติของผลิตภัณฑ์ ชิ้นงาน เมื่อเทียบกับมาตรฐาน 2) ต้นทุน หมายถึง ค่าใช้จ่ายที่เกี่ยวข้องกับการผลิต ซึ่งเกิดจากความแปรผันของปริมาณการใช้ทรัพยากรที่เกี่ยวข้อง ได้แก่ อัตราของเสีย ความผิดพลาดของกระบวนการ 3) การส่งมอบ หมายถึง ความรวดเร็วของความสามารถในการส่งมอบงานที่มีความถูกต้อง 3 ประการ ได้แก่ ระยะเวลาที่ถูกต้อง คุณภาพที่ถูกต้อง และปริมาณที่ถูกต้อง 4) ความปลอดภัย หมายถึง สภาวะที่ปราศจากอุบัติเหตุ ความพยายามในการป้องกันพนักงานผู้ปฏิบัติงานไม่ให้เจ็บป่วยหรือมีอุบัติเหตุเกิดขึ้น 5) ขวัญกำลังใจในการปฏิบัติงาน หมายถึง สภาวะจิตใจของพนักงาน เช่น แรงกดดัน สภาพแวดล้อมในการปฏิบัติงาน และความเครียด ซึ่งจะส่งผลต่อพฤติกรรม และประสิทธิภาพปฏิบัติงานของพนักงาน 6) สิ่งแวดล้อม หมายถึง การผลิตที่คำนึงถึงสิ่งแวดล้อมเพื่อการพัฒนาที่ยั่งยืน การใช้เทคโนโลยีที่สะอาดในการผลิต 7) จรรยาบรรณ หมายถึง ความเชื่อถือหรือวินัยของบุคคลที่เกี่ยวกับการปฏิบัติตามกฎหมาย กฎระเบียบ ข้อตกลงอย่างถูกต้อง (Chamluck Khunpolkaew, 2005)

3.2) การอุปถัมภ์จากองค์กร (Organizational Sponsorship)

แนวคิดเกี่ยวกับอุปถัมภ์ Eisenberger et al. (1986) ได้กล่าวว่า การอุปถัมภ์จากองค์กร (organizational sponsorship) หมายถึง การค้ำจุน การค้ำชู การสนับสนุน การเลี้ยงดูที่องค์กรให้แก่สมาชิกในองค์กรของตน พร้อมทั้งยังได้เสนอว่าหากองค์กรให้การสนับสนุนที่ถูกต้องและเหมาะสมแก่พนักงาน พนักงานจะเกิดการรับรู้ในการสนับสนุนนั้น และการรับรู้ในการสนับสนุนจากองค์กรจะนำมาซึ่งประสิทธิภาพและประสิทธิผลที่ดี เนื่องจากพนักงานจะเชื่อว่าตนจะได้รับผลตอบแทนและสภาพความเป็นอยู่ที่ดีขึ้นจากองค์กร เช่น การเลื่อนตำแหน่ง ค่าตอบแทนที่เพิ่มขึ้น ต่อมาแนวคิดนี้ได้ถูกพัฒนาเป็นแนวคิดเกี่ยวกับการรับรู้ในการสนับสนุนจากองค์กร (perceived organizational support) ที่เสนอว่าเมื่อพนักงานรับรู้ว่าองค์กรกำลังให้การสนับสนุน การรับรู้ในการสนับสนุนจากองค์กรจะกระตุ้นให้พนักงานเกิดความรู้สึกมีพันธะผูกพัน (obligation) ที่ช่วยองค์กรให้บรรลุเป้าหมาย รวมถึงเกิดทัศนคติที่ดีต่อการทำงานและองค์กร (Shore & Tetrick, 1991) ซึ่งการสนับสนุนหรือการอุปถัมภ์จากองค์กรเป็นปัจจัยที่ช่วยเพิ่มประสิทธิภาพในระดับบุคคลอันส่งผลต่อความสำเร็จในอาชีพเนื่องจากเป็นเครื่องมือที่ช่วยผลักดันให้บุคลากรเกิดความมุ่งมั่นและปฏิบัติงานด้วยประสิทธิภาพที่ดีเพื่อต้องการประสบความสำเร็จในอาชีพ ดังนั้น การอุปถัมภ์จากองค์กร (organizational sponsorship) หมายถึง การสนับสนุน การเลี้ยงดูที่องค์กรให้แก่สมาชิกในองค์กรของตนเพื่อวัตถุประสงค์ในสร้างคุณค่าและจูงใจให้เกิดผลลัพธ์ที่ดีในการปฏิบัติงานจากสมาชิกในองค์กร เช่น การสนับสนุนทรัพยากรขององค์กร (organizational resource) การสนับสนุนการฝึกอบรมและโอกาสในการพัฒนาทักษะ (training and skill development opportunity) และ การสนับสนุนจากหัวหน้างาน (supervisor support)

Chiang and Hsieh (2012) พบว่า การรับรู้การสนับสนุนจากองค์กรส่งผลต่อการเป็นสมาชิกขององค์กรของงานโรงแรมในประเทศไต้หวัน ในขณะที่ Ahmad and Yekta (2010) พบว่า การรับรู้ในการสนับสนุนจากองค์กรส่งผลต่อความพึงพอใจในงานของบุคลากรชาวอิหร่านที่ปฏิบัติงานในบริษัทปูนซีเมนต์เตหะราน นอกจากนั้น ไกรคุณและบุญญาดา ยังพบว่าการรับรู้การสนับสนุนของเพื่อนร่วมงานและการรับรู้การสนับสนุนของผู้บังคับบัญชาส่งผลต่อประสิทธิภาพการทำงาน และความสำเร็จในอาชีพของผู้จัดการระดับกลาง (Kraikhun Karnjanaprapas & Boonyada Nasomboon, 2021) ดังนั้น จึงกำหนดสมมติฐานการวิจัยที่ 1 ดังนี้

สมมติฐานที่ 1 การอุปถัมภ์จากองค์กรส่งผลทางตรงต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิต

3.3) สมรรถนะ (Competency)

McClelland (1973) กล่าวว่า สมรรถนะ หมายถึง คุณลักษณะที่ซ่อนเร้นอยู่ภายในตัวบุคคล ซึ่งคุณลักษณะเหล่านี้จะเป็นตัวผลักดันให้บุคคลสามารถสร้างผลการปฏิบัติงานในงานที่ตนรับผิดชอบให้สูงกว่าเกณฑ์ ประกอบด้วย ความรู้ ทักษะ และคุณลักษณะส่วนบุคคล

1. ความรู้ (knowledge) หมายถึง ความรู้ที่จำเป็นสำหรับพนักงานฝ่ายผลิตที่อยู่หน้างาน ที่ได้มาจากทั้งในสถาบันการศึกษา การฝึกอบรม รวมถึงข้อมูลที่ได้รับจากการสนทนาแลกเปลี่ยนกับหัวหน้างานหรือเพื่อนร่วมงาน เช่น ความรู้ด้านภาษาอังกฤษ (English literacy) ความรู้ทางการคำนวณ (numeracy) หมายถึง ความรู้ทางคณิตศาสตร์เพื่อการตรวจสอบข้อมูลในการทำงานของพนักงานฝ่ายผลิตที่อยู่หน้างาน

2. ทักษะ (skill) หมายถึง ทักษะที่จำเป็นสำหรับพนักงานฝ่ายผลิตที่อยู่หน้างานที่จะต้องพัฒนาและฝึกฝนให้เกิดขึ้น ซึ่งจะต้อง

ใช้ระยะ เวลาเพื่อฝึกปฏิบัติให้เกิดทักษะนั้นขึ้นมา เช่น ทักษะในการคิดวิเคราะห์ (critical thinking) ทักษะในการคิดอย่างสร้างสรรค์ (creativity) ทักษะการสื่อสาร (communication) ทักษะการทำงานร่วมกับผู้อื่น (collaboration) ทักษะความสามารถในการปรับตัว (adaptability) ทักษะทักษะการแก้ไขปัญหาที่มีความซับซ้อน (complex problem-solving) ทักษะการคิดเชิงวิเคราะห์ (analytical thinking)

3. คุณลักษณะส่วนบุคคล (attributes) หมายถึง คุณลักษณะที่จำเป็นสำหรับพนักงานฝ่ายผลิตที่อยู่หน้างานที่รวมถึง ความคิด ความรู้สึก เจตคติ ทัศนคติ แรงจูงใจ ความต้องการส่วนบุคคล เช่น ความปรารถนาที่จะรู้สิ่งใหม่ ๆ (curiosity) ความพยายามในการบรรลุเป้าหมายที่ตั้งไว้ (persistence) การให้น้ำหนักเหตุผลและการระดมความคิดในการแก้ปัญหา (reasoning, problem solving, and ideation)

Nafiudin et al. (2023) พบว่าสมรรถนะของพนักงานมีผลเชิงบวกต่อความมุ่งมั่นและประสิทธิภาพของพนักงาน ในขณะที่ Eliza, Masrisal, Insani, and Jasvia (2020) พบว่า สมรรถนะพนักงานส่งผลทางบวกต่อประสิทธิภาพการทำงานของพนักงานหน่วยงานบริการโยธาธิการและการวางแผนเชิงพื้นที่ และ Sabuhari, Sudiro, Irawanto, and Rahayu (2020) พบว่า การบริหารงานทรัพยากรมนุษย์ส่งผลต่อสมรรถนะและประสิทธิภาพการทำงานของพนักงานประจำ นอกจากนั้น Panitada Limrueangrong and Jutamard Thaweepaiboonwong (2021) พบว่า สมรรถนะของพนักงานเป็นตัวแปรคั่นกลางระหว่างการพัฒนาทรัพยากรมนุษย์กับผลการปฏิบัติงานของพนักงานในอุตสาหกรรมผลิตชิ้นส่วนยานยนต์ในเขตเศรษฐกิจพิเศษภาคตะวันออก และ Daruwan Panya and Boonyada Nasomboon (2022) พบว่า สมรรถนะของบุคลากรฝ่ายผลิตระดับปฏิบัติการส่งผลต่อประสิทธิภาพการปฏิบัติงานของพนักงานฝ่ายผลิตชิ้นส่วนยานยนต์ในนิคมอุตสาหกรรมอมตะซิตี้ชลบุรี ดังนั้น จึงกำหนดสมมติฐานการวิจัยที่ 2 และ 3 ดังนี้

สมมติฐานที่ 2 สมรรถนะส่งผลทางตรงต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิต

สมติฐานที่ 3 การอุปถัมภ์จากองค์กรส่งผลทางอ้อมต่อประสิทธิภาพการผลิตผ่านตัวแปรคั่นกลางสมรรถนะของพนักงานฝ่ายผลิต

4) วิธีดำเนินการวิจัย

การวิจัยครั้งนี้เป็นการวิจัยเชิงปริมาณ เก็บข้อมูลโดยใช้แบบสอบถาม กำหนดวิธีดำเนินการวิจัย ดังนี้

4.1) ประชากรและกลุ่มตัวอย่าง

ประชากรกลุ่มเป้าหมาย ที่ใช้ในการวิจัยครั้งนี้คือพนักงานฝ่ายผลิตระดับปฏิบัติการ ในกลุ่มบริษัทที่ผลิตชิ้นส่วนยานยนต์ Tier 1 ซึ่งในการวิจัยครั้งนี้เป็นโมเดลสมการโครงสร้าง เมื่อทำการทดสอบโมเดล Kline (2011) กล่าวว่า ขนาดของกลุ่มตัวอย่างตามกฎ N:q ความเหมาะสมของขนาดตัวอย่าง ควรมีกลุ่มตัวอย่างต่อโมเดลพารามิเตอร์อยู่ที่ 10-20:1 ได้นำเสนอการกำหนดตัวอย่างเมื่อใช้เทคนิคการประมาณค่าสูงสุด ทั้งนี้ Hair, Black, Babin, and Anderson (2010) กล่าวว่าการวิเคราะห์สมการโครงสร้าง (Structural Equations Model: SEM) ที่มีโครงสร้าง (constructs) 7 โครงสร้างหรือน้อยกว่าและต้องไม่เกิด underidentified constructs ทั้งนี้ควรมีค่าน้ำหนักปัจจัยมาตรฐานมากกว่า .50 ควรมีกลุ่มตัวอย่างไม่ต่ำกว่า 150 ตัวอย่าง ดังนั้น ในงานวิจัยครั้งนี้ เมื่อพิจารณาจากโมเดลพารามิเตอร์ในการวิจัยในครั้งนี้ประกอบด้วย 13 พารามิเตอร์ จำนวน 3 โครงสร้าง (constructs) กลุ่มตัวอย่างต้องไม่ต่ำกว่า 13×20 = 260 ตัวอย่าง โดยใช้วิธีเก็บตามสะดวก (convenience sampling) จากโรงงานที่ตอบรับเข้าร่วมการศึกษาซึ่งเป็นโรงงานที่ผลิตชิ้นส่วนยานยนต์ Tier 1 ในนิคมอุตสาหกรรมอมตะนคร จังหวัดชลบุรี

4.2) เครื่องมือที่ใช้ในการวิจัย/รวบรวมข้อมูล

เครื่องมือที่ใช้ในการวิจัย คือแบบสอบถาม ประกอบด้วยชุดคำถาม 3 ส่วน ส่วนที่ 1 เป็นข้อมูลทั่วไปของผู้ตอบแบบสอบถาม ประกอบด้วย เพศ อายุ ระดับการศึกษา และระยะเวลาที่ปฏิบัติงานกับองค์กร ส่วนที่ 2 ถึง 4 เป็นคำถามกำหนดระดับความคิดเห็น 5 ระดับ ส่วนที่ 2 เป็นคำถามเกี่ยวกับการอุปถัมภ์จากองค์กร พัฒนาแบบสอบถามจาก Kraikhun Karnjanaprapas and Boonyada Nasomboon (2021) ประกอบด้วย การสนับสนุนทรัพยากรขององค์กร การสนับสนุนการฝึกอบรมและโอกาสในการพัฒนาทักษะ และการสนับสนุนจากหัวหน้างาน รวม 9 ข้อ ส่วนที่ 3 เป็นคำถามเกี่ยวกับสมรรถนะ พัฒนาแบบสอบถามจาก World Economic Forum (2016) ประกอบด้วย ความรู้ ทักษะ และคุณลักษณะ รวม 18 ข้อ ส่วนที่ 4 เป็นคำถามเกี่ยวกับประสิทธิภาพการผลิต พัฒนาแบบสอบถามจาก Chamluck Khunpolkaew (2005) ประกอบด้วย คุณภาพ ต้นทุน การส่งมอบ

ความปลอดภัย ขวัญกำลังใจในการปฏิบัติงาน สิ่งแวดล้อม และจรรยาบรรณ รวม 29 ข้อ ผู้วิจัยได้นำแบบสอบถามให้ผู้เชี่ยวชาญจำนวน 3 ท่านพิจารณาความสอดคล้องข้อคำถามกับวัตถุประสงค์ (IOC) มีค่าระหว่าง 0.67–1.00 และนำแบบสอบถามไปทดสอบกับกลุ่มที่มีความใกล้เคียงกับกลุ่มตัวอย่างแต่ไม่ใช่กลุ่มตัวอย่างจำนวน 30 คน นำไปหาค่าความเชื่อมั่นด้วยค่าสัมประสิทธิ์แอลฟาของครอนบาก (Cronbach’s Alpha Coefficient) มีค่าระหว่าง 0.81–0.94 จึงถือว่านำไปใช้ในการเก็บตัวอย่างได้ (Kline, 2011)

4.3) การวิเคราะห์ข้อมูล

ผู้วิจัยประมวลผลข้อมูลโดยใช้โปรแกรมสำเร็จรูป IBM SPSS 26 Statistics Subscription Trial โดยใช้อีเมลสถาบันเทคโนโลยีไทย-ญี่ปุ่นในการดาวน์โหลดและทำการคำนวณทางสถิติดังนี้

1. สถิติเชิงพรรณนา ประกอบด้วย ความถี่ ร้อยละ ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน แปลผลและจัดอันดับโดยใช้สูตรคำนวณช่วงห่าง โดยใช้ค่า 4.21–5.00 ระดับมากที่สุด ไปถึง 1.00–1.80 ระดับน้อยที่สุด

2. สถิติอนุมาน ประกอบด้วย การวิเคราะห์ความปกติพหุตัวแปรของข้อมูลโดยการหาค่าสุดโต่งหรือค่าผิดปกติพหุตัวแปรโดยการวิเคราะห์ถดถอยพหุด้วยสถิติทดสอบระยะทางมาฮาลาโนบิส (Mahalanobis Distance) การตรวจสอบการแจกแจงปกติของข้อมูลโดยพิจารณาจากค่าการกระจายที่สมมาตรและค่าความสูงของการกระจาย การตรวจสอบวิเคราะห์องค์ประกอบ (Measurement Model) การตรวจสอบความเป็นเอกภาพของการกระจาย การตรวจสอบความสัมพันธ์เชิงเส้นตรงของตัวแปร การวิเคราะห์สมการโครงสร้าง และการวิเคราะห์เส้นทาง (Byrne, 2009; Hair, et al. 2010; Kline, 2011)

5) ผลการวิจัย

5.1) ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม จำนวน 430 คน

จากตารางที่ 1 ผู้ตอบแบบสอบถามในครั้งนี้มีจำนวน 430 คน ส่วนใหญ่เป็นเพศหญิง จำนวน 282 คน คิดเป็นร้อยละ 65.58 พนักงานที่ตอบแบบอายุ 26–35 ปีมากที่สุด จำนวน 196 คน คิดเป็นร้อยละ 45.58 รองลงมามีอายุ 36-45 ปี จำนวน 134 คน คิดเป็นร้อยละ 31.16 ระดับการศึกษาอยู่ในระดับมัธยมศึกษาปีที่ 6 มากที่สุด จำนวน 178 คน คิดเป็นร้อยละ 41.40 ด้านระยะเวลาที่ปฏิบัติงานของพนักงานคือ 16 ปีขึ้นไป จำนวน 121 คน คิดเป็นร้อยละ 28.10 รองลงมามีระยะเวลาที่ปฏิบัติงานกับองค์กร 6–10 ปี จำนวน 114 คน คิดเป็นร้อยละ 26.50

ตารางที่ 1 : แสดงข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

ข้อมูล		จำนวน	ร้อยละ
เพศ	1. ชาย	146	33.95
	2.หญิง	282	65.58
	3.ไม่ระบุ	2	0.47
อายุ	1. น้อยกว่า 25 ปี	95	22.10
	2. 26–35 ปี	196	45.58
	3. 36–45 ปี	134	31.16
	4. ตั้งแต่ 46 ปีขึ้นไป	5	1.16
ระดับการศึกษา	1. มัธยมศึกษาปีที่ 3	1	0.20
	2. มัธยมศึกษาปีที่ 6	178	41.40
	3. ปวช.	61	14.20
	4. ปวส.	157	36.50
	5. ปริญญาตรี	30	7.00
	6. สูงกว่าปริญญาตรี	3	0.70
ระดับการศึกษา	1. น้อยกว่า 1 ปี	31	7.20
	2. 1–5 ปี	97	22.60
	3. 6–10 ปี	114	26.50
	4. 11–15 ปี	67	15.60
	5. 16 ปีขึ้นไป	121	28.10
	1. น้อยกว่า 1 ปี	31	7.20

5.2) ผลการวิเคราะห์ระดับความคิดเห็น

5.2.1) พนักงานฝ่ายผลิตมีความคิดเห็นเกี่ยวกับการอุปถัมภ์จากองค์กร โดยรวมมีค่าเฉลี่ยอยู่ในระดับมาก 3.74 เมื่อพิจารณารายด้านพบว่า ด้านทรัพยากรองค์กร มีค่าเฉลี่ยอยู่ในระดับมาก 3.80 ด้านโอกาสในการฝึกอบรมและพัฒนาทักษะมีค่าเฉลี่ยอยู่ในระดับมาก 3.75 ด้านการสนับสนุนจากหัวหน้ามีค่าเฉลี่ยอยู่ในระดับมาก 3.66

5.2.2) พนักงานฝ่ายผลิตมีความคิดเห็นเกี่ยวกับสมรรถนะ โดยรวมอยู่ในระดับมากมีค่าเฉลี่ย 3.80 โดยความคิดเห็นด้านด้านคุณลักษณะ ด้านทักษะ และคุณลักษณะ อยู่ในระดับมากทุกด้านมีค่าเฉลี่ย 4.15, 3.81 และ 3.45 ตามลำดับ

5.2.3) พนักงานฝ่ายผลิตมีความคิดเห็นเกี่ยวกับประสิทธิภาพการผลิต โดยรวมมีค่าเฉลี่ยอยู่ในระดับมาก 4.07 เมื่อพิจารณารายด้านพบว่า ด้านความปลอดภัย อยู่ในระดับมากที่สุด 4.22 ด้านสิ่งแวดล้อม อยู่ในระดับมาก 4.17 ด้านจรรยาบรรณ อยู่ในระดับมาก 4.16 ด้านคุณภาพ อยู่ในระดับมาก 4.11 ด้านการ

ส่งมอบ อยู่ในระดับมาก 4.04 ด้านต้นทุน อยู่ในระดับมาก 3.94 และด้านขวัญกำลังใจในการปฏิบัติงาน อยู่ในระดับมาก 3.86

5.3) วิเคราะห์องค์ประกอบของตัวแปร (Measurement Model)

ผู้วิจัยได้ทำการตรวจสอบองค์ประกอบของตัวแปรสังเกตและตัวแปรแฝงก่อนนำไปทดสอบโมเดลโครงสร้าง โดยผู้วิจัยกำหนดเกณฑ์ในการตรวจสอบค่าน้ำหนักองค์ประกอบ (Factor Loading) ของตัวแปรที่ได้มาตรฐานต้องมีค่า 0.50 หรือมากกว่าจึงจะถือว่าเหมาะดี และหากค่าน้ำหนักมีค่า 0.70 หรือมากกว่าจึงถือว่าดีมาก ค่าความเชื่อมั่นรวมของตัวแปรแฝง (Composite Reliability: CR) ผ่านเกณฑ์ที่กำหนดที่ 0.70 ค่าเฉลี่ยของความแปรปรวนที่ถูกสกัดได้ (Average Variance Extracted: AVE) ผ่านเกณฑ์ที่กำหนดที่ 0.50 และค่าสัมประสิทธิ์แอลฟาของครอนบากผ่านเกณฑ์ที่กำหนดที่ 0.70 (Hair et al., 2010)

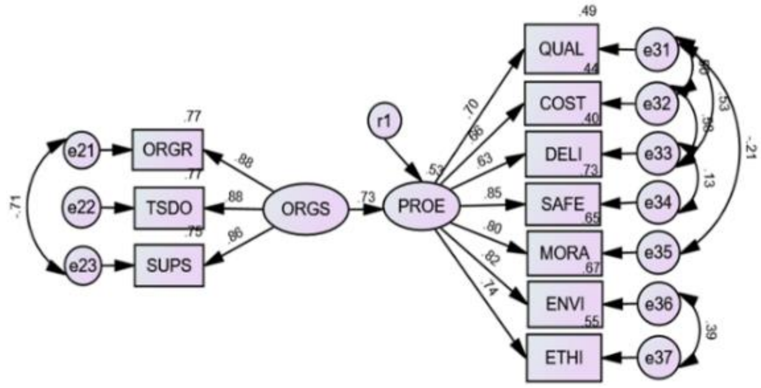
5.3.1) การตรวจสอบปัญหาค่าผิดปกติหลายตัวแปร (Multivariate Outlier) ด้วยค่าทดสอบระยะทางมาฮาลาโนบิส ซึ่งมีระดับนัยสำคัญทางสถิติที่ p-Value < 0.001 ผลการตรวจสอบพบว่ามีค่าผิดปกติ 2 ค่าคือ 0.00038, 0.00090 จึงทำการตัดข้อมูลออก และผลการตรวจสอบการแจกแจงข้อมูลแบบปกติ (Normally Distribute Test) พบว่าค่าการกระจายที่สมมาตร หรือค่าความเบ้ (Skewness: SK) มีค่า -0.567 ถึง 0.495 และค่าความสูงของการกระจายหรือค่าความโด่ง (Kurtosis: KU) มีค่า -0.622 ถึง 0.623 จึงสรุปได้ว่า ตัวแปรสังเกตได้ในโมเดลมีการกระจายของข้อมูลแบบปกติ

5.3.2) ผลการวิเคราะห์องค์ประกอบตัวแปร การอุปถัมภ์จากองค์กร พบว่า ค่าสถิติที่ใช้ในการตรวจสอบมีค่าดังนี้ Chi-Square = 31.321, df = 1, p = 0.250 ค่าดัชนี CFI = 1.000, GFI = 0.998, AGFI = 0.988, RMSEA = 0.027, RMR = 0.016 และค่า Chi-Square /df = 31.321 แสดงให้เห็นว่าโมเดลการวัดการอุปถัมภ์จากองค์กรมีความตรงเชิงโครงสร้างในระดับดี ค่าน้ำหนักองค์ประกอบตัวแปรสังเกตได้ด้านโอกาสในการฝึกอบรมและพัฒนาทักษะ (TSDO) มีค่าน้ำหนักองค์ประกอบมากที่สุดคือ 0.935 รองลงมาคือด้านทรัพยากรองค์กร (ORGR) = 0.827 และด้านการสนับสนุนจากหัวหน้า (SUSP) = 0.725 และการตรวจสอบค่าความเชื่อมั่นรวมของตัวแปรแฝง มีค่าเท่ากับ 0.87 ผลการตรวจสอบค่าสัมประสิทธิ์แอลฟาของครอนบาก มีค่า 0.88 และตัวแปรแฝงทุกตัวมีค่าเฉลี่ยของความแปรปรวนที่ถูกสกัดได้ มีค่า 0.70 แสดงว่าตัวแปรสังเกตทุกตัวสามารถเป็นตัวแปรองค์ประกอบของการอุปถัมภ์จากองค์กรได้

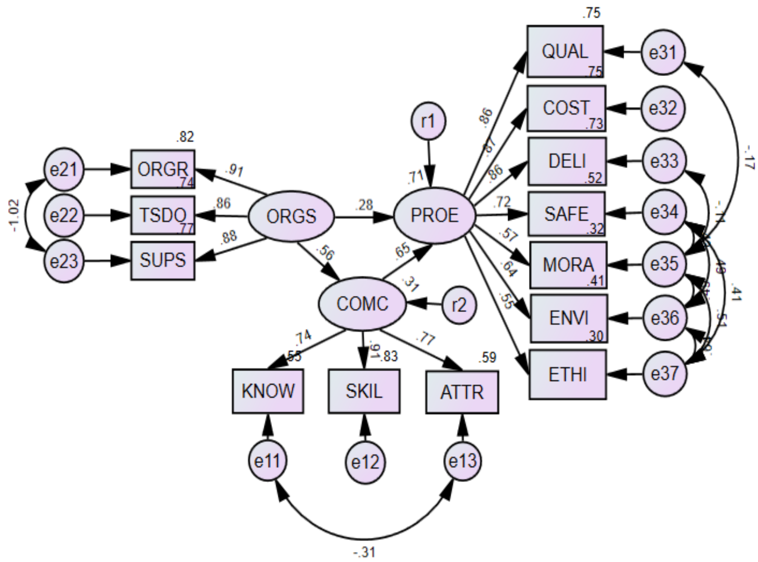
5.3.3) ผลการวิเคราะห์องค์ประกอบตัวแปร สมรรถนะ พบว่า ค่าสถิติที่ใช้ในการตรวจสอบมีค่าดังนี้ Chi-Square = 1.407, df = 1, p = 0.236 ค่าดัชนี CFI = 0.999, GFI = 0.998, AGFI = 0.987, RMSEA = 0.031, RMR = 0.010 และค่า Chi-Square/df = 1.407 แสดงให้เห็นว่าโมเดลการวัดสมรรถนะมีความตรงเชิงโครงสร้างในระดับดี ในการวัดค่าน้ำหนักองค์ประกอบพบว่า ตัวแปรสังเกตได้ด้านทักษะ (SKIL) มีค่าน้ำหนักองค์ประกอบมากที่สุดคือ 0.90 รองลงมาคือด้านความรู้ (KNOW) = 0.78 และด้านคุณลักษณะ (ATTR) = 0.60 และการตรวจสอบค่าความเชื่อมั่นรวมของตัวแปรแฝง มีค่าเท่ากับ 0.81 ผลการตรวจสอบค่าสัมประสิทธิ์แอลฟาของครอนบากมีค่า 0.82 และตัวแปรแฝงทุกตัวมีค่าเฉลี่ยของความแปรปรวนที่ถูกสกัดได้ มีค่า 0.60 แสดงว่าตัวแปรสังเกตทุกตัวสามารถเป็นตัวแปรองค์ประกอบของสมรรถนะ

5.3.4) ผลการวิเคราะห์องค์ประกอบตัวแปร ประสิทธิภาพการผลิต ค่าสถิติที่ใช้ในการตรวจสอบมีค่าดังนี้ Chi-Square = 21.773, df = 9, Chi-Square /df = 2.419, p = 0.010 ค่าดัชนี CFI = 0.994, GFI = 0.985, AGFI = 0.954, RMSEA = 0.058, RMR = 0.010 แสดงให้เห็นว่าโมเดลการวัดประสิทธิภาพการผลิตมีความตรงเชิงโครงสร้างในระดับดี ค่าน้ำหนักองค์ประกอบตัวแปรสังเกตได้ด้านความปลอดภัย (SAFE) มีค่าน้ำหนักองค์ประกอบมากที่สุดคือ 0.95 รองลงมาคือด้านสิ่งแวดล้อม (ENVI) = 0.91 ด้านจรรยาบรรณ (ETHI) = 0.84 ด้านขวัญกำลังใจในการปฏิบัติงาน (MORA) = 0.72 ด้านคุณภาพ (QUAL) = 0.63 ด้านต้นทุน (COST) = 0.62 และด้านการส่งมอบ (DELI) = 0.61 และการตรวจสอบค่าความเชื่อมั่นรวมของตัวแปรแฝง มีค่าเท่ากับ 0.90 ผลการตรวจสอบค่าสัมประสิทธิ์แอลฟาของครอนบาก มีค่า 0.91 และตัวแปรแฝงทุกตัวมีค่าเฉลี่ยของความแปรปรวนที่ถูกสกัดได้ มีค่า 0.58 ผ่านเกณฑ์ที่กำหนดที่ 0.50 แสดงว่าตัวแปลสังเกตทุกตัวสามารถเป็นตัวแปรองค์ประกอบประสิทธิภาพการผลิตได้

5.4) แสดงผลการวิเคราะห์อิทธิพลตัวแปรเชิงสาเหตุส่งผลต่อประสิทธิภาพการดำเนินงานและการทดสอบสมมติฐาน



รูปที่ 3 : ผลการวัดโมเดลการอุปถัมภ์จากองค์กรและประสิทธิภาพการผลิต (หลังปรับโมเดล)



รูปที่ 4 : ผลการวัดโมเดลการอุปถัมภ์จากองค์กร สมรรถนะ และประสิทธิภาพการผลิต (หลังปรับโมเดล)

ตารางที่ 2 : ผลการตรวจสอบความสอดคล้องกับข้อมูลเชิงประจักษ์ที่พัฒนาขึ้นมาใหม่ จากรูปที่ 2 และ 3

ค่าดัชนี	เกณฑ์	ค่าสถิติรูปที่ 2	ค่าสถิติรูปที่ 3	ผลการตรวจสอบ
Chi-Square	p ≥ .05	0.00	0.00	ไม่ผ่าน*
Chi-Square/dt	< 2-3	4.19	4.10	ไม่ผ่าน*
GFI	> .90	0.95	0.93	ผ่าน
CFI	> .90	0.97	0.96	ผ่าน
RMSEA	< .08	0.08	0.08	ผ่าน
RMR	< .05	0.01	0.03	ผ่าน

*หมายเหตุ : *ค่าสถิติมีโอกาสคลาดเคลื่อนได้หากกลุ่มตัวอย่างมีขนาดใหญ่แต่ยอมรับได้ (Kline, 2011)*

จากตารางที่ 2 ผลการตรวจสอบความสอดคล้องกับข้อมูลเชิงประจักษ์ของโมเดล รูปที่ 3 ตามเกณฑ์ของ Byrne (2009) และ Kline (2011) พบว่า มีค่าดัชนี Chi-Square = 113.220, df = 27, Chi-Square/dt = 4.19, p = 0.00, GFI = 0.95, CFI = 0.97, RMSEA = 0.08 และ RMR = 0.01 จึงสรุปได้ว่า โมเดลมีความสอดคล้องกลมกลืนกับข้อมูลเชิงประจักษ์ในระดับดี

ผลการตรวจสอบความสอดคล้องกับข้อมูลเชิงประจักษ์ของโมเดลรูปที่ 4 ตามเกณฑ์ของ Byrne (2009) และ Kline (2011) พบว่า มีค่าดัชนี Chi-Square = 213.517, df = 52, Chi-Square/dt = 4.10, p = 0.00, GFI = 0.93, CFI = 0.96, RMSEA= 0.08 และ

RMR = 0.03 จึงสรุปได้ว่า โมเดลมีความสอดคล้องกลมกลืนกับข้อมูลเชิงประจักษ์ในระดับดี

ตารางที่ 3 : ผลการวิเคราะห์ค่าสัมประสิทธิ์มาตรฐานระหว่างตัวแปร

ตัวแปร			DE	IE	TE	P
PROE	<	ORGS	0.73	-	0.73	***
COMC	<	ORGS	0.56	-	0.56	***
PROE	<	COMC	0.65	-	0.65	***
PROE	<	ORGS	0.28	0.36	0.64	***

*หมายเหตุ : ***มีนัยสำคัญทางสถิติที่ระดับ 0.01, DE = Direct Effect, IE = Indirect Effect, TE = Total Effect*

จากตารางที่ 3 และรูปที่ 3 และ 4 แสดงความสอดคล้องระหว่างอิทธิพลของตัวแปรต่าง ๆ ของปัจจัยที่มีอิทธิพลต่อประสิทธิภาพการผลิต สามารถอธิบายผลตามสมติฐานได้ดังนี้

5.4.1) สมมติฐานที่ 1 การอุปถัมภ์จากองค์กรส่งผลทางตรงต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิต พบว่า การอุปถัมภ์จากองค์กร (ORGR) มีอิทธิพลทางตรง (direct effect) ต่อประสิทธิภาพการผลิต (PROE) มีค่าสัมประสิทธิ์สหสัมพันธ์มาตรฐานระหว่างตัวแปรเท่ากับ 0.73 ที่ระดับนัยสำคัญ .01

5.4.2) สมมติฐานที่ 2 สมรรถนะส่งผลทางตรงต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิต พบว่า สมรรถนะ (COMC) มีอิทธิพลทางตรงต่อประสิทธิภาพการผลิต (PROE) มีค่าสัมประสิทธิ์สหสัมพันธ์มาตรฐานระหว่างตัวแปรเท่ากับ 0.65 ที่ระดับนัยสำคัญ 0.01

5.4.3) สมมติฐานที่ 3 การอุปถัมภ์จากองค์กร (ORGS) มีอิทธิพลทางตรงต่อประสิทธิภาพการผลิต (PROE) โดยค่าสัมประสิทธิ์มาตรฐาน (Beta) ระหว่างตัวแปรการอุปถัมภ์จากองค์กร (ORGS) กับประสิทธิภาพการผลิต (PROE) มีค่าสัมประสิทธิ์สหสัมพันธ์มาตรฐานระหว่างตัวแปรลดลงจาก 0.73 เหลือ 0.28 ที่เป็นอิทธิพลทางตรงผ่านตัวแปรสมรรถนะ (COMC) โดยมีค่าอิทธิพลทางอ้อม เท่ากับ 0.36 (0.56×0.65) โดยมีน้ำหนักอิทธิพลรวมเท่ากับ 0.65 เป็นไปตามเงื่อนไขของ mediator variable จึงสรุปได้ว่า สมรรถนะเป็นตัวแปรคั่นกลาง ระหว่างการอุปถัมภ์จากองค์กรกับประสิทธิภาพการผลิต

6) สรุปและอภิปรายผล

6.1) ผลการทดสอบพบว่า การอุปถัมภ์จากองค์กรส่งผลทางตรงต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิต

แสดงให้เห็นว่า องค์กรมีการสนับสนุนพนักงานฝ่ายผลิตที่อยู่หน้างานทั้งด้านทรัพยากรและเครื่องมือที่ใช้ในการทำงาน นอกจากนั้นยังมีศูนย์ฝึกอบรมพัฒนาทักษะของพนักงาน หรือเครื่องฝึกสอนที่ช่วยส่งเสริมให้พนักงานมีประสบการณ์ ทำให้พนักงานมีโอกาสในการฝึกอบรมและพัฒนาทักษะ องค์กรได้จัดกิจกรรมที่สนับสนุนให้พนักงานได้แลกเปลี่ยนความรู้และทักษะกับหัวหน้างานและเพื่อนร่วมงาน อันนำมาซึ่งสัมพันธภาพที่ดี โดยการแลกเปลี่ยนความรู้ในขั้นตอนและวิธีการแก้ไขความผิดปกติของเครื่องจักรหรือความผิดปกติด้านคุณภาพผลิตภัณฑ์ ทำให้พนักงานสามารถผลิตผลิตภัณฑ์ได้อย่างถูกต้องตามขั้นตอนและวิธีการผลิต และได้รับการสนับสนุนจากหัวหน้าให้พนักงานเข้ารับการฝึกอบรมเพื่อพัฒนาความรู้ และทักษะตามที่องค์กรกำหนดซึ่งช่วยส่งเสริมให้พนักงานสามารถจัดลำดับความสำคัญของงาน ปรับปรุงขั้นตอนการทำงาน พัฒนาเทคนิคการทำงานเพื่อให้ปฏิบัติงานได้สำเร็จตามปริมาณงานและกรอบเวลาที่กำหนด สอดคล้องกับ Chiang and Hsieh (2012) พบว่า การรับรู้การสนับสนุนจากองค์กรส่งผลต่อการเป็นสมาชิกขององค์กรของงานโรงแรมในประเทศไต้หวัน ในขณะที่ Ahmad and Yekta (2010) พบว่า การรับรู้ในการสนับสนุนจากองค์กรส่งผลต่อความพึงพอใจในงานของบุคลากรชาวอิหร่านที่ปฏิบัติงานในบริษัทปูนซีเมนต์เตหะราน นอกจากนั้น Kraikhun Karnjanaprapas and Boonyada Nasomboon (2021) ยังพบว่า การรับรู้การสนับสนุนของเพื่อนร่วมงานและการรับรู้การสนับสนุนของผู้บังคับบัญชาส่งผลต่อประสิทธิภาพการทำงาน และความสำเร็จในอาชีพของผู้จัดการระดับกลาง

6.2) ผลการทดสอบพบว่า สมรรถนะส่งผลทางตรงต่อประสิทธิภาพการผลิตของพนักงานฝ่ายผลิต

แสดงให้เห็นว่าองค์กรมีการกำหนดและพัฒนาความรู้และทักษะของพนักงานแตกต่างตามบทบาทหน้าที่ที่พนักงานคนนั้นปฏิบัติอยู่ทั้งด้านความรู้ภาษาอังกฤษสำหรับการทำงาน การคำนวณทางคณิตศาสตร์ และความรู้ในการควบคุมเครื่องจักรช่วยให้พนักงานสามารถควบคุมเครื่องจักรได้อย่างถูกต้องและผลิตผลิตภัณฑ์ได้ถูกต้องตามที่กำหนดในคู่มือทำงาน ประกอบกับทางด้านทักษะในการคิดวิเคราะห์ การสื่อสาร การทำงานเป็นทีม รวมทั้งปลูกจิตสำนึกสร้างคุณลักษณะให้กับพนักงานด้านความปลอดภัย ความปรารถนาที่จะเรียนรู้สิ่งใหม่ ๆ รวมถึงความพยายามในการบรรลุเป้าหมายที่ตั้งไว้ ส่งผลให้พนักงานทำงานได้อย่างมีประสิทธิภาพ สอดคล้องกับการศึกษา Nafiudin et al.

(2023) พบว่าสมรรถนะของพนักงานมีผลเชิงบวกต่อความมุ่งมั่นและประสิทธิภาพของพนักงาน ในขณะที่ Eliza et al. (2020) พบว่า สมรรถนะพนักงานส่งผลทางบวกต่อประสิทธิภาพการทำงานของพนักงานหน่วยงานบริการโยธาธิการและการวางแผนเชิงพื้นที่ นอกจากนั้น Daruwan Panya and Boonyada Nasomboon (2022) พบว่า สมรรถนะของบุคลากรฝ่ายผลิตระดับปฏิบัติการส่งผลต่อประสิทธิภาพการปฏิบัติงานของพนักงานฝ่ายผลิตชิ้นส่วนยานยนต์ในนิคมอุตสาหกรรมอมตะซิตี้ชลบุรี

6.3) ผลการทดสอบพบว่า สมรรถนะเป็นตัวแปรที่มีอิทธิพลทางอ้อมระหว่างการอุปถัมภ์จากองค์กรกับประสิทธิภาพการผลิต

แสดงให้เห็นว่าสมรรถนะเป็นปัจจัยสำคัญที่จะส่งเสริมให้อุปถัมภ์จากองค์กรเพิ่มประสิทธิภาพการผลิตสูงมากขึ้น เนื่องจากองค์กรให้ความสำคัญกับการสนับสนุนพนักงาน ทั้งด้านทรัพยากรทั้งเครื่องมือ ศูนย์ฝึกอบรม หรือเครื่องฝึกสอนที่ช่วยส่งเสริมให้พนักงานมีประสบการณ์ และมีสมรรถนะตามที่องค์กรกำหนดทั้งด้านความรู้ภาษาอังกฤษสำหรับการทำงาน การคำนวณทางคณิตศาสตร์ และความรู้ในการควบคุมเครื่องจักร ช่วยให้พนักงานสามารถควบคุมเครื่องจักรได้อย่างถูกต้องและผลิตผลิตภัณฑ์ได้ถูกต้องตามที่กำหนดในคู่มือทำงานส่งผลให้ชิ้นงานเสียที่จะเกิดขึ้นลง ด้านโอกาสในการฝึกอบรมและพัฒนาทักษะ องค์กรได้จัดกิจกรรม ที่สนับสนุนให้พนักงานได้แลกเปลี่ยนความรู้และทักษะกับหัวหน้างานและเพื่อนร่วมงาน อันนำมาซึ่งสัมพันธภาพที่ดีโดยการแลกเปลี่ยนความรู้ในขั้นตอนและวิธีการแก้ไขความผิดปกติของเครื่องจักร หรือความผิดปกติด้านคุณภาพผลิตภัณฑ์ทำให้พนักงานได้ฝึกทักษะในการคิดวิเคราะห์ การสื่อสาร การทำงานเป็นทีม ช่วยให้พนักงานสามารถผลิตผลิตภัณฑ์ได้อย่างถูกต้องตามขั้นตอนและวิธีการผลิต จึงสามารถควบคุมวัตถุดิบได้ตามเป้าหมาย และยังสามารถปรับปรุงขั้นตอนการทำงาน พัฒนาเทคนิคการทำงานเพื่อให้ปฏิบัติงานได้สำเร็จตามปริมาณงานและกรอบเวลาที่กำหนด และด้านการสนับสนุนจากหัวหน้า โดยการแลกเปลี่ยนความรู้และทักษะกับพนักงานซึ่งจะช่วยจุดประกายความคิดให้กับพนักงาน ช่วยให้พนักงานสามารถหาวิธีปรับปรุงขั้นตอนการทำงาน สามารถผลิตชิ้นงานได้อย่างไม่เกิดความสูญเปล่า ลดความซ้ำซ้อนของงานเพื่อให้งานเสร็จได้เร็วขึ้น อีกทั้งองค์กรปลูกจิตสำนึกสร้างคุณลักษณะให้กับพนักงานด้านความปลอดภัย ความปรารถนาที่จะเรียนรู้สิ่งใหม่ๆ รวมถึงความพยายามในการบรรลุเป้าหมายที่ตั้งไว้ และนโยบายขององค์กรที่กำหนดว่าทักษะที่จำเป็นของพนักงานแบ่งเป็นรูปแบบการประเมิน 2 รูปแบบ คือ การประเมินผลสมรรถนะของการปฏิบัติงาน (competency appraisal) และ การประเมินผลการปฏิบัติงาน (performance appraisal) ซึ่งเป็นสมรรถนะหลักของบริษัท (core competency) ที่ใช้วัดพนักงานทุกคนในองค์กร และเพื่อให้พนักงานมีสมรรถนะตามที่องค์กรคาดหวัง องค์กรจึงมีการจัดกิจกรรมที่สามารถให้พนักงานได้สามารถแลกเปลี่ยนความรู้กับพนักงานในระดับเดียวกันหรือแม้แต่บุคลากรระดับหัวหน้า ช่วยให้พนักงานสามารถหาวิธีปรับปรุงขั้นตอนการทำงาน ลดความซ้ำซ้อนของงานเพื่อให้งานเสร็จได้เร็วขึ้น และองค์กรมีทรัพยากรจำพวกเครื่องมือวัด อุปกรณ์ตัวอย่างชิ้นงานดีชิ้นงานเสียเพื่อให้พนักงานได้ฝึกอบรมเพิ่มประสบการณ์ตรงกับหน้างาน และการสนับสนุนจากหัวหน้างานโดยการสอนงานให้กับพนักงานให้มีความรู้ในวัตถุประสงค์ ขั้นตอนและกระบวนการผลิต ซึ่งจะช่วยให้พนักงานปฏิบัติงานได้อย่างถูกต้อง ร่วมกับการส่งพนักงานเข้ารับการฝึกอบรมเพื่อพัฒนาสมรรถนะ ทั้งนี้องค์กรยังกำหนด Core Value: Foresight, Credibility, Collaboration และ Monozukuri อันเป็นคุณลักษณะพื้นฐานที่ทุกคนในองค์กรมีร่วมกัน สอดคล้องกับ Sabuhari et al. (2020) พบว่า การบริหารงานทรัพยากรมนุษย์ส่งผลต่อสมรรถนะและประสิทธิภาพการทำงานของพนักงานประจำ และยังสอดคล้องกับงานวิจัยของ Panitada Limrueangrong and Jutamard Thaweepaiboonwong (2021) ที่พบว่า สมรรถนะของพนักงานเป็นตัวแปรคั่นกลางระหว่างการพัฒนาทรัพยากรมนุษย์กับผลการปฏิบัติงานของพนักงานในอุตสาหกรรมผลิตชิ้นส่วนยานยนต์ในเขตเศรษฐกิจพิเศษภาคตะวันออก และสอดคล้องกับ Vijh, Sharma, and Agrawal (2022) พบว่า สมรรถนะประกอบด้วยความรู้ ทักษะ และคุณลักษณะส่งผลกับประสิทธิภาพการทำงานของพนักงานไอทีที่มีลักษณะการทำงานที่มุ่งมั่นเพื่อความสำเร็จ

7) ข้อเสนอแนะ

7.1) ด้านข้อเสนอแนะที่ได้จากการวิจัยเพื่อเป็นประโยชน์ในการนำไปใช้ต่อองค์กร

1) ด้านอุปถัมภ์จากองค์กร การศึกษาในครั้งนี้ชี้ให้เห็นว่าการอุปถัมภ์จากองค์กรมีอิทธิพลต่อประสิทธิภาพการผลิต ซึ่งด้านที่ส่งผลต่อประสิทธิภาพการผลิตสูงที่สุดคือด้านทรัพยากรองค์กร องค์กรจึงจำเป็นต้องมีการสนับสนุนทรัพยากรที่จำเป็นจำพวกเครื่องมือ อุปกรณ์ที่ช่วยในการทำงาน และสถานที่ในการฝึกอบรมและให้ความรู้เกี่ยวกับขั้นตอนและกระบวนการผลิตให้กับ

พนักงาน ด้านที่ส่งผลรองลงมาคือด้านโอกาสในการฝึกอบรมและพัฒนาทักษะ องค์กรจำเป็นต้องคำนึงถึงการหมั่นจัดการฝึกอบรมและกิจกรรมพัฒนาทักษะภายในองค์กรเป็นประจำ และด้านสุดท้ายคือการสนับสนุนจากหัวหน้า ซึ่งการที่พนักงานจะได้รับโอกาสในการเข้าฝึกอบรมจำเป็นต้องได้รับการสนับสนุนจากบุคลากรระดับหัวหน้า และองค์กรควรจัดคุณภาพ กิจกรรมที่เปิดโอกาสให้พนักงานได้แลกเปลี่ยนความรู้กับบุคลากรระดับหัวหน้า ซึ่งระดับความคิดเห็นของพนักงานเกี่ยวกับการอุปถัมภ์จากองค์กรโดยรวมอยู่ในระดับมาก องค์กรจำเป็นต้องรักษาให้ และวางแผนผลักดันให้ขึ้นสู่ระดับมากที่สุดเพื่อประสิทธิภาพการผลิตที่สูงมากขึ้น

2) สมรรถนะของพนักงานฝ่ายผลิตด้านความรู้ พบว่าพนักงานมีความรู้โดยเฉลี่ยอยู่ในระดับมากโดยเฉพาะความรู้ด้านกระบวนการผลิตที่ตนเองปฏิบัติอยู่ และความรู้ในการตรวจสอบความถูกต้องของเครื่องมือและอุปกรณ์ แต่ความรู้ด้านภาษาอังกฤษและด้านการคำนวณยังอยู่ในระดับกลาง เพื่อให้สามารถปรับตัวทันกับการเปลี่ยนเข้าสู่อุตสาหกรรม 4.0 ที่มีการนำเครื่องจักรอัตโนมัติเข้ามาใช้ในกระบวน การผลิตมากยิ่งขึ้น ภาษาอังกฤษและการคำนวณจึงเป็นส่วนสำคัญในการอ่านค่าและตรวจสอบข้อมูลความถูกต้อง องค์กรควรให้ความสำคัญกับการฝึกอบรมแก่พนักงานฝ่ายผลิตที่อยู่หน้างานด้านความรู้ภาษาอังกฤษและการคำนวณ โดยการกำหนดเป็นกลยุทธ์วางแผนการอบรมสำหรับพนักงานฝ่ายผลิตที่อยู่หน้างานโดยเฉพาะ และจำเป็นที่จะต้องมีการสอบวัดระดับความรู้ของพนักงานเป็นประจำเพื่อ เพื่อสะท้อนถึงระดับความรู้ของพนักงานเพื่อวางแผนพัฒนาอบรมให้กับพนักงานต่อไป

3) สมรรถนะของพนักงานฝ่ายผลิตด้านทักษะ พบว่าพนักงานมีทักษะโดยเฉลี่ยอยู่ในระดับมาก ดังนั้นเพื่อให้องค์กรที่ผลิตชิ้นส่วนยานยนต์สามารถรักษาความสามารถในการแข่งขันด้านการผลิตที่มีประสิทธิภาพในยุคอุตสาหกรรม 4.0 ที่มีการเปลี่ยนผ่านสู่ยานยนต์ไฟฟ้า องค์กรควรกำหนดสมรรถนะหลัก (core competency) ที่พนักงานทุกคนควรจะมีเหมือนกัน และสมรรถนะเฉพาะลักษณะงาน (functional competency) ให้กับพนักงานฝ่ายผลิตที่อยู่หน้างานแต่ละฝ่ายที่ปฏิบัติหน้าที่แตกต่างกัน รวมถึงการสร้างความชัดเจนในด้านการประเมินผลของระดับทักษะของพนักงานแต่ละบุคคลด้วยการวัดข้อมูลเชิงปริมาณที่วัดได้ด้วยตัวเลขเพื่อสะท้อนประสิทธิภาพและความพร้อมด้านทักษะของพนักงานเหล่านั้นได้พร้อมทั้งองค์กรควรกำหนดวิสัยทัศน์และนโยบายเพื่อกระตุ้นพนักงานฝ่ายผลิตที่อยู่หน้างานให้มีทักษะจำเป็นตามที่องค์กรคาดหวัง ดังนั้น องค์กรควรส่งเสริมนโยบายสำหรับการจัดการฝึกอบรมภายในเพื่อเสริมสร้างและพัฒนาทักษะให้แก่พนักงานฝ่ายผลิต และการให้โอกาสพนักงานในองค์กรในการศึกษาหาความรู้เพิ่มเติมทั้งจากการเรียนรู้จากหัวหน้างานหรือเพื่อนร่วมงาน และจัดเตรียมทรัพยากรที่จำเป็นจำพวกเครื่องมือ อุปกรณ์ ตัวอย่างชิ้นงานสำหรับการพัฒนาทักษะอย่างเพียงพอ คืออีกหนึ่งปัจจัยสำคัญที่ส่งเสริมประสิทธิภาพการทำงานของพนักงานได้

4) สมรรถนะของพนักงานฝ่ายผลิตด้านคุณลักษณะ พบว่าพนักงานมีคุณลักษณะโดยเฉลี่ยอยู่ในระดับมาก องค์กรควรกำหนดค่านิยมองค์กร (core value) เป็นรากฐานหรือพฤติกรรมของบุคลากรในองค์กรที่บุคลากรทุกคนควรจะมีเหมือนกัน ค่านิยมองค์กรที่ชัดเจนจะช่วยสร้างทัศนคติร่วมกันกับทุกคนในองค์กรให้มองไปที่ภาพเดียวกัน ซึ่งผลลัพธ์จากการศึกษาในครั้งนี้ชี้ให้เห็นว่าคุณลักษณะส่งผลต่อประสิทธิภาพการผลิตดังนั้น องค์กรควรมีกิจกรรมที่ช่วยปลูกฝังคุณลักษณะ หรือจิตสำนึกตามค่านิยมองค์กร

7.2) ด้านข้อเสนอแนะในการวิจัยครั้งต่อไป

7.2.1) ด้านตัวแปรด้านอุปถัมภ์จากองค์กรที่ศึกษาในครั้งนี้ เป็นการพัฒนาตัวแปรตามแนวคิดของของ (Ng, Eby, Sorensen, & Feldman, 2005) จากกลุ่มตัวอย่างบริษัทผลิตชิ้นส่วนยานยนต์ญี่ปุ่นที่ในนิคมอุตสาหกรรมอมตะซิตี้ชลบุรีเพียงบริษัทเดียวเท่านั้น ซึ่งในแต่ละบริษัทอาจจะมีความแตกต่างกันในเรื่องการอุปถัมภ์ให้กับพนักงาน ดังนั้นในการวิจัยครั้งต่อไป ควรศึกษาอุตสาหกรรมอื่น เช่น อุตสาหกรรมอิเล็กทรอนิกส์

7.2.2) ด้านตัวแปรสมรรถนะที่ศึกษาในครั้งนี้ เป็นการพัฒนาตัวแปรด้านความรู้ ทักษะ คุณลักษณะสำหรับพนักงานฝ่ายผลิตที่อยู่หน้างานเท่านั้น ดังนั้นในการวิจัยครั้งต่อไป ควรพิจารณาศึกษาความรู้ ทักษะ คุณลักษณะของพนักงานในตำแหน่งงานอื่น ๆ เช่น หัวหน้างานในระดับ Team Leader, Supervisor ที่ส่งผลต่อประสิทธิภาพการผลิต

7.2.3) ด้านกลุ่มตัวอย่างการศึกษาวิจัยในครั้งนี้ เป็นการศึกษาจากกลุ่มตัวอย่างบริษัทผลิตชิ้นส่วนยานยนต์ญี่ปุ่นที่ในนิคมอุตสาหกรรมอมตะซิตี้ชลบุรี เพียงบริษัทเดียวเท่านั้น ซึ่งในแต่ละบริษัทอาจจะมีความแตกต่างกันในเรื่องลักษณะอุตสาหกรรมและรูปแบบการบริหารงาน ดังนั้นในการวิจัยครั้งต่อไปควรศึกษาในเขตพื้นที่นิคมอุตสาหกรรม จังหวัด ภาค หรืออุตสาหกรรมอื่น เช่น อุตสาหกรรมอิเล็กทรอนิกส์ นอกจากนั้นควรศึกษาในเชิง

เปรียบเทียบระหว่างบริษัทสัญชาติญี่ปุ่นกับไทยและอื่น ๆ กับเพื่อให้ได้ผลในเชิงลึกมากยิ่งขึ้น

กิตติกรรมประกาศ

ขอขอบพระคุณผู้บริหาร ผู้จัดการ หัวหน้างาน และพนักงานทุกท่านในกลุ่มบริษัทสัญชาติญี่ปุ่นที่ผลิตชิ้นส่วนยานยนต์ที่ให้โอกาสได้เข้าศึกษาวิจัยในองค์กร และสละเวลาในการทำแบบสอบถามส่งผลให้งานวิจัยฉบับนี้สมบูรณ์ ขอขอบคุณจากกองทุนวิจัย Dr. Noriaki KANO ที่มอบทุนวิจัยอันเป็นประโยชน์อย่างยิ่งในการใช้งบประมาณเพื่อการวิจัย นอกจากนั้น ขอขอบพระคุณท่านอาจารย์ที่คำปรึกษาวิทยานิพนธ์ที่ชี้แนะแนวทาง อบรมสั่งสอน ตลอดจนตรวจสอบข้อบกพร่องให้วิจัยเล่มนี้สมบูรณ์และสำเร็จลุล่วงไปได้ด้วยดี ทั้งนี้ผู้วิจัยขอขอบพระคุณครอบครัวและเพื่อนร่วมชั้นสำหรับการสนับสนุนและกำลังใจที่ดีเสมอมา และหวังอย่างยิ่งว่าให้วิจัยฉบับนี้สามารถก่อให้เกิดประโยชน์สูงสุดในแก่บริษัท ทั้งยังเป็นแนวทางให้แก่บริษัทในอุตสาหกรรมการผลิต

REFERENCES

Ahmad, Z. A., & Yekta, Z. A. (2010). Relationship between perceived organizational support, leadership behavior, and job satisfaction: An empirical study in Iran. *Intangible Capital, 6*(2), 162–184.

Byrne, B. (2009). *Structural Equation Modeling with Amos: Basic Concepts, Applications, and Programming* (2nd ed.). New York, NY: Taylor and Francis.

Chamluck Khunpolkaew. (2005). *Basic Productivity Improvement* (in Thai) (5th ed.). Bangkok, Thailand: Thailand Productivity Institute.

Chiang, C.-F., & Hsieh, T.-S. (2012). The impacts of perceived organizational support and psychological empowerment on job performance: The mediating effects of organizational citizenship behavior. *International Journal of Hospitality Management, 31*(1), 180–190.

Daruwan Panya, & Boonyada Nasomboon. (2022). Competency of production operator affecting working efficiency on Japanese automobile manufacturers in Amata City Chonburi industrial estate (in Thai). *The 8th Thai-Nichi Institute of Technology Academic Conference (TNIAC2022)*, 320–326. Retrieved from https://tniac.tni.ac.th/2022/wp-content/uploads/2022/07/TNIAC2022.pdf

Department of Employment. (2022). Strategies for solving and preventing labor shortages (in Thai). Retrieved from https://www.doe.go.th/prd/assets/upload/files/lmia_th/498391d8154f6237d5db6b423d5f1b85.pdf

Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, S. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*(3), 500–507.

Eliza, Y., Masrisal, D., Insani, D., & Jasvia, Y. (2020). Effect of employee competency, organizational commitment and workload on employee performance of public works and spatial planning (PUPR) service of West Sumatra Province. *Asian Journal of Social Science and Management Technology, 2*(5), 175–181.

Hair, J. F., Jr., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Hata T. (2016). *Factory Personnel Development in Monozukuri Style* (in Thai) (B. Rojarayanont, Trans.). Bangkok, Thailand: TPA Publishing.

Kline, R. B. (2011). *Principles and Practice of Structural Equation Modeling* (3rd ed.). New York, NY: The Guilford Press.

Kraikhun Karnjanaprapas, & Boonyada Nasomboon. (2021). Human capital and organizational sponsorship affecting career success in automotive research and development subsidiaries (in Thai). *TNI Journal of Business Administration and Languages, 9*(1), 54–71.

McClelland, D. C. (1973). Testing for competence rather than for “intelligence”. *American Psychologist, 28*(1), 1–14. doi:10.1037/h0034092

Nafiudin., Nurjanah, S., Tjalla, A., Suparno., Febriantina, S., Andari., ..., & Suprayogi, W. (2023). Study of workload and employee competence towards employee performance with organizational commitment as an intervening variable. *Jurnal Riset Manajemen Sains Indonesia, 14*(2), 1–11.

Ng, T. W. H., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology, 58*(2), 367–408. doi:10.1111/j.1744-6570.2005.00515.x

Panitada Limrueangrong, & Jutamard Thaweepaiboonwong. (2021). The influence of human resource development on employee performance: The mediating role of competency (in Thai). *Srinakharinwirot Research and Development Journal of Humanities and Social Sciences, 14*(27), 75–86.

Paramate Wareevanich, Chuleewan Chotiwong, & Preeda Attavinijtrakarn. (2022). The potential development model of manpower to increasing productivity in the automotive parts industry in the digital era (in Thai). *Nakhon Lampang Buddhist's Journal, 11*(2), 16–31.

Sabuhari, R., Sudiro, A., Irawanto, D. W., & Rahayu, M. (2020). The effects of human resource flexibility, employee competency, organizational culture adaptation and job satisfaction on employee performance. *Management Science Letters, 10*(5), 1777–1786.

Shore, L. M., & Tetrick, L. E. (1991). A construct validity study of the survey of perceived organizational support. *Journal of Applied Psychology, 76*(5), 637–643.

Thailand Automotive Institute. (2018). TAI Conducts Brainstorming: The Future Thai Automotive Industry. Retrieved from https://www.thaiauto.or.th/2020/news/news-detail.asp?news_id=4358

Vijh, G., Sharma, R., & Agrawal, S. (2022). Effect of competency on employee performance and the mediating role of commitment: An empirical investigation in the IT industry. *Journal of Information and Optimization Sciences, 43*(7), 1573–1587.

Weeraya Tongsuar. (2023). Looking at the direction of the Thai automotive parts industry in 2023-2024 (in Thai). Retrieved from Krungthai website: https://krungthai.com/Download/economyresources/EconomyResourcesDownload_1918Research_Note_Auto_Part_20_03_66.pdf

World Economic Forum. (2016). *New Vision for Education: Fostering Social and Emotional Learning through Technology* (Report No. REF 040316). Retrieved from https://www3.weforum.org/docs/WEF_New_Vision_for_Education.pdf

Journal of Business Administration and Languages (JBAL)
Vol.12 No.2 July - December 2024

Unveiling the Effects of Integrating an AI-Powered English Speaking Coach for Students and Specific Careers in the EDSY Program: A Study on Higher Education Students in a Thai Private University

Nattida Pucharoen[*]

[*]*Language Institute, Bangkok University, Pathum Thani, Thailand*

*Corresponding Author. E-mail address: nattida.p@bu.ac.th

Received: 17 September 2024; Revised: 22 November 2024; Accepted: 29 November 2024
Published online: 26 December 2024

Abstract

This study investigates the efficacy of an AI-powered English Speaking Coach integrated into the EDSY Program at a Thai private university, focusing on its impact on language proficiency among Thai university students. The research adopts a mixed-methods approach, combining pre-test and post-test assessments with qualitative feedback from participants. Participants showed a significant improvement in language proficiency, as evidenced by a mean increase of 3.02 points across various CEFR levels. Thematic analysis of language competencies reveals strengths in speaking fluency and pronunciation accuracy, supported by positive participant feedback on usability and effectiveness. The study underscores AI's potential to enhance language learning outcomes by providing personalized learning experiences and supporting broader educational goals. The integration of the AI tool supports specific educational objectives, such as enhancing students' oral communication skills, which are critical for their future careers in fields like customer service, business, and hospitality. This AI-powered coach not only helps students practice in a controlled environment but also provides personalized feedback, thus aligning with the program's goal to improve employability skills.

***Keywords*:** AI-powered English speaking coach, Effects, Higher education, Integration, Language teaching and learning

I. INTRODUCTION

In an era characterized by rapid advancements in technology, the educational landscape has witnessed transformative changes, particularly in the realm of language acquisition and career development. The integration of Artificial Intelligence (AI) has emerged as a pivotal force in reshaping traditional educational paradigms, offering innovative solutions to enhance learning experiences. Within this context, our study embarks on an exploration of the impact of implementing an AI-powered English Speaking Coach within the EDSY Program, focusing on higher education students in a distinguished Thai private university. The EDSY program (English Development for Students and Youth) is a comprehensive educational initiative designed to enhance students' language skills, particularly in speaking and listening, through a variety of digital tools, including AI-powered coaching systems (Thannachkorn Sirirojjananan, 2023). As noted by Thannachkorn Sirirojjananan (2023), technological innovations such as AI-powered tools have shown promising results in improving language skills, particularly in speaking and listening.

As the globalized world demands proficiency in English as a lingua franca, educators continually seek effective methods to cultivate language skills among students (Ebadi & Ebadijalal, 2020; Kim, 2016). Concurrently, the dynamic nature of professional landscapes underscores the importance of preparing students for specific careers that demand nuanced linguistic capabilities (Guo, Wang, & Chu, 2022). The EDSY Program, with its integration of an AI-powered English Speaking Coach, represents a contemporary initiative designed to address these interconnected challenges (Thannachkorn Sirirojjananan, 2023). This research endeavors to unravel the multifaceted consequences of this technological intervention on language learning outcomes and career readiness, shedding light on the potential implications for higher education in the Thai context (Alhalangy & AbdAlgane, 2023).

By probing into the impact of AI in the educational sphere, we aim to contribute to the growing body of knowledge on the intersection of technology, language education, and career preparation (Jiang, 2022; Schif, 2021). Through a nuanced examination of the experiences of students engaging with an AI-powered English Speaking Coach, this study seeks to provide valuable insights that can inform educational policies, practices, and future developments in the dynamic landscape of higher education (Ahmadi, 2018; Zhou & Li, 2023).

The advent of Artificial Intelligence (AI) has significantly reshaped educational methodologies, offering innovative tools to enhance language learning experiences and career preparation (Jiang, 2022; Schif, 2021). In the context of higher education, the traditional approaches to language acquisition and career readiness are being challenged by the dynamic demands of the contemporary world (Kim, 2016). The integration of an AI-powered English Speaking Coach within the EDSY Program at a Thai private university represents a notable response to these evolving challenges (Thannachkorn Sirirojjananan, 2023).

In recent years, English proficiency has emerged as a critical skill, transcending geographical boundaries and becoming essential for academic and professional success (Ebadi & Ebadijalal, 2020). Students pursuing higher education face the dual imperative of not only mastering English as a language but also tailoring their language skills to meet the nuanced demands of specific careers (Guo et al., 2022). This confluence of language acquisition and career preparedness underscores the need for innovative solutions that bridge these two aspects seamlessly.

The integration of technology in education has transformed traditional teaching methods, offering students new ways to engage with learning materials.

In particular, advancements in artificial intelligence (AI) have revolutionized language acquisition, providing students with the tools to improve their speaking and listening skills. The EDSY program (English Development for Students and Youth) is a comprehensive initiative aimed at enhancing language proficiency, with a focus on speaking fluency and pronunciation accuracy. This program incorporates AI-powered speaking coaches, designed to offer personalized feedback and interactive practice, making it a valuable tool for higher education students.

While previous studies have explored the effectiveness of AI in language learning, few have examined its impact specifically in Thai higher education. For example, research by Thannachkorn Sirirojjananan (2023) highlighted the potential of AI-powered tools to improve language proficiency, but did not focus on the application of AI-speaking coaches in university settings. This gap in research is where the present study aims to contribute, by investigating the specific effects of AI-powered coaching on language development within the EDSY program.

This study will examine how the use of AI in the EDSY program enhances students' speaking fluency and pronunciation accuracy. It also aims to provide insight into the role of AI-powered tools in supporting students' overall English proficiency and employability. By filling this gap in the literature, the study will offer valuable implications for the integration of AI into language education.

The EDSY Program, by incorporating an AI-powered English Speaking Coach, aims to address this pressing need (Thannachkorn Sirirojjananan, 2023). The integration of AI technology in language learning environments holds the promise of personalized, adaptive instruction that can cater to individual learning styles and accelerate language proficiency (Kim, Cha, & Kim, 2019). Furthermore, the program aligns language education with the specific linguistic requirements of diverse professional fields, thereby enhancing the practical applicability of language skills acquired during academic pursuits (Alhalangy & AbdAlgane, 2023).

As we delve into the impact of AI in this educational context, this study aims to contribute valuable insights to the growing body of knowledge on the intersection of technology, language education, and career preparation (Zhou & Li, 2023). Through a nuanced examination of students' experiences with an AI-powered English Speaking Coach, the research seeks to inform educational policies, practices, and future developments in the dynamic landscape of higher education (Ali, Shamsan, Hezam, & Mohammed, 2023).

The significance of this research lies in its exploration of the implications and outcomes associated with the implementation of an AI-powered English Speaking Coach within the EDSY Program (Thannachkorn Sirirojjananan, 2023). As higher education institutions continue to navigate the evolving landscape of language education and career preparation, understanding the impact of such technological interventions becomes paramount (Jiang, 2022; Schif, 2021).

By delving into the experiences of students engaging with the AI-powered English Speaking Coach, this research aims to contribute valuable insights that can inform educational policies, instructional methodologies, and curricular design (Ahmadi, 2018; Zhou & Li, 2023). The findings are anticipated to shed light on the effectiveness of AI in enhancing language proficiency (Ebadi & Ebadijalal, 2020), improving communication skills (Kim, 2016), and aligning language education with the dynamic requirements of specific careers (Guo et al., 2022).

Moreover, the study's outcomes may have broader implications for educational institutions, policymakers, and practitioners seeking evidence-based strategies to leverage AI in optimizing language learning and career development initiatives (Haristiani, 2019; Kim et al., 2019).

As such, this research not only addresses the specific context of the EDSY Program in a Thai private university but also contributes to the broader discourse on the role of AI in shaping the future of higher education (Ali et al., 2023).

II. RESEARCH OBJECTIVES

1. To assess the impact of the AI-powered English Speaking Coach on the language proficiency of higher education students participating in the EDSY Program at a Thai private university.
2. To examine the effectiveness of the AI-powered English Speaking Coach in enhancing communication skills, particularly in the context of specific career requirements for students within the EDSY Program.

III. LITERATURE REVIEW

A. Role of Artificial Intelligence in Language Learning

The intersection of Artificial Intelligence (AI) and language learning has emerged as a significant area of exploration within the educational landscape. This literature review aims to provide an overview of the research conducted on the incorporation of AI-driven tools in language learning, with a focus on English Language Teaching (ELT) and its potential transformative impact on education.

Studies, such as those conducted by Ghafar et al. (2023) and Mukhallafi (2020), highlight the efficacy of AI-driven tools, including language coaches and chatbots, in providing personalized and adaptive learning experiences. These tools have demonstrated the capability to expedite language proficiency development through tailored feedback and interactive exercises.

The literature emphasizes the broader transformative impact of AI on education, especially within the context of globalization and the Fourth Industrial Revolution. AI, as a field of computer science, strives to replicate human-like thought and behavior, encompassing aspects such as speech comprehension, linguistic awareness, decision-making, and visual perception (Ghafar et al., 2023).

Kushmar, Vornachev, Korobova, and Kaida (2022) emphasize the revolutionary nature of integrating AI into language learning processes. This integration offers continuous, personalized instruction with abundant feedback and scaffolding exercises, promising to expedite skill development and make language acquisition more efficient and accessible.

In the digital age, the landscape of English language teaching has undergone significant changes due to technological advancements. The work of Ali (2020) suggests that English teaching and learning have become more accessible through technology and digital platforms. There is a growing realization that AI should be viewed as a complementary tool rather than a replacement for traditional educators.

Yingsoon (2021) points out the importance of combining language and digital literacies for enhancing global competency. The literature underscores that the potential of machines to teach English prompts a reevaluation of the role of traditional educators, positioning AI as a supportive force in language education.

The practical applications of AI in English language teaching, particularly in ESL/EFL contexts, are evident. Ali (2020) discusses how machine learning, intelligent search, and natural language processing can significantly advance teaching and learning methodologies. The structured grammatical system of English makes it particularly suitable for integrating AI technologies to address challenges faced by learners.

In conclusion, the literature review highlights the potential of AI in reshaping language education. The synthesis of findings urges further exploration and refinement of AI integration for enhanced learning outcomes. As the field continues to evolve, educators, researchers, and policymakers should collaboratively strive to harness the full potential of AI in language learning contexts.

B. Language Learning in Higher Education

In higher education, language learning plays a crucial role as a foundational element for students' academic success and future career prospects (Seven, 2020). The literature highlights the importance of aligning language education with the specific linguistic needs of different professional fields, thus enhancing students' practical language skills (Rodríguez Muñoz, Pérez Gálvez, & Buyse, 2024). In concordance with these principles, the EDSY Program strategically integrates an AI-powered English Speaking Coach. This innovative approach is designed to address the critical need for aligning academic language acquisition with the specific communication demands of diverse career paths.

Tanjung's (2018) research in the Indonesian higher education context sheds light on language learning strategies in English as a foreign language classrooms, emphasizing the diverse approaches employed to enhance proficiency and contextual relevance (Tanjung, 2018). In a complementary vein, Fitria (2021) explores the integration of Artificial Intelligence (AI) technology in English teaching and learning, presenting findings that Artificial Intelligence (AI) positively influences English language learning by providing personalized and effective learning environments. AI enhances both spoken and written skills, optimizing teaching impact in English Language Teaching (ELT). The development of AI technology simplifies English learning, offering various choices in applications.

These studies collectively contribute to the broader understanding of language learning in higher education, emphasizing the need for innovative methodologies and technologies to bridge the gap between academic language skills and practical communication requirements in various professional contexts.

C. Effectiveness of Technology in Career Preparation

Research into the use of technology in career preparation programs highlights its positive impact on students' abilities to transition into professional roles more effectively. Several studies by (Soeprijanto, Diamah, & Rusmono, 2022; Subasman & Aliyyah, 2023) underscore the value of incorporating digital tools and resources in educational settings, particularly for equipping students with practical, job-relevant skills. These tools not only make learning more engaging but also help students develop critical competencies that are highly valued in today's job market. Among these competencies, effective communication, problem-solving, and critical thinking stand out as key skills that technology-driven interventions can cultivate. Mastering these skills is essential for career success across a variety of fields and industries, where adaptability and the ability to respond to complex challenges are increasingly important.

In evaluating technology's role, the AI-powered English Speaking Coach used in the EDSY Program serves as an example of how specific tech tools can enhance career readiness by bridging language skills with professional communication needs. This AI tool provides personalized language practice, focusing on the types of communication scenarios students are likely to encounter in their chosen careers. By improving both general language proficiency and the specialized language skills needed in the workplace, the AI-powered English Speaking Coach represents a broader trend: the use of technology not only to boost technical knowledge but also to develop soft skills that are essential for workplace success. This focus on technology's role in fostering language and communication skills highlights how strategic tech interventions can shape students into well-rounded, career-ready individuals who are prepared to meet the demands of professional environments (Qo'shbaqova, Boltayeva, & Shermamatova, 2023).

D. Challenges and Opportunities in AI-Assisted Language Learning

AI technology in language learning presents a range of promising opportunities, but it also introduces notable challenges that need to be carefully managed to optimize its effectiveness in educational settings. On one hand, AI-driven tools offer unique advantages, such as personalized learning experiences, real-time feedback, and the ability to simulate conversational practice, making language learning more engaging and accessible. For instance, AI-powered language platforms can adapt to each learner's pace, providing targeted exercises that address specific areas for improvement, thereby accelerating language acquisition and increasing confidence.

However, several studies (Dai & Liu, 2024; de la Vall & González Araya, 2023). point out, there are several critical challenges in implementing AI-assisted language learning tools. Ethical considerations are particularly important, encompassing issues like data privacy and the responsible use of students' personal information. AI tools often collect extensive data on students' learning behaviors, which raises concerns about how this data is stored, used, and protected. Additionally, maintaining learner engagement can be challenging, as some students may find AI-driven platforms less motivating without the human interaction and encouragement provided by a teacher.

Another significant challenge is the role of teachers in AI-assisted environments. Effective integration of AI tools requires teacher support and training to maximize their potential benefits. Teachers need to understand how to use these tools to complement traditional teaching methods, which means they must be trained not only in the technology itself but also in how to interpret AI-generated insights to support their students' learning. Without this support, AI tools risk being underutilized or misapplied, potentially limiting their educational value.

Recognizing and addressing these challenges is essential for refining the implementation of AI within language programs. By understanding the ethical, engagement-related, and pedagogical obstacles, educators and developers can work together to enhance the design and use of AI tools. This will ensure that the benefits of AI-driven language learning—such as improved accessibility, adaptive learning paths, and enhanced student outcomes—are fully realized and contribute positively to the learning experience (de la Vall, & González Araya, 2023).

E. Cultural and Contextual Considerations in Language Learning

In language learning, understanding cultural and contextual factors is crucial for developing effective educational approaches, particularly within specific regions like Thailand. Thai learners' language acquisition is shaped by unique cultural influences, including educational values, learning styles, and societal expectations that differ significantly from Western contexts. For example, Thai students may prioritize respect for teachers and structured learning environments, while also valuing harmony and indirect communication styles. These factors impact how students interact with language-learning tools, their expectations for teacher involvement, and their overall engagement with digital learning platforms (Thannachkorn Sirirojjananan, 2023).

Research on culturally sensitive language education highlights the importance of tailoring AI-powered language tools to align with the preferences and learning habits of Thai students. AI-driven language learning programs designed for Thai higher education students should consider these cultural nuances, offering features that accommodate a variety of learning styles and communication practices. For instance, providing options for both structured, teacher-guided modules and more flexible, self-paced activities can meet diverse student needs. Additionally, incorporating culturally relevant scenarios and examples can make learning more relatable and meaningful, enhancing student engagement and retention.

The literature also emphasizes the interplay between language education and career preparation, particularly as English proficiency becomes increasingly valuable for Thai students entering globalized job markets. By enhancing language skills, especially in career-specific contexts, AI tools like the English Speaking Coach within the EDSY Program can support students in building the professional communication skills they need for successful careers. However, this integration of technology must address the challenges unique to the Thai educational landscape, such as ensuring equitable access to digital resources and aligning AI applications with students' cultural expectations.

This cultural and contextual understanding provides essential insights for our investigation into the AI-powered English Speaking Coach within the EDSY Program at a Thai private university. By assessing how this tool impacts language proficiency and career readiness in a way that resonates with Thai students, this research seeks to contribute to the broader discussion on the role of AI in culturally responsive, effective language education for higher education settings.

IV. RESEARCH METHODOLOGY

A. Participants

1) Population: The study targeted 250 students enrolled in English courses at a Thai private university. The EDSY Program at this institution focuses on improving students' English language proficiency and communication skills.

2) Sample: The sample comprised 30 undergraduate students from the School of Entrepreneurial Management, selected through stratified random sampling to ensure diversity in English proficiency and prior communication skills.

B. Recruitment and Randomization

Participants were recruited through course announcements, with informed consent obtained from interested students. The 30 participants were then randomly assigned to the experimental group, all from the School of Entrepreneurship and Management at a Thai private university.

C. Data Collection

Pre-assessment: Conducted initially using standardized tests to establish participants' language proficiency.

Post-assessment: Administered at the study's conclusion to evaluate changes in language proficiency following the intervention.

D. Surveys and Interviews

1) Surveys: Participants completed surveys to assess the AI-powered English Speaking Coach's impact on their communication skills and language proficiency. The survey demonstrated strong reliability, achieving a Cronbach's Alpha coefficient of 0.81, indicating high internal consistency during the try-out process.

2) *Interviews*: Selected participants underwent interviews to provide qualitative insights into their experiences with the AI-powered English Speaking Coach.

The data collection process unfolded according to a meticulously planned timeline to ensure comprehensive and insightful results. The timeline was structured as follows:

3) Pre-assessment (Week 2): The initial phase involved conducting a pre-assessment to establish a baseline for participants' skills and knowledge. This assessment captured the current state of performance and attitudes before the introduction of the AI-powered English Speaking Coach. The data gathered served as a crucial reference point for measuring progress and evaluating the impact of the intervention.

4) Implementation of AI-powered coach (Weeks 3-12): Following the pre-assessment, the AI-powered English Speaking Coach was implemented over a ten-week period. During this phase, participants engaged with the AI-powered English Speaking Coach, which provided personalized guidance, feedback, and support. The AI-powered English Speaking Coach's interactions were systematically logged and analyzed to track engagement, usage patterns, and immediate feedback. This period was pivotal in observing how the AI-powered English Speaking Coach influenced learning behaviors and outcomes.

5) Post-assessment (Week 12): After the implementation phase, a post-assessment was conducted in week 12. This assessment measured any changes or improvements in the participants' performance and attitudes compared to the baseline data collected during the pre-assessment. The post-assessment results were critical in determining the effectiveness of the AI-powered English Speaking Coach in achieving the desired educational outcomes.

6) Surveys (Week 7 and Week 14): To gather quantitative data and capture participants' perceptions and experiences, surveys were administered at two points: mid-implementation (week 7) and post-implementation (week 14). The mid-implementation survey provided insights into the participants' ongoing experiences and any immediate feedback they had. The post-implementation survey offered a comprehensive view of the participants' overall experience with the AI coach, highlighting strengths, areas for improvement, and the perceived impact on their learning journey.

7) Interviews (Weeks 13-14): In-depth interviews were conducted between weeks 13 and 14 to supplement the qualitative data with rich, qualitative insights. These interviews allowed for a deeper exploration of the participants' experiences, challenges, and successes with the AI-powered English Speaking Coach. The interviews provided a nuanced understanding and context to the survey and assessment data, helping to paint a complete picture of the AI-powered English Speaking coach's impact.

This structured timeline ensured a thorough and balanced approach to data collection, combining quantitative assessments with qualitative feedback to comprehensively evaluate the AI-powered English Speaking Coach's effectiveness.

V. RESULTS

A. Statistical Analysis

As shown in Table 1, a detailed summary of the pre-test and post-test scores of 30 participants in the study on the impact of an AI-powered English Speaking Coach within the EDSY Program at a Thai private university. The table highlights individual score improvements, showcasing the effectiveness of the AI tool in enhancing English language proficiency and communication skills.

Table 1: A detailed summary of the pre-test and post-test scores of 30 participants

No.	Pre-Test	Post-Test	Difference
1	4.66	8.54	3.88
2	1.56	9.73	8.17
3	7.78	11.07	3.29
4	7.81	11.14	3.33
5	8.96	11.28	2.32
6	8.58	11.42	2.84
7	9.24	11.50	2.26
8	8.79	11.79	3.00
9	9.30	11.82	2.52
10	9.52	11.92	2.40
11	9.41	11.98	2.57
12	9.97	12.06	2.09
13	10.24	12.12	1.88

Table 1: A detailed summary of the pre-test and post-test scores of 30 participants (Cont.)

No.	Pre-Test	Post-Test	Difference
14	9.37	12.16	2.79
15	9.95	12.19	2.24
16	9.72	12.20	2.48
17	9.84	12.26	2.42
18	10.21	12.31	2.10
19	9.88	12.36	2.48
20	9.66	12.40	2.74
21	9.72	12.43	2.71
22	9.84	12.45	2.61
23	6.28	12.52	6.24
24	10.35	12.74	2.39
25	9.36	14.61	5.25
26	11.06	13.20	2.14
27	12.56	14.78	2.22
28	12.48	14.87	2.39
29	10.89	15.41	4.52
30	10.17	12.51	2.34
Total Mean	9.24	12.26	3.02
Total scores	277.16	367.77	-
Total SD	2.10	1.38	-

The table illustrates individual score improvements, highlighting the effectiveness of the AI tool in enhancing English language proficiency and communication skills among the participants.

The participants' scores are listed sequentially from 1 to 30, with corresponding pre-test and post-test scores, as well as the difference between these scores. These differences range from 1.88 to 8.17, indicating varying degrees of improvement in English language skills after engaging with the AI-powered coach.

The total mean pre-test score is 9.24, while the total mean post-test score is 12.26, reflecting an average improvement of 3.02 points across all participants. This statistically significant improvement underscores the beneficial impact of the AI-powered coach on language proficiency within the study group.

Furthermore, the table includes total scores and standard deviations (SD) for both pre-test and post-test assessments. The total pre-test score sums up to 277.16, with a standard deviation of 2.10, while the total post-test score amounts to 367.77, with a slightly reduced standard deviation of 1.38. These statistics provide additional insights into the distribution and variability of scores within the participant cohort.

Overall, the table serves as a quantitative representation of the positive outcomes observed in the study, demonstrating how the AI-powered English Speaking Coach effectively contributed to enhancing participants' English language skills as measured by pre-test and post-test assessments.

Table 2: The performance of 30 participants across different thematic units

Unit	Fluency (%)	Pronunciation (%)
Welcome	91	94
Everyday life	80	85
Let's go shopping	87	82
Housing	83	80
Our community	87	85
Work, work, work	83	82
Total	**511**	**508**
Average	**85.17**	**84.67**

The table of the performance of participants across different thematic units within the AI-powered English Speaking Coach program integrated into the EDSY Program at a Thai private university. The metrics evaluated are fluency and pronunciation, two critical aspects of language proficiency. Each unit corresponds to a different thematic focus within the language learning curriculum.

The table presents an overview of participant performance across various thematic units within the AI-powered English Speaking Coach program implemented in the EDSY Program at a Thai private university. The metrics evaluated include Fluency % and Pronunciation %, which are essential indicators of language proficiency and communication skills development.

Each thematic unit represents a distinct focus area within the language learning curriculum. Participants' performance metrics in Fluency % and Pronunciation % are recorded for each unit as follows: Welcome (91%, 94%), Everyday life (80%, 85%), Let's go shopping (87%, 82%), Housing (83%, 80%), Our community (87%, 85%), and Work, work, work (83%, 82%).

The "Total" row aggregates the cumulative scores across all thematic units, showing a total of 511% for Fluency and 508% for Pronunciation. The "Average" row calculates the mean scores across all thematic units, resulting in an average Fluency % of 85.17% and an average Pronunciation % of 84.67%.

These metrics provide a comprehensive assessment of participants' proficiency levels in fluency and pronunciation within different thematic contexts of the AI-powered English Speaking Coach program. The table underscores the program's effectiveness in enhancing language skills across diverse thematic areas, contributing valuable insights into the educational outcomes of integrating AI technology in language learning initiatives at the university level.

Table 3 shows the performance metrics of participants using the AI-powered English Speaking Coach integrated into the EDSY Program at a Thai private university. Each row represents a participant's data across various performance categories: the total number of sessions completed (including retake lessons), completed lessons, pronunciation scores, fluency scores, star ratings, grammar scores, and the corresponding averages.

Table 3 provides a detailed summary of performance metrics for 30 participants utilizing the AI-powered English Speaking Coach integrated into the EDSY Program at a Thai private university. Each participant's data is presented across several key performance categories, reflecting their engagement and outcomes within the program.

Table 3: The performance metrics

Total completed session (include retake lesson)	Completed lesson (30 lessons)	Pronun-ciation	Fluency	Star	Grammar	Average pronun-ciation (%)	Average fluency (%)	Average star (5)	Average grammar
4	4	329	310	16	3	82.25	77.50	4.00	0.75
30	30	2833	2809	93	1	94.43	93.63	3.10	0.03
25	25	2329	2356	96	126	93.16	94.24	3.84	5.04
30	30	2629	2656	138	187	87.63	88.53	4.60	6.23
30	30	2777	2754	114	160	92.57	91.80	3.80	5.33
38	30	3330	3405	133	72	87.63	89.61	3.50	1.89
25	24	2301	2383	112	45	92.04	95.32	4.48	1.80
30	30	2676	2665	118	153	89.20	88.83	3.93	5.10
31	30	2749	2720	136	185	88.68	87.74	4.39	5.97
1	1	96	97	4	4	96.00	97.00	4.00	4.00
30	30	2707	2575	135	248	90.23	85.83	4.50	8.27
12	12	1094	1111	47	19	91.17	92.58	3.92	1.58
30	30	2227	2143	98	50	74.23	71.43	3.27	1.67
30	30	2795	2802	143	159	93.17	93.40	4.77	5.30

Participants are identified by numerical labels, indicating the total number of completed sessions (including retake lessons), the number of completed lessons out of 30, and scores in pronunciation, fluency, star ratings, and grammar. Additionally, averages for pronunciation (%), fluency (%), star ratings (on a scale of 5), and grammar are calculated for each participant.

For instance, participant #4 completed 4 sessions, achieving 329 in pronunciation and 310 in fluency, with a star rating of 16 and a grammar score of 3. The corresponding averages are 82.25% for pronunciation, 77.50% for fluency, 4.00 stars, and 0.75 for grammar.

Overall, the table offers a comprehensive overview of individual participant performance within the AI-powered English Speaking Coach program, highlighting variability in engagement levels and proficiency outcomes across the cohort. These metrics are essential for evaluating the effectiveness of the AI-driven educational tool in enhancing language skills and achieving program objectives at a Thai private university's EDSY Program.

Table 4 presents the post-test results for participants in the EDSY Program at a Thai private university. This assessment is crucial for evaluating the effectiveness of the AI-powered English Speaking Coach in improving participants' language proficiency across different CEFR levels.

The table presents the post-test results of 30 participants from the EDSY Program at a Thai private university, focusing on their achieved scores and corresponding CEFR proficiency levels following intervention with an AI-powered English Speaking Coach. Each participant's data is identified by a numerical index (#), showcasing their post-test scores and CEFR levels.

Participants' post-test scores range from 8.54 to 15.41, indicative of varied improvements in language proficiency across different CEFR levels, namely A1 (Elementary), A2 (Pre-Intermediate), and B1 (Intermediate). For instance, participant #1 achieved a post-test score of 8.54, reflecting their proficiency at the A1 level.

Table 4: The post-test results for 30 participants

No.	Post-Test (20)	Post-Test (CEFR)	Description of CEFR Level
1	8.54	A1	Beginner
2	9.73	A1	Beginner
3	11.07	A2	Elementary
4	11.14	A1	Beginner
5	11.28	A1	Beginner
6	11.42	B1	Intermediate
7	11.50	A1	Beginner
8	11.79	A1	Beginner
9	11.82	A1	Beginner
10	11.92	A2	Elementary
11	11.98	A2	Elementary
12	12.06	A2	Elementary
13	12.12	A2	Elementary
14	12.16	A2	Elementary
15	12.19	A2	Elementary
16	12.20	A2	Elementary
17	12.26	B1	Intermediate
18	12.31	A2	Elementary
19	12.36	A1	Beginner
20	12.40	A1	Beginner
21	12.43	A2	Elementary
22	12.45	B1	Intermediate
23	12.52	B1	Intermediate
24	12.74	B1	Intermediate
25	14.61	A2	Elementary
26	13.20	B1	Intermediate
27	14.78	A1	Beginner
28	14.87	A2	Elementary
29	15.41	A1	Beginner
30	12.51	A2	Elementary

Table 4 serves as a critical evaluation tool for assessing the effectiveness of the AI-powered English Speaking Coach in enhancing participants' language skills within the EDSY Program. It provides a clear snapshot of individual performance improvements post-intervention, thereby facilitating insights into the program's impact on language proficiency development across distinct CEFR levels among participants at a Thai private university.

Table 5: Comparison of the pre-test and post-test results for 30 participants

EDSY Program Method	N	$\bar{X}$	SD	t	Sig.
Pre-test	30	9.24	2.10	22.728	.000**
Post-test	30	12.26	1.38		

**Statistically Significant Differences at 0.05 level*

Table 5 presents a comparison of pre-test and post-test results for 30 participants who utilized the AI-powered English Speaking Coach within the EDSY Program at an academic institution. The pre-test scores have a mean of 9.24 with a standard deviation (SD) of 2.10, while the post-test scores show a mean of 12.26 with an SD of 1.38.

The comparison utilizes statistical analysis to determine the significance of the improvement observed. The t-value, calculated as 22.728, indicates a highly significant difference between pre-test and post-test scores. This difference is statistically significant at the 0.05 level, denoted by the asterisks (**), suggesting that the improvement in participants' language proficiency, measured by the AI-powered English Speaking Coach, is not due to random chance but likely attributable to the intervention itself.

This table serves to quantitatively demonstrate the effectiveness of the AI-powered English Speaking Coach in enhancing participants' language skills within the EDSY Program. It underscores the program's success in achieving measurable improvements in participants' English proficiency, substantiating the value of integrating AI technology in language learning interventions.

B. Results from Survey (Quantitative data)

Table 6: Summary of student feedback on AI-powered English speaking coach

Question	Response Summary
Usage Frequency	Daily (20), Weekly (30), Occasionally (40), Rarely (10)
Ease of Use (Scale 1-5)	Mean = 4.20
Helpfulness of Feedback	Not at all helpful (10), Slightly helpful (20), Moderately helpful (30), Very helpful (25), Extremely helpful (15)
Personal Progress	No improvement (5), Slight improvement (15), Moderate improvement (30), Significant improvement (30), Outstanding improvement (20)
Suggestions for Improvement	Additional interactive exercises (40), Better voice recognition (30), More varied content (20), Enhanced user interface (10)

Table 6 presents a comprehensive analysis of student feedback on an AI-powered English-speaking coach, focusing on several key dimensions: usage frequency, ease of use, helpfulness of feedback, personal progress, and suggestions for improvement.

1) Usage Frequency: Students utilize the AI coach with varying frequencies. A significant proportion, 40% of respondents, use the tool occasionally, indicating it serves as supplementary learning. Weekly usage stands at 30%, suggesting consistent engagement, while daily use is reported by 20% of students. Only 10% of respondents rarely use the tool, indicating it complements rather than replaces traditional learning methods.

2) Ease of Use: Students generally find the AI coach highly user-friendly, giving it an average rating of 4.20 on a 1-5 scale. This rating reflects its intuitive interface and effective design, accommodating users with diverse technological proficiencies.

3) Helpfulness of Feedback: Feedback from the AI coach is critical for student learning. Responses varied widely: 10% found the feedback “Not at all helpful,” while 20% found it “Slightly helpful.” A majority responded more positively, with 30% considering it “Moderately helpful,” 25% finding it “Very helpful,” and 15% rating it “Extremely helpful.” These findings suggest generally positive reception, but also indicate room for enhancement to increase its perceived value.

4) Personal Progress: Assessment of personal progress using the AI coach showed varied outcomes. A minority, 5%, reported no improvement, while 15% noted slight improvement. The majority experienced positive results: 30% reported moderate improvement, 30% significant improvement, and 20% outstanding improvement. These results underscore the tool’s potential to significantly benefit users, particularly with consistent and effective usage.

5) Suggestions for Improvement: Students provided clear suggestions for enhancing the AI coach. The most frequent request, from 40% of respondents, was for additional interactive exercises, highlighting a desire for more engaging learning activities. 30% suggested improvements in voice recognition accuracy and responsiveness. 20% desired more varied content, indicating a need for diverse topics. Lastly, 10% recommended an enhanced user interface to improve overall user experience.

In conclusion, the survey reveals strengths in user-friendliness and positive impact on speaking skills. However, there is a clear call for enhancements in interactive exercises, voice recognition, content variety, and user interface. Addressing these areas could maximize the AI coach’s effectiveness and user satisfaction, further solidifying its role as a valuable tool for English language learners.

Table 7: Perception surveys on the impact of ai-powered English speaking coach on language learning and career preparedness

Questions	Response Summary
Perceived Impact on Language Learning	Positive impact (60), Neutral (20), Negative impact (20)
Application in Specific Career Contexts	Not at all prepared (10), Slightly prepared (20), Moderately prepared (30), Very prepared (25), Extremely prepared (15)
Integration with EDSY Program Objectives	Not aligned at all (5), Slightly aligned (10), Moderately aligned (20), Well aligned (40), Perfectly aligned (25)
Confidence in Career Communication	Mean rating = 4.10
Impact on Career Aspirations	No impact (5), Slight impact (15), Moderate impact (30), Significant impact (30), Major impact (20)

Table 7 provides a comprehensive analysis of students’ perceptions regarding the AI-powered English-speaking coach and its impact on their language learning and career readiness, expressed in percentages across several key areas.

Perceived Impact on Language Learning: The majority of students, accounting for 60%, reported a positive impact of the AI coach on their language learning. However, 20% of students felt neutral about its impact, and another 20% perceived a negative impact. These findings highlight both the effectiveness of the AI tool for many students and the variability in its impact across different users.

Application in Specific Career Contexts: When considering its application in specific career contexts, the survey revealed that 45% of students felt either “Not at all prepared” (10%) or “Slightly prepared” (20%). Conversely, a significant portion of students, totaling 55%, reported feeling prepared to various degrees: 30% were “Moderately prepared,” 25% felt “Very prepared,” and 15% considered themselves “Extremely prepared.”

This indicates room for improvement in aligning the AI coach more closely with career-specific needs.

Integration with EDSY Program Objectives: In terms of alignment with EDSY program objectives, the majority of students found the AI coach aligned well or perfectly: 40% reported it as "Well aligned," and 25% as "Perfectly aligned." However, 35% of students perceived varying degrees of misalignment: 20% found it "Moderately aligned," 10% "Slightly aligned," and 5% "Not aligned at all." These results suggest generally positive alignment while indicating opportunities for enhancing integration.

Confidence in Career Communication: Regarding confidence in career communication, the AI coach received a mean rating of 4.10 on a scale of 1 to 5, indicating a strong positive impact across the surveyed students, corresponding to approximately 82% confidence in their career communication abilities.

Impact on Career Aspirations: In terms of career aspirations, the survey revealed that the AI coach significantly influenced students: 30% reported a moderate impact, 30% a significant impact, and 20% a major impact on their career aspirations. However, 25% of students felt either no impact (5%) or only a slight impact (15%). These findings underscore the substantial influence of the AI coach on shaping students' professional goals while also highlighting areas where further enhancement may be beneficial.

In summary, the survey results provide valuable insights into the AI-powered English-speaking coach's impact on language learning and career preparedness, emphasizing its positive influence on student confidence and career aspirations. While many students benefit from its usage, there are opportunities for improvement in aligning it more closely with specific career needs and enhancing overall integration with educational program objectives. Addressing these aspects could further optimize the tool's effectiveness in supporting students' academic and professional development.

C. Results from Discussion (Qualitative Data)

Results from the focus group discussions with EDSY Program students regarding the AI-powered English Speaking Coach revealed a variety of insights based on participants' experiences and perceptions.

1) Introduction: Participants introduced themselves, stating their majors and academic years within the EDSY Program.

2) Perception of AI-Powered English Speaking Coach: Initial thoughts and feelings about the AI-powered coach varied. Responses included curiosity, skepticism, excitement, or interest in technology-driven learning tools.

3) Usage Patterns and Preferences: Frequency of use varied from daily to occasional, influenced by motivations such as improvement goals, course requirements, or personal interest. Discouraging factors included interface complexity or time constraints.

4) Effectiveness in Language Learning: Participants expressed varying degrees of effectiveness in improving spoken English skills. Factors like pronunciation, fluency, vocabulary enhancement, and personalized feedback influenced their perceptions.

5) Challenges Encountered: Common challenges included technical issues, difficulty in understanding feedback, or adjusting to AI-driven learning methods compared to traditional classroom settings.

6) Integration with EDSY Program: Opinions on integration ranged from seamless alignment with program objectives to suggestions for better integration into existing curriculum and learning methodologies.

7) Peer Interaction: Peer interaction influenced usage patterns and perceptions positively through shared learning experiences or negatively due to contrasting opinions on the effectiveness of the AI coach.

8) Comparisons with Traditional Teaching Methods: Participants compared the AI-powered coach with traditional teaching methods in terms of engagement, effectiveness in skill development, and personal learning preferences.

9) Impact on Communication Skills: Instances where participants noticed improvements in communication skills, both in academic and real-world contexts, were shared, highlighting specific examples of skill development.

10) Career Relevance: Perceptions on how the AI-powered coach prepared them for career-related communication challenges, including specific industries or professional contexts, were discussed.

11) Suggestions for Improvement: Recommendations for enhancing the AI-powered coach included interface improvements, additional features (like real-time conversation simulations), or integration with career-oriented language skills.

These findings provide valuable qualitative data on the acceptance, challenges, and potential improvements of integrating AI technology into language learning within the EDSY Program at a Thai private university.

VI. DISCUSSION

The integration of an AI-powered English Speaking Coach within the EDSY Program at a Thai private university has yielded significant insights into its effectiveness and implications for language learning. This discussion synthesizes findings related to language proficiency enhancement, thematic analysis of language competencies, participant feedback on usability and effectiveness, and implications for educational practice.

A. Enhancement of Language Proficiency

Our study demonstrates a notable improvement in participants' language proficiency following engagement with the AI-powered coach. Several studies (Thannachkorn Sirirojjananan, 2023; Alhalangy & AbdAlgane, 2023) reported enhanced language learning outcomes through AI integration, our results indicate an average increase of 3.02 points in post-test scores across various CEFR proficiency levels. This underscores the AI coach's efficacy in providing personalized language learning experiences, aligning with prior research on AI technologies in educational settings (Ahmadi, 2018; Schif, 2021).

B. Thematic Analysis of Language Competencies

Thematic analysis of participant performance reveals consistent strengths in fluency and pronunciation across diverse thematic units. The AI coach effectively addresses specific language competencies crucial for academic and professional contexts, supporting assertions from Ebadi and Ebadijalal (2020) regarding AI's role in targeted skill development. Participants consistently achieved high scores, indicating improved speaking abilities and confidence, echoing findings on AI's impact on language skills (Guo et al., 2022; Kim et al., 2019).

C. Participant Feedback on Usability and Effectiveness

Participant feedback reflects high satisfaction and usability of the AI-powered coach, highlighting its user-friendly interface and effective learning support. Such positive reception is crucial for AI integration success in educational contexts (Haristiani, 2019; Zhou & Li, 2023). Suggestions for enhancement, such as integrating additional interactive exercises and improving voice recognition, resonate with ongoing improvements in AI technology (Ali et al., 2023; Jiang, 2022).

D. Implications for Educational Practice

The study's findings hold several implications for educational practice. Integrating AI technologies into language learning curricula can enhance proficiency and readiness for global communication (Ghafar et al., 2023; Kim, 2016). Ongoing evaluation and adaptation of AI tools based on user feedback are critical to optimize learning experiences (Kushmar et al., 2022; Mukhallafi, 2020). These insights align with broader trends in educational technology adoption and underscore AI's potential to revolutionize language education (Fitria, 2021; Tanjung, 2018).

In conclusion, this study underscores AI's transformative role in enhancing language learning outcomes within higher education. By enhancing language proficiency, addressing thematic competencies, and receiving positive user feedback, the AI-powered coach offers promising avenues for educational innovation and student engagement.

VI. CONCLUSION

Based on a rigorous analysis of the data derived from the investigation into the integration of an AI-powered English Speaking Coach within the EDSY Program at a Thai private university, several significant findings and implications have emerged.

Firstly, the study revealed a notable enhancement in participants' language proficiency and communication skills, as evidenced by substantial improvements in post-test scores across various CEFR proficiency levels. The observed average increase of 3.02 points underscores the efficacy of the AI-powered coach in augmenting spoken English capabilities among higher education students.

Secondly, thematic analysis of participant performance in fluency and pronunciation further corroborates the positive influence of the AI tool on specific language competencies essential for academic and professional contexts. Consistently high scores across diverse thematic units attest to the program's capacity to cater to varied language learning needs and enhance overall communicative effectiveness.

Additionally, participant feedback gleaned from surveys reflects predominantly favorable perceptions of the AI-powered coach, with a majority indicating frequent utilization and high user-friendliness. Constructive suggestions for refinement, such as integrating additional interactive exercises and enhancing voice recognition capabilities, provide valuable insights for optimizing future implementations of comparable AI-driven educational technologies.

In summary, this research contributes substantively to the discourse surrounding the integration of AI in higher education language learning environments. By illuminating the transformative impacts of AI on linguistic proficiency and professional preparedness, the study not only informs educational policy and curriculum development but also underscores AI's potential to revolutionize global learning paradigms. As educational institutions navigate the complexities of incorporating technology into pedagogical strategies, the findings of this study offer practical guidance for maximizing the educational benefits of AI in fostering linguistic competence and equipping students to meet the challenges of a globalized workforce.

VII. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Despite its contributions, this study has limitations, including its focus on a specific university context and limited sample size. Future research could explore AI's long-term impact on language proficiency and its integration into broader educational frameworks (Seven, 2020). Investigating AI's effects on other language skills, such as writing and listening, would provide comprehensive insights into its educational potential (Qoʻshbaqova et al., 2023). Additionally, comparative studies across diverse educational settings could enhance understanding of AI's universal applicability in language learning (Yingsoon, 2021; Ali, 2020).

REFERENCES

Ahmadi, M. R. (2018). The use of technology in English language learning: A literature review. *International Journal of Research in English Education, 3*(2), 115–125.

Alhalangy, A. G. I., & AbdAlgane, M. (2023). Exploring the impact of AI on the EFL context: A case study of Saudi universities. *Journal of Intercultural Communication, 23*(2), 41–49. doi:10.36923/jicc.v23i2.125

Ali, J. K. M., Shamsan, M. A., Hezam, T. A., & Mohammed, A. A. Q. (2023). Impact of ChatGPT on learning motivation. *Journal of English Studies in Arabia Felix, 2*(1), 41–49. doi:10.56540/jesaf.v2i1.51

Ali, Z. (2020). Artificial intelligence (AI): A review of its uses in language teaching and learning. *IOP Conference Series: Materials Science and Engineering*, *769*(1), 012043. doi:10.1088/1757-899X/769/1/012043

Dai, K., & Liu, Q. (2024). Leveraging artificial intelligence (AI) in English as a foreign language (EFL) classes: Challenges and opportunities in the spotlight. *Computers in Human Behavior*, *159,* 012043. doi:10.1016/j.chb.2024.108354

de la Vall, R. R. F., & González Araya, F. (2023). Exploring the benefits and challenges of AI-language learning tools. *International Journal of Social Sciences and Humanities Invention*, *10*(01)*,* 7569–7576. doi:10.18535/ijsshi/v10i01.02

Ebadi, S., & Ebadijalal, M. (2020). The effect of Google Expeditions virtual reality on EFL learners' willingness to communicate and oral proficiency. *Computer Assisted Language Learning*, *35*(8), 1975–2000. doi:10.1080/09588221.2020.1854311

Fitria, T. N. (2021). The use technology based on artificial intelligence in English teaching and learning. *ELT Echo: The Journal of English Language Teaching in Foreign Language Context*, *6*(2), 213–223. doi:10.24235/eltecho.v6i2.9299

Ghafar, Z. N., Salh, H. F., Abdulrahim, M. A., Farxha, S. S., Arf, S. F., & Rahim, R. I. (2023). The role of artificial intelligence technology on English language learning: A literature review. *Canadian Journal of Language and Literature Studies*, *3*(2), 17–31. doi:10.53103/cjlls.v3i2.87

Guo, K., Wang, J., & Chu, S. K. W. (2022). Using chatbots to scaffold EFL students' argumentative writing. *Assessing Writing, 54*, 100666. doi:10.1016/j.asw.2022.100666

Haristiani, N. (2019). Artificial intelligence (AI) chatbot as language learning medium: An inquiry. *Journal of Physics: Conference Series*, *1387*(1), 012020. doi:10.1088/1742-6596/1387/1/012020

Jiang, R. (2022). How does artificial intelligence empower EFL teaching and learning nowadays? A review on artificial intelligence in the EFL context. *Frontiers in Psychology, 13*. doi:10.3389/fpsyg.2022.1049401

Kim, N.-Y. (2016). Effects of voice chat on EFL learners' speaking ability according to proficiency levels. *Multimedia-Assisted Language Learning*, *19*(4), 63–88.

Kim, N.-Y., Cha, Y., & Kim, H.-S. (2019). Future English learning: Chatbots and artificial intelligence. *Multimedia-Assisted Language Learning*, *22*(3), 32–53.

Kushmar, L. V., Vornachev, A. O., Korobova, I. O., & Kaida, N. O. (2022). Artificial intelligence in language learning: What are we afraid of. *Arab World English Journal Special Issue on CALL, 8*, 262–273. doi:10.24093/awej/call8.18

Mukhallafi, T. R. A. (2020). Using artificial intelligence for developing English language teaching/learning: An analytical study from university students' perspective. *International Journal of English Linguistics, 10*(6), 40–53. doi:10.5539/ijel.v10n6p40

Qo'shbaqova, D., Boltayeva, D., & Shermamatova, Z. (2023). The role of technology in language learning. *Journal of Language Pedagogy and Innovative Applied Linguistics*, *1*(4), 181–184. doi:10.1997/qtnhyr46

Rodríguez Muñoz, M. L., Pérez Gálvez, J. C., & Buyse, K. (2024). Language learning among higher education students: An analysis on motivation. *Research in Education and Learning Innovation Archives,* (32), 36–56. doi:10.7203/realia.32/27546

Schif, D. (2021). Out of the laboratory and into the classroom: The future of artificial intelligence in education. *AI & Society, 36*(3), 331–348. doi:10.1007/s00146-020-01033-8

Seven, M. A. (2020). Motivation in language learning and teaching. *African Educational Research Journal, S8*(2), S62–S71. doi:10.30918/AERJ.8S2.20.033

Soeprijanto, S., Diamah, A., & Rusmono, R. (2022). The effect of digital literacy, self-awareness, and career planning on engineering and vocational teacher education students' learning achievement. *Journal of Technology and Science Education*, *12*(1), 172–190. doi:10.3926/jotse.1434

Subasman, I., & Aliyyah, R. R. (2023). The impact of technological transformation on career choices in the STEM sector. *Jurnal Kajian Pendidikan dan Psikologi*, *1*(2), 129–142. doi:10.61397/jkpp.v1i2.94

Tanjung, F. Z. (2018). Language learning strategies in English as a foreign language classroom in Indonesian higher education context. *LLT Journal*, *21*(Suppl.), 50–68. doi:10.24071/llt.2018.Suppl2106

Thannachkorn Sirirojjananan. (2023). *Thai high school students' perception toward the use of ChatGPT in EFL classes* (Master's independent study). Retrieved from https://ethesisarchive.library.tu.ac.th/thesis/2023/TU_2023_6521042363_19106_28441.pdf

Yingsoon, G. Y. (2021). Using AI technology to support speaking skill development for the teaching of Chinese as a foreign language. In N. Chowdhury & G. Chandra Deka (Eds.), *Multidisciplinary Functions of Blockchain Technology in AI and IoT Applications* (pp. 209–227). doi:10.4018/978-1-7998-5876-8.ch010

Zhou, L., & Li, J. (2023). The impact of ChatGPT on learning motivation: A study based on self-determination theory. *Education Science and Management*, *1*(1), 19–29. doi:10.56578/esm010103

คำแนะนำสำหรับผู้เขียนบทความเพื่อลงตีพิมพ์

วารสารบริหารธุรกิจและภาษาเป็นวารสารวิชาการทางด้านบริหารธุรกิจและภาษา ของสถาบันเทคโนโลยีไทย-ญี่ปุ่น บทความที่นำเสนอจะต้องพิมพ์เป็นภาษาไทย หรือภาษาอังกฤษตามรูปแบบที่กำหนด และพร้อมที่จะนำไปตีพิมพ์ได้ทันที การเสนอบทความเพื่อพิจารณาตีพิมพ์ในวารสาร มีรายละเอียดดังนี้

1. หลักเกณฑ์การพิจารณาบทความเพื่อตีพิมพ์

1.1 เป็นบทความที่ไม่ได้อยู่ระหว่างการพิจารณาตีพิมพ์ หรือไม่ได้อยู่ระหว่างการพิจารณาของสื่อสิ่งพิมพ์อื่น ๆ และไม่เคยตีพิมพ์ในวารสารหรือรายงานการสืบเนื่องจากการประชุมวิชาการใดมาก่อนทั้งในประเทศและต่างประเทศ หากตรวจสอบพบว่ามีการตีพิมพ์ซ้ำซ้อน ถือเป็นความรับผิดชอบของผู้เขียนแต่เพียงผู้เดียว

1.2 เป็นบทความที่แสดงให้เห็นถึงความคิดริเริ่มสร้างสรรค์ มีคุณค่าทางวิชาการ มีความสมบูรณ์ของเนื้อหา และมีความถูกต้องตามหลักวิชาการ

1.3 บทความที่ได้รับการตีพิมพ์จะต้องผ่านการประเมินคุณภาพจากผู้ทรงคุณวุฒิ (Peer reviewer) อย่างน้อย 2 ท่านต่อบทความ ซึ่งผู้ทรงคุณวุฒิอาจให้ผู้เขียนแก้ไขเพิ่มเติมหรือปรับปรุงบทความให้เหมาะสมยิ่งขึ้น

1.4 กองบรรณาธิการขอสงวนสิทธิ์ในการตรวจแก้ไขรูปแบบบทความที่ส่งมาตีพิมพ์ตามที่เห็นสมควร

1.5 บทความ ข้อความ ภาพประกอบ และตารางประกอบ ที่ตีพิมพ์ลงวารสารเป็นความคิดเห็นส่วนตัวของผู้เขียน กองบรรณาธิการไม่มีส่วนรับผิดชอบใด ๆ ถือเป็นความรับผิดชอบของผู้เขียนแต่เพียงผู้เดียว

1.6 ต้องเป็นบทความที่ไม่ละเมิดลิขสิทธิ์ ไม่ลอกเลียน หรือตัดทอนข้อความของผู้อื่นโดยไม่ได้รับอนุญาต

1.7 หากเป็นงานแปลหรือเรียบเรียงจากภาษาต่างประเทศ ต้องมีหลักฐานการอนุญาตให้ตีพิมพ์เป็นลายลักษณ์อักษรจากเจ้าของลิขสิทธิ์

1.8 ต้องมีการอ้างอิงที่ถูกต้อง เหมาะสมก่อนการตีพิมพ์ ซึ่งเป็นความรับผิดชอบของเจ้าของผลงาน

1.9 บทความที่ส่งถึงกองบรรณาธิการ ขอสงวนสิทธิ์ที่จะไม่ส่งคืนผู้เขียน

2. รูปแบบการกลั่นกรองบทความก่อนลงตีพิมพ์ (Peer-review)

ในการประเมินบทความโดยผู้ทรงคุณวุฒิเป็นการประเมินแบบ Double-blind peer review คือ ผู้ทรงคุณวุฒิไม่ทราบชื่อและรายละเอียดของผู้เขียนบทความ และผู้เขียนบทความไม่ทราบชื่อและรายละเอียดของผู้ทรงคุณวุฒิ

3. ประเภทของบทความที่รับพิจารณาลงตีพิมพ์

นิพนธ์ต้นฉบับต้องเป็นบทความวิจัย ประกอบด้วย บทคัดย่อ บทนำ วัตถุประสงค์ของการวิจัย วิธีดำเนินการวิจัย ผลการวิจัย สรุปและอภิปรายผล และเอกสารอ้างอิง*

<u>หมายเหตุ</u> : บทความภาษาไทยต้องมีบทคัดย่อภาษาไทยและภาษาอังกฤษ โดยให้หน้าบทคัดย่อภาษาไทยอยู่ก่อนหน้าบทคัดย่อภาษาอังกฤษ สำหรับบทความภาษาอังกฤษไม่ต้องมีบทคัดย่อภาษาไทย

---

* เอกสารอ้างอิง เป็นการบอกรายการแหล่งอ้างอิงตามที่มีการอ้างอิงในเนื้อหาของงานเขียน

4. จริยธรรมในการตีพิมพ์ผลงานวิจัยในวารสารวิชาการ

วารสารบริหารธุรกิจและภาษา ได้คำนึงถึงจริยธรรมในการตีพิมพ์บทความ โดยจริยธรรมและบทบาทหน้าที่ของผู้เกี่ยวข้อง มีดังนี้

จริยธรรมและหน้าที่ของผู้เขียน

1. ผู้เขียนต้องเขียนบทความให้เป็นไปตามรูปแบบที่วารสารกำหนดไว้ในคำแนะนำสำหรับผู้เขียน
2. หากมีการนำข้อมูลของผู้อื่นหรือข้อมูลของผู้เขียนที่เคยตีพิมพ์ในวารสารฉบับอื่นมาใช้ ผู้เขียนต้องอ้างอิงแหล่งที่มาของข้อมูลนั้น โดยไม่ทำให้ผู้อื่นเข้าใจผิดว่าข้อมูลนั้นเป็นผลงานใหม่ของผู้เขียน
3. ผู้เขียนต้องไม่ดัดแปลงหรือบิดเบือนข้อมูล
4. ผู้เขียนต้องระบุแหล่งทุนที่สนับสนุนในการทำวิจัย (ถ้ามี)
5. ผู้เขียนต้องเปิดเผยข้อมูลเกี่ยวกับผลประโยชน์ทับซ้อนอย่างชัดเจน (ถ้ามี)

จริยธรรมและหน้าที่ของบรรณาธิการ

1. บรรณาธิการต้องดำเนินการเผยแพร่วารสารให้ตรงตามเวลา
2. บรรณาธิการต้องคัดเลือกบทความ โดยพิจารณาจากคุณภาพและความสอดคล้องของเนื้อหาบทความกับขอบเขตของวารสาร
3. บรรณาธิการต้องดำเนินการประเมินบทความอย่างเป็นธรรม ไม่ปฏิเสธการตีพิมพ์บทความโดยใช้อคติ
4. บรรณาธิการต้องไม่เปิดเผยข้อมูลของผู้เขียนบทความ และผู้ประเมินบทความแก่บุคคลอื่นที่ไม่เกี่ยวข้อง
5. บรรณาธิการต้องไม่มีผลประโยชน์ทับซ้อนกับผู้เขียน และผู้ประเมินบทความ
6. บรรณาธิการต้องใช้โปรแกรมในการตรวจสอบการคัดลอกผลงาน เพื่อป้องกันการตีพิมพ์ผลงานซึ่งคัดลอกมาจากผลงานผู้อื่น หากพบการคัดลอกผลงานของผู้อื่น บรรณาธิการต้องหยุดกระบวนการพิจารณาบทความทันที และติดต่อผู้เขียนเพื่อขอคำชี้แจง

จริยธรรมและหน้าที่ของผู้ประเมินบทความ

1. ผู้ประเมินบทความ ควรพิจารณาตอบรับการประเมินเฉพาะบทความที่สอดคล้องกับความเชี่ยวชาญของตนเองเท่านั้น เพื่อให้บทความที่ตีพิมพ์มีคุณภาพ
2. ผู้ประเมินบทความควรประเมินบทความให้แล้วเสร็จตามระยะเวลาที่กำหนด เพื่อไม่ให้บทความที่ผ่านการพิจารณาตีพิมพ์ล่าช้า
3. ผู้ประเมินควรประเมินบทความโดยให้ข้อเสนอแนะตามหลักวิชาการเท่านั้น ไม่ควรใช้ความคิดเห็นส่วนตัวที่ไม่มีเหตุผลหรือไม่มีข้อมูลรองรับ
4. ผู้ประเมินควรปฏิเสธการประเมินบทความ หากเห็นว่าตนเองอาจมีผลประโยชน์ทับซ้อนกับผู้เขียน
5. ผู้ประเมินต้องไม่เปิดเผยเนื้อหาภายในบทความให้ผู้ที่ไม่เกี่ยวข้องทราบ
6. หากผู้ประเมินเห็นว่ามีบทความอื่นที่ผู้เขียนไม่ได้กล่าวอ้างถึง แต่เป็นบทความที่สำคัญและเกี่ยวข้องกับบทความ ผู้ประเมินควรแจ้งให้ผู้เขียนกล่าวอ้างถึงบทความนั้น

5. ข้อกำหนดการจัดพิมพ์ต้นฉบับบทความ

ผู้เขียนต้องจัดพิมพ์บทความตามข้อกำหนดเพื่อให้มีรูปแบบการตีพิมพ์เป็นมาตรฐานแบบเดียวกัน ดังนี้

5.1 ขนาดของกระดาษ ให้ใช้ขนาด A4

5.2 กรอบของข้อความ ระยะห่างของขอบกระดาษ

ด้านบน 2.5 ซม. (0.98”)	ด้านล่าง 2 ซม. (0.79”)
ด้านซ้าย 2 ซม. (0.79”)	ด้านขวา 2 ซม. (0.79”)

5.3 ระยะห่างระหว่างบรรทัด หนึ่งช่วงบรรทัดของเครื่องคอมพิวเตอร์ (Single)

5.4 ตัวอักษร รูปแบบของตัวอักษรให้ใช้ TH Sarabun New

รายละเอียดต่าง ๆ ของบทความ กำหนดดังนี้

ชื่อเรื่อง (Title) ขนาด 22 **ตัวหนา** กำหนดกึ่งกลาง

ชื่อผู้เขียน (Author) ขนาด 16 ตัวธรรมดา กำหนดกึ่งกลาง ไม่ต้องใส่คำนำหน้า

สังกัด (Affiliation) ขนาด 14 *ตัวเอน* กำหนดกึ่งกลาง

E-mail ผู้ประพันธ์บรรณกิจ (Corresponding Author) ขนาด 12 ตัวธรรมดา กำหนดกึ่งกลาง

บทคัดย่อ (Abstract) จัดรูปแบบการพิมพ์เป็นแบบ **1 คอลัมน์** ชื่อหัวข้อ ขนาด 14 ***ตัวหนาและเอน*** กำหนดกึ่งกลาง ข้อความในบทคัดย่อ ขนาด 14 ตัวธรรมดา

คำสำคัญ (Keywords) ให้ใส่คำสำคัญ 3–5 คำ ซึ่งเกี่ยวข้องกับบทความที่นำเสนอ โดยให้จัดพิมพ์ใต้บทคัดย่อ เว้น 1 บรรทัดด้วยขนาด 12 คำสำคัญขนาด 14 ***ตัวหนาและเอน*** กำหนดชิดซ้าย ข้อความในคำสำคัญ ขนาด 14 ตัวธรรมดา

รูปแบบการพิมพ์เนื้อหาของบทความ

- **รูปแบบการพิมพ์เป็นแบบ 2 คอลัมน์** แต่ละคอลัมน์ กว้าง 8.2 ซม. (3.23”) ระยะห่างระหว่างคอลัมน์ 0.61 ซม. (0.24”)
- **หัวข้อหลัก** ประกอบด้วย บทนำ (INTRODUCTION) วัตถุประสงค์ของการวิจัย (OBJECTIVES) วิธีดำเนินการวิจัย (METHODS) ผลการวิจัย (RESULTS) สรุปและอภิปรายผล (CONCLUSIONS AND DISCUSSION) เอกสารอ้างอิง (REFERENCES) ขนาด 14 ตัวธรรมดา กำหนดกึ่งกลาง และมีเลขกำกับ เช่น 1) บทนำ หรือ I. INTRODUCTION เป็นต้น
- **หัวข้อรอง ระดับที่ 1** ขนาด 14 *ตัวเอน* กำหนดชิดซ้าย เมื่อขึ้นหัวข้อระดับเดียวกันหรือมากกว่าในลำดับถัดไป ให้เคาะเว้น 1 บรรทัดหลังจบเนื้อหา
- **หัวข้อรอง ระดับที่ 2** ขนาด 14 *ตัวเอน* กำหนดชิดซ้ายและเลื่อนเข้ามา 0.5 cm
- **เนื้อเรื่อง** ขนาด 14 ตัวธรรมดา
- **ชื่อตาราง** ขนาด 12 ตัวธรรมดา กำหนดกึ่งกลาง และใส่ชื่อเหนือตาราง
- **หัวข้อในตาราง** ขนาด 12 **ตัวหนา** กำหนดกึ่งกลาง เนื้อหาในตาราง ขนาด 12 ตัวธรรมดา
- **ชื่อภาพประกอบ** ขนาด 12 ตัวธรรมดา กำหนดกึ่งกลาง และใส่ชื่อใต้ภาพ
- **เนื้อหาในภาพประกอบ** ขนาด 12 ตัวธรรมดา

5.6 เอกสารอ้างอิง

5.6.1 การอ้างอิงในบทความใช้การอ้างอิงเนื้อหาในบทความ (in-text citations) ใช้การอ้างอิงแบบนาม-ปี (author-date style) และอ้างอิงโดยใช้ชื่อและนามสกุลภาษาอังกฤษเท่านั้น

5.6.2 เอกสารอ้างอิงฉบับภาษาไทยต้องแปลเป็นภาษาอังกฤษทั้งหมด โดยมีแนวทางดังนี้

1) ต้องแปลเอกสารอ้างอิงให้เป็นภาษาอังกฤษทุกรายการโดยเติมคำว่า “(in Thai)” ในเอกสารอ้างอิงที่แปลจากภาษาไทยและเขียนเอกสารอ้างอิงภาษาไทยกำกับไว้เพื่อให้ทางวารสารตรวจสอบความถูกต้องของของรายการแปล

2) การเรียงลำดับเอกสารอ้างอิง ให้เรียงลำดับรายการเอกสารอ้างอิงทั้งหมดตามตัวอักษรภาษาอังกฤษ

3) สำหรับการอ้างอิงชื่อผู้แต่งคนไทยจากเอกสารอ้างอิงฉบับภาษาไทยที่แปลเป็นภาษาอังกฤษ ให้เขียนชื่อและนามสกุลภาษาอังกฤษ

5.6.3 การอ้างอิงท้ายบทความจะต้องมีการอ้างอิงหรือกล่าวถึงในบทความให้ครบถ้วน และชื่อหัวข้อใช้รูปแบบตัวอักษร TH Sarabun New ขนาด 14 ตัวธรรมดา ในเนื้อหาขนาด 12 ตัวธรรมดา โดยใช้การอ้างอิงตามรูปแบบของ APA Style 6th Ed. (American Psychological Association)

ตัวอย่างการแปลเอกสารอ้างอิงภาษาไทยเป็นภาษาอังกฤษ

ตัวอย่างที่ 1 การอ้างอิงจากหนังสือ(Books)

ชื่อผู้แต่ง. (ปีพิมพ์). *ชื่อหนังสือ* (พิมพ์ครั้งที่ 2 เป็นต้นไป). สถานที่พิมพ์(เมือง): ชื่อสำนักพิมพ์หรือโรงพิมพ์.

Wut Sookcharoen, Pranee Nomchit, & Metha Boonpeam. (2019). Essentials of marketing research (2nd ed.). (in Thai). Bangkok: SE-Education Public Company Limited.

วุฒิ สุขเจริญ, ปราณี น้อมจิตร, และเมตตา บุญเปี่ยม. (2562). วิจัยการตลาด (พิมพ์ครั้งที่ 2). กรุงเทพฯ: บริษัท ซีเอ็ดยูเคชั่น จำกัด (มหาชน).

ตัวอย่างที่ 2 การอ้างอิงจากวารสาร (Periodicals)

ชื่อผู้แต่ง. (ปีพิมพ์). ชื่อบทความ. ชื่อวารสาร, ปีที่(ฉบับที่), หน้าแรก-หน้าสุดท้าย.

Wut Sookcharoen. (2017). Dealing with missing data (in Thai). *Romphruek Journal, 33*(2), 1–10.

วุฒิ สุขเจริญ. (2560). การดำเนินการกับข้อมูลขาดหาย. *วารสารร่มพฤกษ์, 33*(2), 1–10.

ตัวอย่างที่ 3 การอ้างอิงจากวิทยานิพนธ์ สารนิพนธ์ (Doctoral Dissertations and Master’s Theses)

ชื่อผู้แต่ง. (ปีพิมพ์). ชื่อเรื่อง. (วิทยานิพนธ์, ชื่อมหาวิทยาลัย). สืบค้นจาก URL

Wut Sookcharoen. (2017). Factors affecting the performance of salespeople (in Thai). (Master's thesis, Thai-Nichi Institute of Technology). Retrieved from http://tni.ac.th/paper=214

วุฒิ สุขเจริญ. (2560). *ปัจจัยที่ส่งผลต่อการปฏิบัติงานของพนักงานขาย*. (วิทยานิพนธ์ปริญญามหาบัณฑิต, สถาบันเทคโนโลยีไทย-ญี่ปุ่น). สืบค้นจาก http://tni.ac.th/paper=214

ทุกบทความที่ส่งเข้ามาจะมีการตรวจพิจารณาเบื้องต้นโดยกองบรรณาธิการก่อน เมื่อบทความผ่านการพิจารณาเบื้องต้นผู้เขียนจึงจะสามารถชำระเงินได้ หลังจากที่ผู้เขียนชำระเงินเรียบร้อย ทางกองบรรณาธิการจะดำเนินการส่งบทความเสนอผู้ทรงคุณวุฒิพิจารณาบทความและแจ้งผลการพิจารณาให้ผู้เขียนบทความทราบ สำหรับบทความที่ผ่านการประเมินโดยผู้ทรงคุณวุฒิแล้วจะได้รับการตีพิมพ์ลงในวารสารเพื่อเผยแพร่ต่อไป

วารสารบริหารธุรกิจและภาษา
ปีที่ 12 ฉบับที่ 2 กรกฎาคม – ธันวาคม 2567

"สร้างนักคิด ผลิตนักปฏิบัติ สร้างนักประดิษฐ์ ผลิตนักบริหาร"

คณะวิศวกรรมศาสตร์

หลักสูตรระดับปริญญาตรี

- หลักสูตรวิศวกรรมยานยนต์ (Automotive Engineering, B.Eng.: AE)
- หลักสูตรวิศวกรรมหุ่นยนต์และระบบอัตโนมัติแบบลีน (Robotics and Lean Automation Engineering, B.Eng.: RE)
- หลักสูตรวิศวกรรมคอมพิวเตอร์และปัญญาประดิษฐ์ (Computer Engineering and Artificial Intelligence, B.Eng.: CE)
- หลักสูตรวิศวกรรมอุตสาหการ (Industrial Engineering, B.Eng.: IE)
- หลักสูตรวิศวกรรมไฟฟ้า (Electrical Engineering, B.Eng.: EE)
- หลักสูตรวิศวกรรมการบูรณาการระบบดิจิทัล (Digital System Integration Engineering, B.Eng.: SE)

หลักสูตรระดับปริญญาโท

- หลักสูตรเทคโนโลยีวิศวกรรม (Engineering Technology, M.Eng.: MET)

คณะเทคโนโลยีสารสนเทศ

หลักสูตรระดับปริญญาตรี

- หลักสูตรเทคโนโลยีสารสนเทศ (Information Technology, B.Sc.: IT)
- หลักสูตรเทคโนโลยีมัลติมีเดีย (Multimedia Technology, B.Sc.: MT)
- หลักสูตรเทคโนโลยีสารสนเทศทางธุรกิจ (Business Information Technology, B.Sc.: BI)
- หลักสูตรเทคโนโลยีดิจิทัลทางสื่อสารมวลชน (Digital Technology in Mass Communication, B.Sc.: DC)
- หลักสูตรวิทยาการข้อมูลและการวิเคราะห์ข้อมูล (Data Science and Data Analytics, B.Sc.: DS)

หลักสูตรระดับปริญญาโท

- หลักสูตรเทคโนโลยีสารสนเทศ (Information Technology, M.Sc.: MIT)

คณะบริหารธุรกิจ

หลักสูตรระดับปริญญาตรี

- หลักสูตรบริหารธุรกิจญี่ปุ่น (Japanese Business Administration, B.B.A.: BJ)
- หลักสูตรการจัดการธุรกิจระหว่างประเทศ (International Business Management, B.B.A.: IB)
- หลักสูตรการบัญชี (Accountancy, B.Acc.: AC)
- หลักสูตรการจัดการทรัพยากรมนุษย์แบบญี่ปุ่น (Japanese Human Resources Management, B.B.A.: HRJ)
- หลักสูตรการตลาดดิจิทัล (Digital Marketing, B.B.A.: DM)
- หลักสูตรการจัดการการท่องเที่ยวและการบริการเชิงนวัตกรรม (Innovative Tourism and Hospitality Management, B.B.A.: TH)
- หลักสูตรการพัฒนาธุรกิจและสตาร์ตอัป (Development of Business and Start-Up, B.B.A.: DBS)

หลักสูตรระดับปริญญาโท

- หลักสูตรบริหารธุรกิจญี่ปุ่น (Japanese Business Administration, M.B.A.: MBJ)
- หลักสูตรนวัตกรรมการจัดการธุรกิจและอุตสาหกรรม (Innovation of Business and Industrial Management, M.B.A.: MBI)
  - แขนงวิชา การวางแผนกลยุทธ์สำหรับผู้ประกอบการ (Strategic Planning and Management Entrepreneur, M.B.A.: SPE)
  - แขนงวิชา การจัดการระบบการผลิต และโลจิสติกส์แบบลีน (Lean Manufacturing System and Logistics Management, M.B.A.: LMS)

คณะสื่อสารสากล

หลักสูตรระดับปริญญาตรี

- หลักสูตรภาษาญี่ปุ่นเพื่อธุรกิจระหว่างประเทศ (Japanese for International Business, B.A.: JIB)

คณะเทคโนโลยีดิจิทัลเพื่อธุรกิจอุตสาหกรรม

หลักสูตรระดับปริญญาตรี

- หลักสูตรการจัดการโลจิสติกส์และโซ่อุปทาน (Logistics and Supply Chain Management, B.B.A.: LM)

Thai-Nichi International College (TNIC)

Bachelor's Degree Programs

- สาขาวิศวกรรมดิจิทัล (Digital Engineering, B.Eng.: DGE)
- สาขาวิทยาการข้อมูลและปัญญาประดิษฐ์ (Data Science and Artificial Intelligence, B.Sc.: DSA)
- สาขาธุรกิจระหว่างประเทศและการเป็นผู้ประกอบการ (International Business and Entrepreneurship, B.B.A: IBN)

Thai-Nichi Institute of Technology

1771/1 Pattanakarn Road, Suanluang, Bangkok 10250, Thailand

Tel: 0-2763-2600 Fax: 0-2763-2700

Website: https://so06.tci-thaijo.org/index.php/TNIJournalba   E-mail: JBAL@tni.ac.th