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Editor's Note

Is Education Soft Power?

Soft power has become one of the buzzwords in our country, Thailand. What is soft power? Is education soft power too? Interesting questions, aren't they? I would like to share with you the information from my search, especially the role of education in enhancing soft power. You are most welcome to share your ideas with us.

Soft power is the term originally used in political science, especially in the context of foreign relations. Joseph Nye, Harvard University Distinguished Service Professor, in his book *SOFT POWER*, coined the term to a country's ability to influence other countries through non-coercive means. It involves shaping the preferences and obtaining desired outcomes by attracting and persuading others, rather than relying on military force or economic coercion. Cultural diplomacy is therefore an important dimension of a country's soft power.

According to Nye, the soft power of the country rests primarily on three resources:

- Its culture, in places where it is attractive to others. Culture is a set of values and practices that create meaning for a society. It has many manifestations, such as Thai Food, Creative Entertainment, Sports, Wellness, Fashion and Textile Industry, Travel & Tourism.
- Its political values, when it lives up to them at home, for example, exercising democracy, and abroad in working with others; and
- Its foreign policies, when they are seen as legitimate and having moral authority, such as promoting peace and human rights.

India, for example, Indian arts, culture, and spiritualism have attracted people from all around the world for centuries. PM. Modi of India on his second term aims to build an Asian Century on the basis of 'vikasvaad' or evolutionism that would bring peace, brotherhood, coexistence and prosperity.

How about education? Fundamentally, education socializes children into society by teaching cultural values and norms. It equips them with knowledge, skills, and character traits needed to become productive members of societies.

Is education a kind of soft power too? While it may be considered 'soft', it is also a power. It has the ability to influence the behavior or thinking of others through the power of attraction and ideas. Countries with strong education systems often have the ability to spread their values, ideas, and cultural norms globally. By providing quality education to international students, a country can shape their perceptions, build relationships, and enhance its influence in the world. Education can indeed be considered a form of soft power.

Furthermore, education can contribute to a nation's economic growth and development. Developing countries, for instance, may seek partnerships with education providers from more advanced nations to improve their educational systems and human capital. This can foster closer ties and create favorable conditions for collaboration in other areas, enhancing the soft power of the

education provider country. Nye suggested how higher education leaders might enhance the country soft power by helping to build a better understanding of the nature of power and increasing international students and cultural exchange programs.

In brief, education can be a powerful tool for countries to exert soft power, as it allows them to spread their values, build relationships, and contribute to global development. It is expected that Reinventing University Policy and Practices will enhance Thailand soft power too.

Last but not least, I wish to acknowledge the contributions of distinguished reviewers of APHEIT Journals. As always, we welcome your comments and suggestions, and wish you all the best in the year to come, 2024.

Manit Boonprasert, Ed.D.

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Managerial Guidelines for Leadership Development of Administrators in Secondary Vocational Schools under Guangzhou Province

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ABSTRACT

The purpose of this research was to propose managerial guidelines for leadership development of administrators in Secondary Vocational Schools under Guangzhou Province, the People's Republic of China. The research used a mixed methods design including quantitative and qualitative research. The key informants for in-depth interview were 19 administrators from secondary vocational schools in Guangzhou, obtained through a purposive sampling method, which were analyzed by content analysis and key informants for focus group discussion were 11 experts to verify managerial guidelines. The research findings proposed the managerial guidelines for leadership development of administrators in Secondary Vocational Schools under Guangzhou Province including: (1) Principals should improve their personal quality, enhance their professionalism, improve their moral cultivation, enhance their personal charisma, recognize their role, change their leadership concept and innovate their school philosophy; (2) Schools should improve their school hardware and software, enhance teachers' welfare, strengthen their organizational culture and innovate their school management model; (3) Education administration departments should create a good social atmosphere, improve the social status of secondary vocational school headmasters, improve the management system of headmasters, stimulate their intrinsic motivation, improve the training system of headmasters, and improve the quality of headmaster training.

KEYWORDS: Leadership development, Managerial guidelines, School administrators, Guangzhou Secondary Vocational School

Introduction

At present, Chinese secondary vocational schools are generally facing development opportunities and challenges in their operation. Headmasters are highly

valued by the state as leaders and practitioners in the development of school characteristics. As the highest decision-maker and commander in the school, the

leadership of the headmaster has a bearing on the future and destiny of the school.

Fullan, M. (2020) mention a series of policy documents have been issued on headmaster training and promoting the professional development of headmasters, building a standard system for teacher training, and creating high-quality secondary vocational school headmasters (Wei Zhang and Tetyana Koshmanova (2021). The Ministry of Education has developed the Professional Standards for Secondary Vocational School Principals (Ministry of Education, 2015). This document establishes a basic framework for professional benchmarks for leadership of secondary vocational school headmasters and refines the requirements for professional quality standards for qualified headmasters. The establishment of professional standards for headmasters is of great significance in improving the overall quality and professional competence of headmasters. In addition, the Ministry of Education has organized a number of advanced workshops for secondary vocational school headmasters in recent years. This series of initiatives confirms the importance that the state attaches to the leadership of headmasters. Akashyap, D. (2022) pointed in the improvement of headmasters' leadership skills will accelerate the development of secondary vocational schools and further improve the overall standard of school operation. Kouzes and Posner (2006) believe the local authorities should strengthen the overall management of vocational education, increase funding, formulate policies and measures, guide higher vocational institutions to actively serve the community, encourage industry and enterprises to actively participate in running schools, and promote the improvement of

the overall level of vocational education. In addition, we will gradually form a higher vocational education system with a reasonable structure, good operation, excellent quality and distinctive features. Focus on theoretical research and practical summary of higher vocational education, strengthen the publicity of the achievements of reform and development of higher vocational education, improve social recognition of higher vocational education and enhance social recognition. On this basis, we should attach great importance to building the capacity of the leadership of our vocational institutions and establish a system of rotational training to guide school leaders or school administrators to update their concepts, broaden their horizons and improve their strategic thinking and scientific decision-making abilities. The ability to cultivate talents and the quality of talent training should be taken as an important indicator to assess the leadership capacity of headmasters.

As a result of the development of policies and strategies of mechanisms for the leadership development of secondary vocational school administrators in Guangzhou province under the management guidelines model, Guangzhou with high quality school education. This study focuses on analyzing the basic situation of leadership development of secondary vocational school headmasters in Guangzhou, the capital of South China, to understand the problems they face and to make relevant recommendations based on the findings.

Purposes

Proposing a management guide for leadership development for administrators

of secondary vocational schools in Guangzhou, Guangzhou Province, China

Benefit of Research

Administrators are interested in how to improve their leadership, and according to the actual situation of the school to provide reference to the training of headmasters and improve the leadership of administrators can improve the overall leadership of secondary vocational schools.

Research Process

Step1: To study the policy and current situation for management guide for leadership development for administrators of secondary vocational schools from literature reviews and related research.

Step 2: The purpose of this section was to design an interview outline around the actual performance of headmaster leadership through in-depth interviews with 19 school principals from secondary vocational schools in Guangzhou; the 19 school principals included headmasters and administrative staff.

Step 3: The Management Guide to Leadership Development for Managers of Secondary Vocational Schools in Guangzhou was proposed and the model was validated through focus group discussions conducted by 11 experts

Population and Sample

The population was principals of secondary vocational schools in Guangzhou who were serving in the 2022 academic year and who had at least five years of experience in school management. A sample size of 19 was determined through a purposive sampling technique. The selected personnel are all principals of five secondary vocational schools in Guangzhou, including school leaders and

middle managers. All of them have bachelor's degree or above in education, and they also have more than 5 years of rich experience in managing secondary vocational schools.

Instruments

- 1) Interviews in semi-structure
- 2) Focus group discussion

Data Analysis

1) The data from the in-depth interviews were analyzed for content and frequency.

2) The focus group was moderated by the researcher and the discussion was on "Guidance and Suggestions on Improving the Leadership of Secondary Vocational School Principals in Guangzhou".

3) The experts spoke freely in the discussion on a free and voluntary basis.

Conclusion

The interview results, the researcher summarizes the contents obtained from the interviews in order the top of 3 frequencies as follows:

1. Teaching and management experience prior to becoming a headmaster

1.1 Good teaching and excellent work experience influenced to become a professional performer quickly (16)

1.2 Responsibility and hard work (11)

1.3 Competence and management skills (7)

2. Develop the administration of the school.

2.1 The school has been in operation for a long time and is large (15)

2.2 The school offers a very comprehensive curriculum (11)

2.3 The school has received many accolades (10)

3. Leadership practices are considered more successful in their approach

3.1 Focus on the quality of teaching and learning (9)

3.2 Concern for subordinates (7)

3.3 Ability to communicate externally (7)

4. Factors influencing the leadership of school administrators

4.1 Strong interpersonal and communication skills (10)

4.2 Academic qualifications (7)

4.3 External environment and related policies (6)

5. Challenges and best practices for school administrators to improve their leadership skills

5.1. Motivating staff to improve work motivation (10)

5.2. External communication skills (9)

5.3. School environment (5)

Comparison the content from literature review, related research, and in-depth interview to create components of a leadership development model for secondary vocational school headmasters in Guangzhou

Table 1: Content Analysis to create managerial guidelines for leadership development of Secondary Vocational School Headmasters in Guangzhou Province

Item	Content Analysis to create managerial guidelines		
	Input	Process	Outcome
1. Literature review	1. Leadership trait theory 2. Leadership styles and behavioural theories 3. School effectiveness theory 4. Leading the theory of change	1. Borman and Diehl's "Four Forces Framework" for organizational leadership 2. Sachovani's "Five Forces Model" of leadership in educational organizations 3. Zheng Yanxiang's "five-dimensional model" of school leadership	1. Ethical leadership 2. Values leadership 3. Structural leadership 4. Teaching leadership 5. Interpersonal leadership
2. In-depth interviews (19 Key informant)	1. experience impact quickly to be professional performance 2. Responsibility and work hard 3. Competencies and management skills 4. Strong interpersonal and communication skills 5. Motivating employees to improve their motivation at	1. classroom interaction 2. Teaching support has the highest impact on cognitive thinking 3. Focus on quality of teaching 4. Academic qualifications 5. External environment and related policies	1. Organization expression 2. Specific risk factor 3. Caring for subordinates

Item	Content Analysis to create managerial guidelines		
	Input	Process	Outcome
	work		
3. Focus group (11 experts)	1. Policy reform 2. Provide a good tool for management 3. Improving the evaluation mechanism for headmasters 4. Clarify the role of the headmaster 5. Focus the ethics of headmasters	1. Relations between school-teachers-home and society 2. Improve ability & solving problems 3. Create Learning engagement 4. Education and training departments lead the professional development of headmasters. 5. Principal trainers should become school 6. Enhancing the professionalism of headmasters	1. Emotional outcome 2. Organization expression 3. Specific risk factor 4. Quality of life 5. A supporter of long-term professional development and leadership practice.

From table 1: Content analysis to create managerial guidelines for leadership development of secondary vocational school headmasters in Guangzhou Province to propose that;

1) Enhance their professionalism principals should improve their personal qualities, improve their moral cultivation, enhance their personal charisma, recognize their roles, change their leadership concepts, and innovate their school philosophy.

2) Strengthen their organizational culture, schools should improve their school hardware and software, improve teachers' welfare, and innovate school management model.

3) Create a good social atmosphere, the education administration should improve the

social status of secondary vocational school principals, improve the principal management system, stimulate the principal's intrinsic motivation, improve the principal training system, and improve the quality of principal training.

In the role of leader include five leadership style as below.

- 1) Ethical leadership
- 2) Values leadership
- 3) Structural leadership
- 4) Teaching leadership
- 5) Interpersonal leadership

The managerial guidelines model for leadership development of administrators in secondary vocational schools under Guangzhou province to propose in the figure 1 as below.

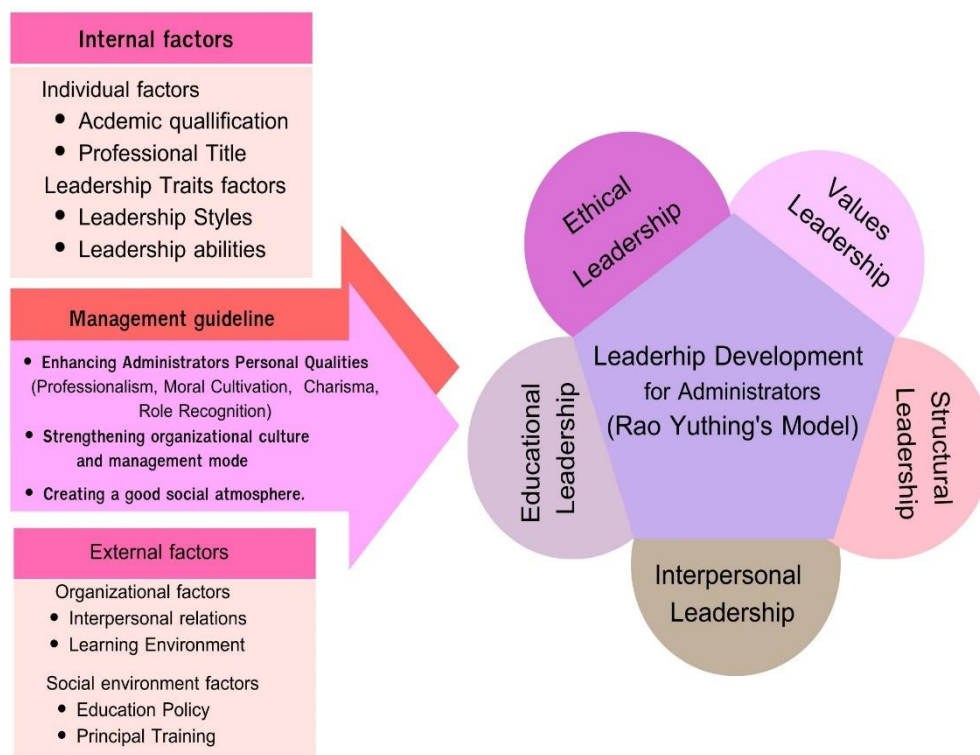


Figure 1: Managerial guidelines for leadership development of Secondary Vocational School Headmasters in Guangzhou Province

Education sector policies should be developed and educational administration to enhancing the leadership system of headmasters to ensure with managerial guidelines as below.

1) The managerial guidelines for leadership development of administrators in secondary vocational schools under Guangzhou province, the people's republic of China

(1) Principals should improve their personal qualities, enhance their professionalism, improve their moral cultivation, enhance their personal charisma, recognize their roles, change their leadership concepts, and innovate their school philosophy

(2) Schools should improve their school hardware and software, improve teachers' welfare, strengthen their

organizational culture, and innovate school management model

(3) The education administration should create a good social atmosphere, improve the social status of secondary vocational school principals, improve the principal management system, stimulate the principal's intrinsic motivation, improve the principal training system, and improve the quality of principal training.

2) Enhance a good social atmosphere and improve the social status of headmasters of secondary vocational schools the guideline from this topic as below

(1) The treatment of secondary vocational school headmasters should be improved points out that the implementation of policies such as improving the treatment of teachers in

vocational schools has achieved initial results, related the pointed of Jon L. Pierce et al. (2009) to provide strong concept to headmaster to develop themselves in the ability to achieve the process of leadership and competencies of the qualities necessary for leaders, including insight, control, and learning, as well as the ability to influence. Leadership is a special kind of interpersonal influence the same pointed of Wu Jiang (2006) act of influencing the behavior of others is called leadership, and the ability to influence the behavior to enhancing the headmasters to increasing their job satisfaction and job recognition.

(2) The headmaster's outstanding deeds should be increased. It helps headmasters to develop a positive and good image referred the same of John A. (2007) most leadership can be defined in principle as the process of interaction between leader and followers, all stakeholders, and the results that result that the same of Kouzes and Posner (2006) defines leadership as the ability of a leader to motivate employees to voluntarily achieve something in the organization including personality characteristics and behavior of the leader

3) Improve the management system of headmasters to stimulate their motivation.

(1) Establishing a sound mechanism for the appointment, selection and assessment of secondary vocational school headmasters. At present, the selection and evaluation mechanisms for headmasters of secondary vocational schools in China are not perfect, resulting in more problems for headmasters in this period. Related the pointed from E. Mark Hansen (2002) says in his monograph educational Management and Organizational Behavior about leadership

that "when one tries to carefully analyze the way in which the phenomenon of leadership is linked to its essence, people, process, and system are emphasized as three basic elements, individually or in combination, and an increasingly serious phenomenon of administration of headmasters. Therefore, the author suggests strengthening the construction of the appointment and assessment mechanism for secondary vocational school headmasters. Improve the management system of headmasters to stimulate their intrinsic motivation the same the study result of Zhang, X.J. (2005) believes that leadership to effective management as strict tenure management system for principals refers to setting a certain term of office for headmasters and determining the process of getting others to understand and agree on what must be done and how to do it effectively, as well as the process of facilitating individual and collective efforts to achieve common goals

(2) Improving the diversified evaluation mechanism for headmasters improving the multiple evaluation mechanism for headmasters will help the education administration to understand the performance of headmasters in various aspects and help them to make improvements in various aspects. In addition, it is also conducive to fully motivating headmasters and stimulating their intrinsic motivation to work the same study of Wei Zhang and Tetyana, K. (2021) to study about exploring Chinese school principal experiences and leadership practice in building a professional learning community for student achievement pointed that principals have a significant impact on student achievement and the overall learning environment in the schools they lead that pointed with current situation

of administrators to apply for study in secondary vocational school. Enhance in the role of educator, the headmaster should master the ways to guiding the same main point of Li, G.Y. (2001) to propose the strengthen the construction of vocational school teachers and school conditions, optimize and improve teaching materials and teaching methods, explore the apprenticeship system with Chinese characteristics, focus on the cultivation of students' craftsmanship and habits of excellence, moral education and evaluation of students' development; and the main point of Akashyap, D. (2022) in the role of principals, the headmaster should master the ways and means of managing the teaching staff, school assets and school finance; in the role of leader and the same pointed of Feng,D. (2020) promoting the integration of vocational education and liberal education, enhancing the adaptability of vocational education, accelerating the construction of a modern vocational education system, and training more high-quality technical personnel

Recommendation for policy

1. Education sector to enhance the headmasters' leadership.

1) Create a good social atmosphere and improve the social status of Secondary vocational school headmasters

2) Improve the management system of headmasters to stimulate their motivation

3) Improve the training system for headmasters and improve the quality of their training.

2. Policy development

1) Education administration enhancing headmasters' leadership institutional safeguards

2) Create a good social atmosphere and improve the social status of Secondary Vocational School Headmasters

3) Headmasters are an important force in promoting the development of Secondary vocational education, but the low social status of secondary vocational school headmasters is a persistent and urgent problem that needs to be addressed. In order to stabilize the headmaster corps, it is necessary to create a good and respectful social climate in order to raise the social status of secondary vocational school headmasters. The only way to truly change the existing social environment is to rely on the policy forces of society.

Recommendations for implementation.

1) Enhancement motivation to headmasters and personal improvement and professional upgrading

2) Improve moral cultivation and personal charm

3) Recognize role orientation and change leadership concept

4) Innovate school philosophy and improve school competitiveness

5) For secondary vocational schools; (1) Building a good campus environment and strengthening internal school construction (2) Upgrade the school's software and hardware and improve teachers' professionalism, (3) Leading with organizational culture and strengthening it, and (4) Innovating school management models to activate teachers' inner potential.

References

- Akashyap, D. (2022). *Top 8 Functions of Educational Administration*. Retrieved from <https://www.yourarticlelibrary.com/educational>.
- Feng, D. (2020). *Understanding China's School Leadership*. Retrieved from https://doi.org/10.1007/978-981-15-0749-6_1.
- Fullan, M. (2020). The nature of leadership is changing. *European Journal of Education*, 55(2), 139–142. <https://doi.org/10.1111/ejed.12388>.
- John Antonakis. (2007). *The Nature of Leadership*. Shanghai People's Publishing House. Shanghai.
- Jon L. Pierce. (2009). *Leadership*. Beijing: People's University of China Press.
- Kouzes J M., & Posner B Z.(2006).*The leadership challenge*. San Francisco: Jossey-Bass.
- Li, G.Y. (2001). *Leadership and productivity*. Journal of the Party School of the Guilin Municipal Committee of the Communist Party of China.
- Mark Hansen. (2002). *Educational management and organizational behavior*. Shanghai; Shanghai Education Publishing.
- Ministry of Education,China.(2022). People's Republic of China The policy in education, Retrieved from http://www.moe.gov.cn/srcsite/A10/s7151/201501/t20150112_189307.html
- Wei, Z., & Tetyana, K. (2021). Exploring Chinese School Principal Experiences and Leadership Practice in Building a Professional Learning Community for Student Achievement., *International Journal of Organizational Leadership*. 10(4), 331-347.
- Wu Jiang. (2006). *Leadership*. China Electricity Enterprise Management.
- Zhang, X.J. (2005). *Building Excellence in Leadership*. Leadership Science.

Large Language Models Like ChatGPT Bring New Challenges to Higher Education

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ABSTRACT

This paper presented the advancement of technology and the concerns about its impact on higher education. The combined emergence of Large Language Models (LLMs) and Generative Pre-Trained Transformer has resulted in applications like ChatGPT which have revolutionized higher education, offering unprecedented access to information and facilitating rapid document generation and summarization. Since the output is written in a tone that appears objective and unbiased, there is a temptation among its users to trust its quality and publish its contents verbatim despite its known propensity to hallucinate with unsubstantiated claims. At the same time, this technology raises concerns about plagiarism and the potential for individuals to claim authorship of LLM-generated content. To address these concerns, universities must work together to adapt learning assessment methods that promote responsible LLM usage to ensure academic integrity and foster deeper scholarship.

KEYWORDS: Large Language Models, AI-assisted learning, Intellectual integrity

Introduction

With the release of ChatGPT 3.5 by OpenAI in November 2022, teachers and students worldwide discovered that Large Language Models (LLMs) coupled with Generative Pre-Trained Transformers (GPT) give rise to a new and versatile technology (ChatGPT) that can tap information from a variety of resources on the internet and provide personalized assistance and learning experiences. ChatGPT has passed the Turing test (by producing output that appears to be human generated) and already outperforms many humans in numerous domains. ChatGPT 3.5 has passed standardized academic tests (such as SAT, GMAT, and the California Bar Exam) with at least a B grade or scores more than the 80th percentile. Preliminary tests with ChatGPT 4.0 suggest that the latest version significantly improves the performance over that of version 3.5.

(OpenAI, 2023d) Within one year of the launch of ChatGPT 3.5, global development based on this and similar technologies has launched over 5,000 unique apps and services (Futurepedia, 2023) which can access one or more of the nearly 16,000 LLMs that are currently available. (Gao, 2023). All this rapid development signals the dawn of a new era of AI applications and smart computers. This paper attempts to trace the key milestones that have led to this development, explores the massive changes this technology will bring to higher education, and makes recommendations to promote fairness and effectiveness as human interact with this technology.

The Development of Language Models

ChatGPT, and other apps like it, relies on large language models created from a

massive collection of documents that has been restructured to represent all the ways a language has been used while also linking the key concepts together. The resulting LLMs can be used to interpret questions, identify key points, and model the style of reports to be generated. This is the result of over a century of research and development starting with the earliest attempts at developing language models by Andrey Markov, a Russian mathematician, who demonstrated in 1913 a statistical pattern where the measured probabilities of transitions between possible subsequent steps could be used to predict the next most-likely step within a network of concepts or ideas. (Markov, 1913)

When Markov chains are applied as a model to describe sequences of words in sentences, the selection of the next word is based on the probability of words in observed word sequences. Even though this level of Markov processing did not consider the part of speech or position within a sentence, it could suggest the most-likely word to follow and calculate the likelihood of the resulting sentence. This can be demonstrated with the following toy Markov chain that represents the interaction between the 9 words in the first 6 sentences of McGuffey's Eclectic Primer. (McGuffey, 1909)

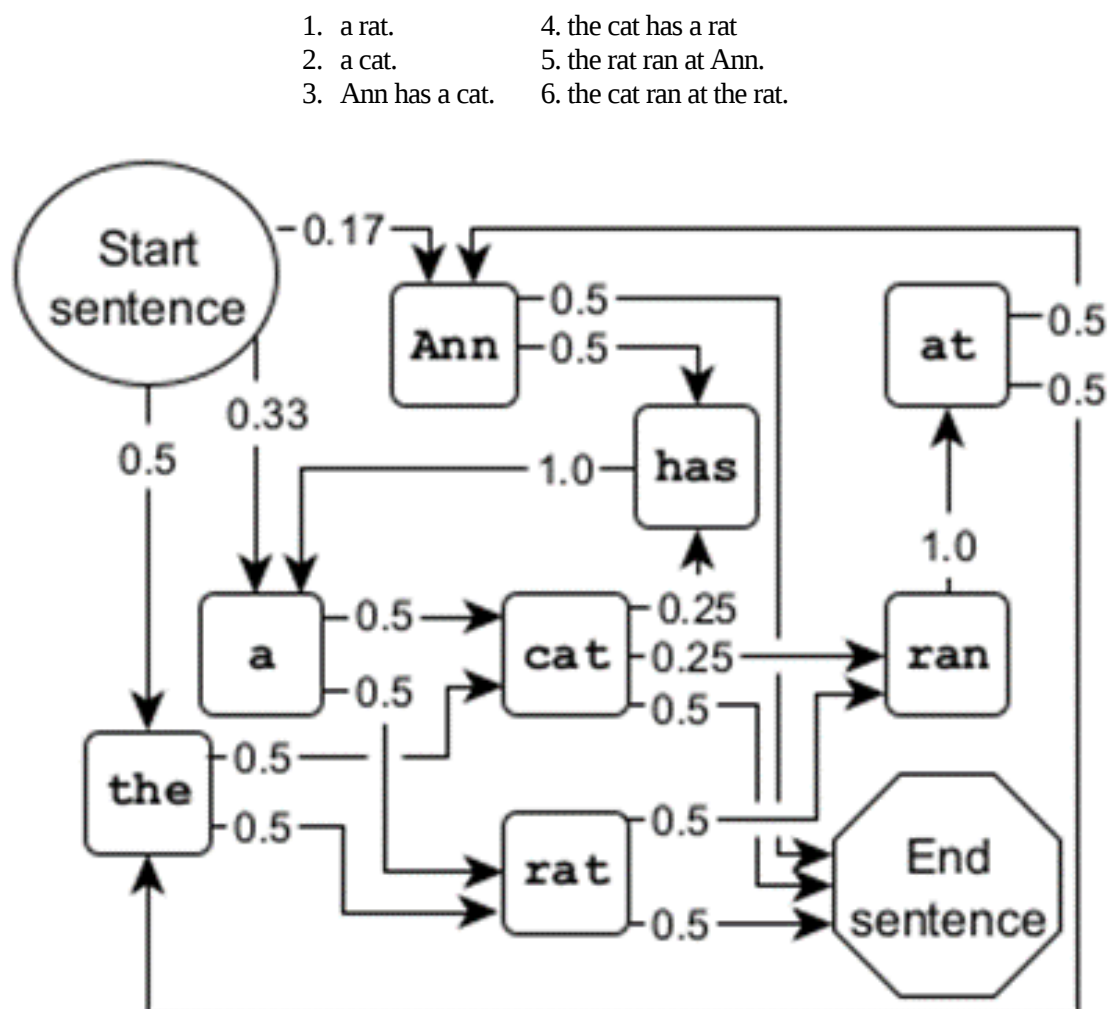


Figure 1. Markov chain that represents the first 6 sentences of McGuffey's Eclectic Primary Reader. (Numbers represent the probability of being the next link).

The corresponding Markov chains are shown in Figure 1 and sample sentences generated from this chain are shown in Table 1. This model can reproduce the original sentences, but it also generates many other grammatically correct but unsubstantiated statements (such as "Ann has a rat"). This kind of response is often called a hallucination as

the message is written with authority and sounds correct, but the content is based on a misapplication of the facts. At the same time, this model can also generate an infinite number of nonsense and / or ungrammatical word sequences. More rules and contextual information were needed to make this approach practical.

Table 1. Some sample sentences generated by the Markov chain shown in Fig.1.

Score	Text of the Sentence
<i>Original Sentences</i>	
0.08250	a rat.
0.08250	a cat.
0.06250	the cat has a rat.
0.04250	Ann has a cat.
0.03125	the rat ran at Ann.
0.01719	the cat ran at the rat.
<i>Plausible but unverified sentences</i>	
0.02125	Ann has a rat.
0.01563	the cat ran at Ann.
0.01563	the rat ran at the cat.
<i>Nonsense sentences:</i>	
0.03125	the cat has a cat
0.03125	the rat ran at the rat.
<i>Repetitions:</i>	
0.00391	The cat ran at Ann has a cat.
0.00049	The cat has a rat ran at Ann has a rat.
0.00003	The cat has a rat ran at Ann has a rat ran the cat has a cat has a rat.

In the 1950s and 1960s, researchers began to develop more sophisticated language models using machine-learning techniques. One notable early model was the perceptron algorithm, (Rosenblatt, 1957) which used a neural network to learn patterns in data and classify inputs. This provided the computer with the ability to scripting rules to transform the input into questions that would attempt to engage the user in a conversation. (Weizenbaum, 1976) However, the system was designed to respond to comments in limited ways without building any model of the body of information being discussed. As seen in Table 2, conversations were often shallow, limited, and repetitive. (Wallace, 1999)

In the 1970s and 1980s, researchers developed more complex models such as Hidden Markov Models (HMMs) and context-free grammar to better establish the

explore the context and focus on the machine-generated text. Analysis of scripts of human conversions lead to the development of Eliza, a computer program designed to emulate a Rogerian psychotherapist. Eliza would accept responses from the user and apply a few

context and precise meaning of user responses. These models were used in early speech recognition and machine translation systems that could capture information from conversations with human customers within specific problem domains like booking rooms for meetings or making reservations for haircuts. By the mid-1990s, automated speech recognition systems had given rise to automated travel and hotel booking systems that could take reservations over the telephone. (Rosen, 1997) At the same time, text editing

software was expanded to support exhaustive dictionaries that contained all forms of words in the target languages.

The late 1990s saw the introduction of early speech-operated programs that would later evolve into systems like Siri, Hey! Google, and Alexis which could recognize basic oral commands, perform a task, and read out the results. The concurrent growth of the internet and the explosion of digital text data allowed researchers to develop more advanced language models based on statistical techniques and the use of large corpora to

train more effective and precise models. The introduction of the n-gram model, which compares the frequency of words within a sequence of words, gave language models the ability to gather related facts from various parts of the corpus. Comparison of these frequencies helped to improve the accuracy of responses to specific questions as well as improve attempts at translation between languages. Chatbots were introduced during this time to apply these technologies to a growing number of automated help-desk functions. Text editing software also began to check and correct basic grammatical mistakes.

Table 2. The beginning lines of a conversation with Eliza.

Speaker	Text
Eliza	Hello, I am Eliza. I am your personal therapy computer. Please tell me your problem.
Visitor	I am feeling frustrated.
Eliza	Did you come to me because you are feeling frustrated?
Visitor	I thought you could help.
Eliza	We were discussing you, not me.
Visitor	Actually, my dog is the problem
Eliza	Can you elaborate on that?
Visitor	She ran away chasing a cat and did not come back
Eliza	What does that suggest to you?
Visitor	My dog does not love me.
Eliza	I see.
Visitor	She never comes when I call.
Eliza	What do you think?
Visitor	Maybe it is hopeless
Eliza	Can't you be more positive?
Visitor	No, I am sure that my dog is being stubborn!!!
Eliza	Do you believe it is normal to be sure that your dog is being stubborn?
Visitor	Probably not
Eliza	Tell me more...
Visitor	She does this all the time
Eliza	What does that suggest to you?

Table 3. A sample ChatGPT response

Prompt: Describe how ChatGPT works and write the response in the rhyme and rhythm of Dr. Suess.
ChatGPT Response: Well hello there, my friend, don't you fret, I'm ChatGPT, here to help you yet! I'm a language model, quite grand, With a brain built by the OpenAI brand. My job is to understand what you say, And answer your questions in a helpful way. I've been trained on a lot of text, So my knowledge is vast, you can bet! When you type out your query to me, I analyze it carefully, you see. I look for patterns and key phrases, And try to understand what your request says. Then I get to work, in a flash, Using my knowledge to craft a response with panache. I'll write out an answer that's clear, And hopefully, it will bring you some cheer! So that's how I work, it's plain to see, I'm here to help you, just like a good friend should be. So whenever you need some advice, Just type out your question, it's really quite nice!

In 2010, IBM developed the Watson computer to extract textual data from the Internet in a way that could answer questions on Jeopardy, a television game show. In 2011, Brad Rutter and Ken Jennings, the all-time champions of Jeopardy, were invited to play wits against the IBM Watson. In the end, they lost to the computer. Since then, Watson has been trained on the world's body of medical data and has been used to assist medical diagnosis, improve the quality of health care, and reduce the cost of medical diagnosis and treatment in hospitals around the globe.

In the last decade, deep learning-based models such as Convolution and Recurrent Neural Networks (CNN and RNN, respectively) have become increasingly popular for language modeling tasks, reducing the size of datasets while improving their utility. CNN models have improved the learning of complex patterns resulting in spoken text that sounds

significantly more natural than earlier rule-based models. In 2020, Google announced that their speech recognition could be accomplished with preprocessed datasets in the range of 100 KBytes instead of previous services requiring processed datasets of over 5 GBytes. The smaller size made it easier and faster for Mobile and Internet of Things (IoT) devices to respond to oral commands even when offline. Adversarial machine learning techniques were also introduced to identify and deal with factors that cause misunderstandings and ambiguities, giving rise to more accurate and less ambiguous language models. At the same time, text editing software acquired the ability to test for tone, mode, and level of the language used and could suggest improvements to manuscripts that would improve the readability and acceptance of the documents produced.

Launch of ChatGPT 3.5

In November 2022, ChatGPT 3.5, an artificial intelligence (AI) chatbot

developed by OpenAI was launched for public use. This tool uses Generative Pre-trained Transformer (GPT) technology (Bubeck et al., 2023) linked to a large language model to understand the user request, gather the relevant information, transform the information, and deliver the results in various formats ranging from notes, outlines, essays, musical lyrics, and virtually any other conceivable format. (Kirmani, 2023) In less than one minute, ChatGPT can compose an essay of publishable professional quality or simulate homework in the language of a Primary 2 student depending on the expressed requirements given in the user's prompt. It can also write software in a programming language of the user's choosing. The user can also add commands to prompt ChatGPT to transform the output in various ways such as translating the output into another language, assessing the quality and completeness of the work, or setting the rhyme and rhythm to match the lyrics of a popular song or the style of a popular author, as shown in Table 3.

Using ChatGPT to write academic publications

Within 3 months of release, over 200 books were written by or partially authored by ChatGPT and sold on Amazon. (Muhammad, 2023) The basic structure of these publications was generated in response to a request for an outline of the key points of a topic and their related issues. Subsequent prompts to ChatGPT would delve into the nature of each issue until all the key issues have been thoroughly discussed and summarized. The collected responses were combined and edited into their respective sections. ChatGPT was then asked to provide the outline and questions for the chapter review sections. Even though ChatGPT 3.5 only delivered a few hundred words at a time, technical books and novels were written this piece meal fashion. More recent LLMs and apps can deliver multimodal, multipage responses. Thus, it is possible to develop an entire paper or book written in minutes with some prompting of the researcher/author. This

transforms the writing process for developing academic publications into something that resembles a conversation between colleagues engaged in an informal, brainstorming session. This innovation reduces the time and effort needed to draft research review papers, essays, and research grant proposals.

As a result, ChatGPT can be found in the heart of many online services. For example, 10Web (2023) uses the mission and vision statement to generate a full draft of an organization's multipage website, complete with relevant stock photos. Decktopus(2023) which creates a set of slides and speaker notes for a talk in response to statement of the topic, the length of time scheduled for the talk, and some a description of the target audience. ChatGPT was designed to query the LLM and generate statements as a probable sequence of ideas considered as an appropriate response to the prompt provided. This technology creates an accurate synopsis of concepts contained within a document or the large language model, but would not be expected to propose new, novel, cutting-edge applications or theories. Instead, the responses tend to represent the prevailing ideas represented in the LLM. James Donovan (2023) demonstrated this by creating discrete LLMs based on different key reference text such as Gray's Anatomy, Organic Chemistry, and The Hitchhiker's Guide to the Galaxy. As expected, the responses from each LLM reflected the expertise and tone of their respective LLM, i.e. the precision of medical autopsies, the details of a chemical engineering report. and the dark, sarcastic world-view of Douglas Adams. Using the wrong LLM would result in irrelevant, but grammatically correct responses.

Controversy over Naming ChatGPT as a Co-author

When OpenAI launched its product, they cautioned the public that their product emits text outputs that, while less capable than humans in many real-world scenarios, exhibits human-level performance on

various professional and academic benchmarks. (OpenAI, 2023c) However, the public response to ChatGPT has been overwhelming, often forcing OpenAI to waitlist new registrants until the server capacity could keep up with the demand. By January 2023, 4 papers were published in professional journals naming ChatGPT as a co-author. Elsevier and Cambridge University Press officially recognized ChatGPT as a professional-grade author. At the same time, the editors of Nature and Science took steps to exclude papers co-authored by ChatGPT in their journals. By Feb 2023, over 200 books sold online on Amazon were written by or partially authored by ChatGPT. (Muhammad, 2023) Book printers and distributors like Designrr (2023) have launched training videos, online workshops, webinars, and other support services to encourage the publication of ChatGPT output. This has sparked spirited debates to discuss the ethics, potential, and future of ChatGPT. (Lund et al., 2023) While some advocate widespread adoption to assist in the development of publications, others caution that ChatGPT's hallucinations cannot be trusted and require expert reviews to identify and prevent the harmful effects that could arise if the output were accepted. Maximizing the informational value of ChatGPT

Users of ChatGPT3.5 have quickly discovered that this tool produces very different results from that of a typical Google web search. While Google searches generate a list of appropriate websites and URLs related to the specific details contained in the query, ChatGPT works by casting a wider search for related information and summarizing the information that closely matches the requirements spelled out in the user prompt. Google works best with detailed descriptions, but ChatGPT works best with open-ended queries, especially ones that would help to build a story. Google searches return a list of references to be read and evaluated, but ChatGPT summarizes its findings in a well-written report that

contains an introduction, detailed descriptions, a summary, and a conclusion. The quality and breadth of the answers generated by ChatGPT depend on the quality of the engineering of the query prompt. ChatGPT provides optimal results when queries are posed as a conversation that leads to a response that follows a storyline, such as illustrated below:

1. Engage ChatGPT in an actual conversation instead of asking for specific information. Focusing on the reasons why encourages ChatGPT to set the information within the context of a story while a search for details will focus only on specific details.

2. Suggest queries to ChatGPT as ideas to be debated by actual characters who will test the ideas based on their respective roles. The characters could represent historical figures like Einstein or Bill Gates or specific positions within a company. This forces ChatGPT to critique the idea from different perspectives.

3. Encourage ChatGPT to tap its ability to tell stories and think creatively. Instead of asking for a specific list of facts, set a context for the answer, and let ChatGPT find the content and relate the story.

4. Encourage ChatGPT to give the broadest, complete general response before drilling down on details. This allows ChatGPT to explore the problem domain for new ideas that may not have been considered. In addition, the initial results are used as a context for subsequent queries.

5. Avoid blindly accepting the first response. Because ChatGPT will create a different response every time it is queried, mediocre responses can be challenged, and the system will attempt to correct subsequent responses appropriately. Tweaking the prompts or adding more detail can change the scope and focus of the conversation. Also, using new command words, adding adjectives, and/or varying the verb choices will elicit different responses.

Known weaknesses of ChatGPT

To the naive and casual user, ChatGPT responds with impressive speed and in assertive tone of authority. However, the developers at OpenAI have shown that the current version of ChatGPT generally scores grades around 80% on most standardized tests and exhibits several design errors. Because the technology is just 1 year old, published peer-reviewed analysis are only beginning to appear in professional journals papers. However, the developers of ChatGPT at OpenAI have published their research notes of their qualitative and quantitative evaluations of GPT-4. The results of these studies provide useful insights about the capabilities, limitations, and risks of this technology, and have helped to prioritize development efforts to build safer versions of ChatGPT. The key concern at OpenAI has been to minimize the ability of ChatGPT to produce incorrect, harmful, and/or irrelevant answers due to the various shortcomings listed below. (OpenAI, 2023d)

- Hallucinations that occur as ChatGPT renders an explanation that is not based on facts but conjecture.
- Harmful content arising from hurtful expressions, inappropriate content, racial slurs, ethnic or religious prejudices as well as bad or misapplied advice. Users are known to bait ChatGPT into making mistakes.
- Harm to representation, allocation, and quality of service arise

because LLMs amplify biases and perpetuate stereotypes.

- Disinformation and influence on operations because the authoritative and assertive tone of the output hides problems with the validity of the data and logic.
- Proliferation of conventional and unconventional weapons because ChatGPT cannot detect the intent of user queries, it is dangerous to provide detailed instructions about the manufacture and use of weapons.
- Privacy violations when sensitive data is revealed.
- Potential for risky emergent behaviors because ChatGPT cannot assess the intent of pop culture trends any response that promote dangerous activities even if they are popular Cybersecurity and Interactions with other systems are a source of concern the software could provide unintended access to information on connected systems.
- Economic impact as the system is not always sensitive to the intent of its users it could create unfair market competition.
- Acceleration in the popularity of ChatGPT escalates expectations to levels that exceed the testing and development of a safe service.
- Overreliance by users who do not critically scrutinize the output of ChatGPT.

Table 4. Shortcomings of ChatGPT Adapted from (Rangoli, 2023)

Shortcomings of ChatGPT
• ChatGPT can provide wrong answers and even lie about facts. • ChatGPT is very formal and can sound like machine-generated text. • ChatGPT just summarizes and is often not very detailed. • ChatGPT is not a human expert. • ChatGPT could be monetized. • ChatGPT report writing style can seem too wordy.

ChatGPT often fails in the role of a learned colleague or assistant because of its inability to detect its own shortcomings and unsupported claims. In addition, not everyone agrees with the style of the output. Table 4 shows the most discussed shortcomings in social media. Many of these arise because ChatGPT has been designed to tell stories and many users require training to instruct ChatGPT about their personal preferences on how stories should be told. However, some of these shortcomings arise because of deeper design weaknesses of ChatGPT.

The various weaknesses and shortcomings of ChatGPT can cause it to fail in many ways. Statistical logic can infer connections between facts that do not exist in real-life causing hallucinations. As a language model, ChatGPT is even known to fabricate and cite non-existent sources for the sake of telling the story. Lacking built-in calculator functions causes ChatGPT to guess the result of many multi-step math calculations, often with an incorrect result. In addition, ChatGPT 3.5 was trained on information gathered on 21 September 2021 and could not reference information and events that have occurred since that cutoff date. Having trademarked and copyrighted sources in the training set of information could potentially lead to legal litigation if the output violates non-disclosure agreements or other rights of intellectual property holders.

However, critics of ChatGPT have expressed concerns that ChatGPT cannot describe the logic that led to its conclusions

and cannot provide the user with the chain of inferences to explain the steps in its chain of reasoning. This makes it difficult to judge the correctness of the output, especially since the reasoning can fail in numerous ways. The current version of Bing Chat attempts to address this by providing a summary of the analysis of the prompt and hints about the key references it has used.

Despite the success of ChatGPT, OpenAI has repeatedly issued clear warnings that this is a work in progress and cannot be fully trusted. The output is clearly marked that it is provided without warranty or guarantee. OpenAI stamps all output of ChatGPT with a legal notice that warns users to carefully review and scrutinize the output for issues that might cause harm or lead to a negative impact. OpenAI goes to the extent to include this strong statement on all responses from ChatGPT:

ChatGPT may produce inaccurate information about people, places, or facts. (OpenAI, 2023b)

The Urgency for Universities to Develop Guidelines about ChatGPT

Despite OpenAI's warnings about the potential misuse of ChatGPT, its usage has grown rapidly, raising concerns about over-reliance and blind trust in its output. Recent case studies have shown that ChatGPT facilitates the process of creating reports and papers but must be scrutinized by the authors to ensure that the statements adopted from ChatGPT output conform to the findings and conclusions of their research. (Aly and Aly, 2023; Kalla and Smith, 2023) Many universities, with their

emphasis on tradition and outdated regulations, are ill-equipped to address the challenges posed by AI-driven tools. This raises the risk of exposure to harmful and fraudulent practices. At the same time, universities must foster critical thinking and collaborations between humans and machines worldwide to pursue and publish advances in understanding and knowledge in a way that ensures that breakthroughs are proven to be safe and effective, fully documented, consistently acknowledged, and fairly rewarded. (OpenAI, 2023a).

While ChatGPT has gained significant attention, it's important to remember that it's not the only AI language model available. A vibrant landscape of language models has emerged, each offering unique capabilities and tailored experiences

- Microsoft Bing (2023), Google Bard (2023a), Phind (2023), and Claude (2023) have established themselves as popular choices, each drawing upon distinct textbases to create their LLMs.

- Mobile apps continue to increase the interaction between users and language models, with Socratic (Google, 2023b) dedicated to education, ChatDS (2023) empowering data science exploration, and Colossal-AI (HPC-AI Tech, 2023) facilitating faster and more cost-effective decision-making.

- Creative frontiers are being pushed as well, with Dall-E2 (OpenAI, 2023a) harnessing GPT prompts to generate remarkably imaginative artwork.

- Recent partnerships between OpenAI and leading mathematical organizations have sparked exciting advancements in mathematical reasoning and functions that calculate solutions, drawing upon the expertise of Wolfram/Alpha (Wolfram, 2022) and Khan Academy (Khan, 2023).

- ChatGPT 4.0 has further expanded its versatility by accepting multimodal prompts, incorporating not only text but also images and audio clips to create a richer, more nuanced understanding of user intentions.

- The anticipated arrival of GPT 5 hints at a future where language models effortlessly traverse multiple modalities, comprehending and generating text, images, sound, and video. Imagine a kitchen robot, seamlessly consulting GPT 5 to identify a meal from the contents of your fridge and cabinets, and masterfully preparing the dish based on GPT 5's expertly crafted instructions. The possibilities for multimodal AI to transform our interactions with technology are boundless

ChatGPT offers a gateway to vast amounts of information, not merely providing encyclopedia-like summaries but also presenting material through dialogues, reorganizing information into novel frameworks, and testing comprehension in a manner akin to that of a mentor or a knowledgeable colleague. Despite its occasional errors, ChatGPT remains a valuable learning tool. While it can often self-correct, human expertise may be necessary to identify flaws in its reasoning. However, the independent use of ChatGPT by students raises concerns about inconsistencies in its responses and the potential for diverse sets of errors that will create a different educational experience for each student.

ChatGPT has gained popularity among faculty and students in Thailand, being perceived as a time-efficient tool for producing papers, books, and responses. Similar observations were reported by Wang in Canada (Wang, 2023). However, there is a concerning trend of omitting attribution or acknowledging the role of ChatGPT in the development of academic documents submitted for evaluation. This omission poses a risk to universities, as it could lead to the endorsement of individuals who lack a genuine understanding of the concepts they present, relying solely on technology to produce work beyond their academic capabilities. As the new LLMs continue to facilitate the creation of papers and books, the time is coming when the volume of publications is no longer an accurate reflection of the true achievement and qualifications of faculty members.

The issue lies not with the technology itself, as technology has long been instrumental in enabling and enhancing human academic performance. Calculators and computers have become indispensable tools in accounting and statistics courses, while spell checkers and grammar tools are widely used to refine the quality of written documents. Similarly, musical chord analyzers have proven valuable in composing new music. However, when technology becomes capable of producing work indistinguishable from human creations, it can tempt individuals to claim authorship of such work to reap the benefits associated with achieving such exceptional quality and excellence.

This is particularly evident in the context of student term papers, which have traditionally served as a means for students to explore topics in depth and develop mastery in specific areas. Now that ChatGPT can generate essay-length documents of high technical quality, many students mistakenly believe that term papers can be generated automatically. This misconception necessitates a reevaluation of the role and grading of term papers by instructors. To ensure the continued effectiveness of term papers as an educational exercise, clear descriptions of the expected level of scholarship and verification of cited references will be essential.

Plagiarism is already a pervasive issue in universities, and ChatGPT's ability to generate human-quality documents without detection is poised to exacerbate this challenge. ChatGPT relies on non-deterministic methods to create output that is unique for each query and renders automated plagiarism checks ineffective. Moreover, the legal concept of plagiarism may not strictly apply to ChatGPT output, as the source of the stolen ideas is a computer with no legal rights. This suggests that current anti-plagiarism rules and regulations may be unenforceable in the context of ChatGPT-generated work. Furthermore, the text base upon which ChatGPT draws may contain copyrighted materials, including patents, intellectual property, and other protected works, for which explicit permission from the copyright holders was not obtained.

Given these concerns, universities must proactively develop new rules, regulations, and incentives to promote genuine academic achievement and discourage the misuse of ChatGPT. This may involve:

- Articulate the expectations regarding the use of AI-generated content and establishing guidelines for incorporating such content into academic work.

Table 5. Suggested Roles for AI Tools in Higher Education (adapted from (Sabzalieva et al., 2023)).

Administrative assistant: where ChatGPT assists in the grant proposal and report writing and fills out forms based on the core documents of a project. Co-designer: where ChatGPT assists throughout the design process. Community engagement consultant: where ChatGPT provides strategies for effective interaction with specific target groups. Critic: where ChatGPT acts as an opponent to develop and argue ideas. Data analyst: where ChatGPT suggests themes to be tested statistical and AI methods and write the software code needed to visualize and model the data and verify the validity of the model. Data explorer: where ChatGPT provides datasets and the tools to explore and interpret its meaning. Data integrator: where ChatGPT searches the archives for relevant data and provides translation as needed. Dynamic assessor: where ChatGPT can provide educators with a profile of each student's current level of knowledge. Editor: where ChatGPT can evaluate the content and structure of a student document. Mentor: where ChatGPT acts as a guide to navigate physical and conceptual spaces.
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Motivator: where ChatGPT offers games and challenges to extend learning.

Personal tutor: where ChatGPT tutors each student and provides feedback on progress.

Research designer: where ChatGPT assists in the development of the key research questions and hypothesis.

Study buddy: where ChatGPT helps the student reflect on the meaning and application of the material being studied.

- Investing in advanced plagiarism detection tools capable of identifying AI-generated content.

- Promoting ethical AI usage by covering AI ethics education into the student curricula, emphasizing the responsible and ethical use of AI tools in academic settings.

- Rethinking assessment methods by exploring alternative assessment methods that emphasize critical thinking, problem-solving, and creative expression, (skills that AI tools cannot easily replicate).

- Rewarding genuine achievement, fostering a culture that values original thought and intellectual integrity.

Conclusion

ChatGPT and software like it represent the next wave of progress and hold out promise for engaging even more students through relevant and interesting homework assignments. Because the technology is only months old, there has been a general lack of literature to document best practices and guidelines for safe and effective use of ChatGPT in higher education. UNICEF has issued a preliminary practical Quick Start Guide for instructors and administrators compiled from the suggestions of educators from various universities around the globe. (Sabzalieva et al., 2023) The UNICEF Quick Start Guide suggests some roles for ChatGPT within institutions of higher education which have been summarized in Table 5.

ChatGPT 4 was launched to a selected number of people on 14 March 2023. This version corrected many of the shortcomings of the current version and provides access to newer data, math calculators, calculus engines, a larger text base, and the ability to generate. (OpenAI2, 2023a) In short, the potential, and

challenges associated with ChatGPT will quickly escalate. Universities cannot ignore this growing Sunami in higher education. Those that attempt to ignore these pending changes will struggle with the confusion that AI technology will bring. However, those that can harness the power and potential of this technology will learn to reduce its risks and will become leaders in the future.

In a related case study, Wang (2023) followed the adoption and use of ChatGPT by students and colleagues at Canada West University. He concluded that as long as computers increase in their computing ability, students and researchers will continue to explore the novel aspects of new AI driven information systems in a way that could facilitate novel trains of thought that could lead to new breakthroughs. However, if students only use these AI tools as mere search engines and report generators, they will miss the true power of this technology and fail to master the concepts they have retrieved. The authors of this paper feel that Universities must aspire to challenge and train their faculty and students to harness GPT and such technologies to explore and understand current information better and ask new questions that will lead to new discoveries. Failure to embrace and master such AI technologies could render many traditional universities redundant, and obsolete as the public begins to use LLMs and tools like GPT as tutors and gateways to the rapidly expanding networks of human information and understanding

Recommendation

Now that the world has had a year to experiment and use ChatGPT, the time is right for universities to think strategically about how this technology will impact the methods and scope of higher education. Strategic guidelines are needed to harness

this technology as a tool that does not undermine academic integrity but rather augments and facilitates learning and intellectual development. Organizations like the Association of Private Higher Education in Thailand are well-suited to create forums where the following 4 areas of concern can be considered and addressed.

- **Maintain the intellectual integrity of the university.** Now that machines can produce on-demand essays that sound objective and unbiased, users tend to trust the output and incorporate the output into their work unchanged. Both faculty seeking academic awards and credentials, and students seeking grades fall subject to this temptation and may unwittingly commit plagiarism and/or copyright infringement or circulate a false or unsubstantiated narrative. New measures and incentives are needed to counter this temptation.

- **Revise academic ranking rules to encourage true scholarship and achievement** Situations where individuals are ranked more by the number of papers instead of the impact of their writing are ripe for the promoting the misuse of AI tools as academic paper mills. Good research takes effort, and critical thinking to explore a subject deep enough to understand the critical principles at work and to recognize the shortcomings of raw research results. Onboarding support for new faculty members is needed to address the pressure to produce published papers without encouraging the use of shortcuts that would develop a paper mill and the loss of reputation for the institution.

- **Keep classroom experience and assignments relevant.** LLMs and interfaces like ChatGPT makes it possible for educational exercises and assignments to be dynamic and interactive in a way that promotes true learning and mastery of a subject. Foreign language conversations with LLMs can act as language tutors to

improve fluency. Students can generate their own review sheets and practice tests. LLMs can be used to evaluate and suggest improvements to written assignments. Universities would do well to explore the UNICEF recommendations for integrating these tools within their institutions (Sabzalieva, 2023) and share best practices with each other

- **Find ways to encourage transparency and honesty in professional publications.** Scholarly journals should consider including some statements about the role of ChatGPT and other AI products in the drafting and development of the articles they publish. In the spirit of full disclosure, the following section is an example of this paper's statement.

The coming months will be critical as universities work out practical and effective means of using ChatGPT to augment classroom instruction and assist in research and development and provide administrative support. As local universities experiment with implementing these roles, the authors of this paper hope that this will also lead to increased sharing and cooperation between universities both regionally and world-wide

Technology used in the development of this paper

The research for this paper was first conducted on Google and ChatGPT to identify key papers and references. The outline and content of this paper were drafted as a Markdown document developed while reading the cited documents. The analysis of the Markov chain example was taken from the output of an application one author (RPB) wrote in Ruby. Sample outputs of Eliza and ChatGPT were included as Tables 2 and 3, respectively. The manuscript was checked for grammar and spelling mistakes using Grammarly. ChatGPT was used to assess the writing quality and suggest improvements to this paper's scope.

References

- Aly, T., & Aly, A. (2023). Chat GPT in Preparation of the Scientific Papers in Spinal Cord Injuries in the Middle East?. *International Journal of Clinical Studies and Medical Case Reports* 33(4):1-5.
- Sébastien, B. Varun Chandrasekaran, Ronen Eldan, Johannes Gehrke, Eric Horvitz, Ece Kamar, Peter Lee, (2023). *Sparks of Artificial General Intelligence: Early Experiments with GPT-4*. Retrived Mar 30,2023 from <https://doi.org/10.48550/arXiv.2303.12712>.
- ChatDS. (2023). *Chatds: Your Data Science AI Expert*. Retrived May 5 ,2023 from <https://chatds.org/>.
- Designrr. (2023). *How to Convert ChatGPT Content into Best-Selling e-Books*. Retrived May 5, 2023 from <https://go2.designrr.io>.
- Donovan, J. (2023). *Seven GPTs*. Retrived Dec 4,2023 from <https://gptstore.ai/creators/user-9iTivXU2Ku3uL7FfKvuMOTNk>.
- Futurepedia. (2023). *Futurepedia: The Largest AI Tools Directory*. Retrived Dec 4,2023 from <https://www.futurepedia.io/>.
- Gao, S., & Gao, A. K. (2023). *On the Origin of LLMs: An Evolutionary Tree and Graph for 15,821 Large Language Models*. Retrived Dec 4,2023 from <https://doi.org/10.48550/arXiv.2307.09793>.
- Google. (2023). *Bard: An AI Experiment*. Retrived May 5,2023 from <https://bard.google.com/>.
- Google. (2023). *Socratic: Giving Students Help When They Need It*. Retrived May 5,2023 from <https://socratic.org/>.
- HPC-AI Tech. (2023). *Colossal-AI: Making Large AI Models Cheaper, Faster, and More Accessible*. Retrived May 5,2023 from <https://github.com/hpcaitech/ColossalAI>.
- Kalla, D. & Smith, N. (2023). Study and Analysis of Chat GPT and its Impact on Different Fields of Study. *International Journal of Innovative Science and Research Technology* 8(3). Retrived Dec 4,2023 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4402499.
- Lund, D. et al. (2023). ChatGPT and a New Academic Reality: AI-Written Research Papers and the Ethics of the Large Language Models in Scholarly Publishing. *Journal of the Association for Information Science and Technology*. Retrived May 5,2023 from <https://doi.org/10.48550/arXiv.2303.13367>.
- McGuffey, W. (2021). *McGuffey Eclectic Primer: Revised Edition*. New West Press.
- Microsoft. (2023). *Microsoft Bing Chat*. Retrived May 5,2023 from <https://www.bing.com>.
- Muhammad, Zia. (2023). *Amazon Now Has over 200 Books Written by ChatGPT*. Retrived May 5,2023 from <https://www.digitalinformationworld.com/2023/02/amazon-now-has-over-200-books-written>.
- OpenAI. (2022). *Dall-E3: Create Realistic Images and Art from a Description in Natural Language*. Retrived May 5,2023 from <https://openai.com/product/dall-e-2>.
- OpenAI. (2023). *Aligning AI with Human Intent*. Retrived May 5,2023 from <https://openai.com/safety>.
- OpenAI. (2023). *ChatGPT 4.0*. Retrived May 5,2023 from <https://openai.com/research/gpt-4>.
- OpenAI. (2023). *ChatGPT Mar 23 Version*. Free Research Preview. Retrived May 5,2023 from <https://chat.openai.com/>.
- OpenAI. (2023). *GPT-4 Technical Report*. Retrived May 5,2023 from <https://doi.org/10.48550/arXiv.2303.08774>.
- Rangoli. (2023). *Top 10 Disadvantages of ChatGPT Content*. Retrived May 5,2023 from <https://www.analyticsinsight.net/top-10-disadvantages-of-chatgpt-content/>.
- Rosen, C. (1997). *Voice Recognition to Ease Travel Bookings*. Retrived May 5,2023 from <https://www.businesstravelnews.com/More-News/Voice-Recognition-To-Ease-Travel-Bookings>.

- Rosenblatt, F. (1957). *The Perceptron, a Perceiving and Recognizing Automaton*. Project Para, CAL Rept. No. 85-460-1.
- Sabzalieva, E., & Arianna, V. (2023). *ChatGPT and Artificial Intelligence in Higher Education: Quick Start Guide*. Retrived May 5,2023 from <https://unesdoc.unesco.org/ark:/48223/pf0000385146.locale=en>.
- Wallace, M. J. (1999). *ELIZA Online: An Online Javascript Version of ELIZA*. Retrived May 5,2023 from <http://psych.fullerton.edu/mbirnbaum/psych101/Eliza.htm>.
- Wang, M. (2023). *ChatGPT: A case study*. *PDGIA Conference Proceedings - Key Themes in Higher Education sponsored by the Private Degree Granting Institutions Association*. Retrived Dec 4,2023 from <https://journal.pdgia.ca/index.php/education/article/view/10>
- Weizenbaum, J. (1976). *Computer Power and Human Reason: From Judgment to Calculation*. New York: W. H. Freeman; Company.
- Wolfram, S. (2023). *ChatGPT Gets Its 'Wolfram Superpowers'!*. Retrived May 5,2023 from <https://writings.stephenwolfram.com/2023/03/chatgpt-gets-its-wolfram-superpowers/>.

The Proposed Model for Student's Employability Enhancement in Clothing Design of Guangzhou Vocational Schools under Guangdong Province

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ABSTRACT

The objectives of this research were to propose a model for students' employability enhancement in clothing design of Guangzhou vocational schools under Guangdong province, the People's Republic of China. The study adopted mixed methods research design. Population was faculty members of five public vocational schools in Guangdong Province. The key informants included three groups obtained by purposive sampling: 21 of administrators and teachers; 20 of current students and alumni; 5 of owner of companies hiring graduate students. The experts of 9 people were invited to a focus group discussion for comments, suggestions and confirmation of the model. The instruments used for collecting data from in-depth interview were interview questions and the collected data were analyzed by content analysis with frequency. The research results found: 1) Clothing design of Guangzhou vocational schools under Guangdong province under the current situation of students' employability both skills and the ability based on competencies were to be improved including knowledge, skills, attitude, characteristics and personal qualities; 2) The proposed model for students' employability enhancement in clothing design of Guangzhou vocational schools is to focus on the policy reform in student development, cultivate smart strategy, create trust and harmonious learning environment between teachers and students.

KEYWORDS: Students' employability enhancement, Clothing design, Guangzhou Vocational School, Guangdong province

Introduction

The National People's Congress: NPC (2021) pointed in the 14th Five-Year Plan for National Economic and Social Development of the People Republic of China and the Prospective Goals for 2035 provided in-depth implementation of the strategy of manufacturing a strong country, development, and expansion of strategic emerging industries, promoting the service industry.

Prosperity and development, building a modern infrastructure system and other aspects to accelerate the development of a modern industrial system and consolidate and strengthen the foundation of the real economy. Vocational education, as the type of education most closely related to economic and social development, plays an immeasurable role in promoting the transformation and development of society, so it has received

much attention from countries around the world. In recent years, all sectors of society have generally increased their emphasis on vocational education, which has led to a fundamental change in the quality of vocational education. Pan Qiong (2021). from the initial emphasis on the scale development of vocational education to the emphasis on the connotation of vocational education today This development change also reflects the final determination of the quality concept of vocational education in my country in the new era, which is not only an emphasis on improving the quality of vocational education itself, but also an emphasis on enhancing the ability of vocational education to serve economic and social development (Zhou, B and Yang Xiaoxuan, 2019).

Vocational education, as the type of education most closely related to economic and social development, plays an immeasurable role in promoting the transformation and development of society, so it has received much attention from countries around the world. In recent years, all sectors of society have generally increased their emphasis on vocational education, which has led to a fundamental change in the quality of vocational education. From the initial emphasis on the scale development of vocational education to the emphasis on the connotation of vocational education (Jens-Henning, 2022). This development change also reflects the final determination of the quality concept of vocational education in my country in the new era, which is not only an emphasis on improving the quality of vocational education itself, but also an emphasis on enhancing the ability of vocational education to serve economic and social development (Chen Ruopu, 2019). At present, China's economy has bid farewell to the high-speed growth rate of about 10% in the past and entered a different quality

improvement and quality improvement than in the past 30 years. The new normal refer from Hong Ling. (2017) proposed development stage has abandoned the traditional old economic normal development model characterized by high growth, low efficiency, and extensive development, and the ultra-normal development characterized by ignoring economic laws and relying on investment to drive economic growth. mode, and gradually transition to a medium and low-speed growth development mode supported by high efficiency and high quality. (Wang Di.,2020). The end point of Xiaorong (2016) to finally establish the "good way" of vocational education teaching quality under the guidance of public rationality to seek in both of importance of good governance with co-governance in effective management that mean resource management work this concept of co-governance the same of Jame Strange. (2022) to according to co-governance is currently a topic of discussion, as policies such as three of party as a partnership model to support for decision-making between education institute and other groups such as central government, with a particular focus on areas relating to natural resources. Some co-governance arrangements are mandated in law through take a variety of forms including statutory bodies or trusts between the third party include organization or community in this study that mean vocational education, central government to create the new and/or policy reform to support the local government and organization or community to success the goal, and 3) local government, and/or local groups to implementing the policy from the central government to achieve effective management of an environmental or conservation resource to organization or community in this study that mean vocational education., The role that co-governance plays in modern systems to work together for

improve the quality of vocational education teaching. Xiaorong, (2016) Comparison between good governance with co-governance, The public rational logic of vocational education teaching quality governance. The demands of the practical dilemma: the practical need to improve the quality of vocational education and teaching. Why the co-governance so importance to drive the policy reform, by 2020 mention from Li Xiaoli (2020) and Li Dan. (2021) pointed a modern vocational education system that meets the requirements of the transformation of the mode of economic development and the adjustment of the industrial structure, The pointed include 1) Embodies the concept of lifelong education and coordinates the development of secondary and higher vocational education will be formed, 2) Establishing the actual demands of external adaptability, internal coordination, Promote lifelong development of the development of the modern vocational education system. 4) The perspective of the external adaptability of the modern vocational education system, the development of vocational education needs to adapt to the transformation of economic development mode, and the construction of the modern vocational education system relates to the development of the modern industrial system. 5) The role of vocational education in promoting social and economic development is mainly manifested in the fact that vocational education enables the transformation of population resources and then plays a role in economic and social development through the processing and transformation of population resources. 6) Vocational education first transforms population resources into laborers with certain knowledge and skills through the primary processing of population resources and realizes the transformation of population resources into human resources., and 7) Vocational education through the in-depth processing of human resources and the

development of advantages, enhance the accumulation of human resources themselves in the form of knowledge, skills, and values, and constantly promote the efficiency of human resources in economic development. Wang Dun. (2018) to realize the transformation of human resources into human capital. The true that vocational education is precisely through the processing of human resources and the output of human capital, to achieve the investment in economic and social soft capital (human capital), to inject fresh blood into economic development, so as to promote economic and social development. Nowadays, China's economic and social development has entered a period of deep transformation and development and will gradually form a new industrial development system, but because the development of vocational education itself is lagging behind, vocational education is still insufficient in the pace of docking industrial adjustment and economic development, resulting in vocational education is still at a shallow level in the processing of population resources, and the root cause of this problem is concentrated in the problem of vocational education and teaching, so the in-depth processing of professional talents is carried out from the level of vocational education and teaching. Connecting with the needs of economic and social development is a problem that vocational education and teaching needs to face squarely and focus on solving.

From the perspective of the research level of vocational education quality, the research on the quality of vocational education, many studies mainly focus on the quality management of vocational education from the overall level (Liu Shen, et.al.,2019). However, the research on the issue of quality management from the micro-level vocational education teaching level is slightly insufficient. Not only that, from the methodological level of improving the quality of vocational education,

many studies mainly focus on vocational schools as the core in the student development of vocational education for students' employability enhancement, and jointly establish a vocational education quality assurance system to improve the quality of vocational education. In fact, research on the quality of vocational education with the participation of multiple forces has not been discussed much, while the co-governance of the quality of vocational education and teaching has not been discussed so far. Undoubtedly, as an important branch of vocational education governance and vocational education quality governance, in-depth research on vocational education teaching quality governance is also conducive to the enrichment and improvement of the theory of education governance itself, so the research on vocational education teaching quality governance should also be valued that vocational education to focus to develop the model for students' employability enhancement in clothing design of Guangzhou vocational under Guangdong province.

Purposes

To propose a model for students' employability enhancement in clothing design of Guangzhou vocational schools under Guangdong province, the People's Republic of China.

Benefit of Research

Through research, a model for the institution to enhance student employability is developed to help schools and students improve instructional design and instructional outcomes.

Research Process

Step1: Research the policy and current situation of student employability development through literature review and content analysis of relevant research.

Step2: Design research questions for in-depth interview with informants and content analysis of collected data.

Step3: In-depth interview the informants sampled by purposive sampling, including administrators and teachers, students and alumni, employers.

Step4: The experts were 9 people to focus group discussion for comments and confirmation of a model.

Population and Sample

Population was faculty members of five public vocational school in Guangdong province in the academic year 2022. Sample for in-depth interviews with administrators and faculty, current students and alumni, and owners of corporations, totaling 46 people. The experts were 9 people to focus group discussion.

Instruments

1. Content analysis form from literature reviews and related research.
2. In-depth interviews questions to survey the opinions of the informants, and develop a managerial guidelines model for students' employability enhancement
3. Focus group for guidance and confirm a model.

Data analysis

1. Content analysis was performed on the data from in depth-interviews with frequencies.
2. From the interview with managers, the students' employability improvement ability in vocational schools was analyzed. Then researchers summarized the content obtained from the interviews in the order of the first 3 frequencies and drew conclusions
3. A draft of a model was presented to the 9 experts in the focus group as a model for education and teaching suggestions for the

development of employability enhancement of fashion design students in Guangdong vocational schools. A draft of the views of the nine experts of the focus group was finalized.

Conclusion and discussion

Data Analysis Results of the Survey on the Improvement of the Employability of Vocational Clothing Design Students in Guangzhou, Guangdong Province. In order to improve the professional level of students, the quality assessment of the development of students' employability is carried out, and a 5-level evaluation scale is adopted, and the quality evaluation criteria are described as follows, point value and opinion level.

1. The college to drive the policy, strategy by administrators to development of student mental health.

1.1 Ways for schools to enhance university support for student employability.

1.2 The school prepares the learning environment for enhancing employability and curriculum design.

1.3 Schools prepare learning environment for employability enhancement and curriculum design.

1.4 The school prepares the learning environment for enhancing employability and curriculum design.

2. The data analysis results of Objective 3 of the study provided guidance for the development of a model of educational management learning outcomes of Guangdong Public Vocational College of the People's Republic of China

This study creatively proposed the rational development logic of the quality of vocational education teaching, through in-depth discussion of the logical response between public and rationality, and sets the process development of vocational education quality governance through the logical starting point as the same Xu Yingchun (2020) propose the policy reform to the logical end of

goodness, and finally establishes the good way of vocational education teaching quality under the guidance of public rationality by pointing out the logical direction from the starting point to the end point and focus on ability of students both hard skill and soft skill as the same pointed from Canvs Editorial (2021) according the important soft skills for designers.

3. A total of 9 experts from the focus group put forward a guiding model for education and teaching suggestions for the development of employability of fashion design students in Guangdong vocational schools. A draft of the views of the nine experts of the focus group was provided

3.1 Ways for schools to enhance university support for student employability.

3.2 The school prepares the learning environment for enhancing employability and curriculum design.

3.3 Schools prepare learning environment for employability enhancement and curriculum design.

3.4 The school prepares the learning environment for enhancing employability and curriculum design.

4. The managerial guidelines model for leadership development of administrators in secondary vocational schools.

4.1 Establishing a knowledge and sharing platform, building a network-wide communication matrix, multi-party collaborative operation, strengthening communication and collaboration between enterprises and schools, sharing resources, and creating hot spots this result the same proposed from Li Dan. (2021). Innovation Research on Teaching Management of Higher Vocational Education in the New Era.

4.2 Create new channels for learning skills to strengthen students' skills and knowledge in the same pointed from Patryk Polak (2021) to guide to soft skill enhance in digital era.

4.3 Improve the moral level of teachers and students and establish a correct outlook on life and values support this point from Li Xuefeng. et.al (2006) to construction of teaching management system for teacher in higher vocational education depends on innovation and moral of teacher.

4.4 Cultivate students' corresponding professional or physical and mental characteristics related with Yang Xiuyun.

(2017) to focus on student orientation and student centre support.

4.5 Comprehensively improve the comprehensive personal quality as Sui Chao.(2019) go focus on teacher high performance and competency and Xue Fangrong (2009) and Xi Dongmei. (2017). Focus on standardize the teaching management of vocational education and solidly improve the quality of teaching.



Figure1: The model for students' employability enhancement in clothing design of Guangzhou vocational school under Guangdong Province.

According to the above model, we can clearly understand. Through the cooperation between vocational schools and companies, students develop critical thinking, develop their Teamwork and Collaborative Communication skills, and leadership skills. This has also improved the curriculum design and quality of teaching in vocational schools. Let teacher Competency Deployment, Collaboration & Knowledge Sharing between

business and school, Enterprise & Stakeholder Network, produce many Outstanding Alumni.

In order to make enterprises more active in accepting more fresh graduates, the government has introduced a series of relevant policies to increase the employment rate of graduates. Colleagues require graduates to be proficient in design software, design creativity, timeliness control, self-management, and customer-centric tolerance.

Figure1: Model for Student Employability Improvement, conceptually, the details of the model are as follows.

1. Graduates are required to be proficient in design software, creativity, timeliness and self-discipline.

2. Students can develop critical thinking, develop teamwork and teamwork Collaborative communication skills, as well as leadership skills.

3. Students can develop critical thinking, develop teamwork and teamwork Collaborative communication skills, as well as leadership skills.

4. This also improves the curriculum design and teaching quality of vocational schools.

5. This also improves the curriculum design and teaching quality of vocational schools.

Conclusions

1. In the field of vocational education and teaching quality governance, the cooperative game mechanism, interest incentive mechanism, and resource sharing mechanism are the driving forces for improvement.

2. Regarding the interest incentive mechanism of vocational education and teaching quality co-governance, it is through fund reissuance, financial support, tax and fee reduction, policy incentives and other measures to ensure its initiative and enthusiasm.

3. The cooperative game mechanism of co-governance of vocational education teaching quality needs to be constrained by contracts and agreements to improve the efficiency and effectiveness of cooperation.

Recommendations

1. For policy development

1.1 Formulate an adjustment mechanism for the relationship between the quality of vocational education and teaching.

1.2 Have a common interest.

1.3 Balance the game of economic interests in governance from the policy level.

1.4 Ensure that vocational schools are the core subject.

1.5 Vocational schools can only be cultural inheritance and talent training.

1.6 The economic benefits of the enterprise are obtained through the output of talents and the economic income of post talents.

2. For practical application

2.1 In the quality of vocational education, the game of interests is concentrated in the game of power.

2.2 Political power guides the direction of governance of teaching quality.

2.3 Economic, powerful, material, and spiritual interests as a whole.

2.4 Different coordination and adjustment measures should be adopted at different interest game points.

2.5 The government directs and coordinates the governance of teaching quality.

3. For next research

3.1 The focus is on cooperation between vocational schools, industry companies and assessment bodies

3.2 The focus is on cooperation between vocational schools, industry companies and assessment bodies.

3.3 A reasonable compensation mechanism is a tool for the stability of co-governance relations, and it is also an important auxiliary measure to effectively improve quality and efficiency.

References

- Canvs Editorial (2021). *Ten important soft skills for designers.*, Retrieved from <https://uxdesign.cc/10-most-important-soft-skills-for-designers-66d17462d4b4>
- Hong Ling. (2017). On the Promoting Effect of Informationization on Vocational Education Teaching Management. *Modern Communication*, (23), 140.
- Jame, S. (2022). *What is Co-Governance?* Retrieved from <https://www.community.waikato.org.nz/blog/cogovernance>.
- Jens-Henning (2022). *what is the importance of vocational? That vocational education and training.*, Retrieved from <https://hospitalityinsights.ehl.edu/vocational-training-career-development>.
- Li, D. (2021). Innovation Research on Teaching Management of Higher Vocational Education in the New Era. *Journal of Huainan Vocational and Technical College*, 21(04), 103-104.
- Li, X. (2020). Existing problems and coping strategies of vocational education teaching management under the new situation. *Science and Technology Wind*, 20 (15), 67. DOI: 10.19392/j.cnki.1671-7341.202015054.
- Liu, S., et.al .(2019). Exploration on the teaching management mechanism of higher vocational education in the information environment. *Journal of Harbin Vocational and Technical College*, 05, 1-4. DOI: 10.16145/j.cnki.cn23- 1531/z.2019.05.001.
- Li, X. et.al (2006). The construction of teaching management system in higher vocational education depends on innovation. *Journal of Chengdu Aviation Vocational and Technical College*, 20(01),10- 14.
- Pan, Q. (2021). Analysis of the existing problems and countermeasures of vocational education teaching management under the new situation. *Chinese Journal of Multimedia and Network Teaching (mid-term)*, 21(08),155-158.
- Patryk, P. (2021). *Designers' Must Have Skills That You Need For Your Team.*, Retrieved from <https://invotech.co/blog/designers-must-have-skills-that-you-need-for-your>.
- Sui, C. (2019). Research on the flexible practice of teaching management in higher vocational education. *Chinese and Foreign Entrepreneurs*, 19(33),127-128.
- The National People's Congress: NPC. (2021). *Five-Year Plan for National Economic and Social Development of the People Republic of China and the Prospective Goals for 2035.*, Retrieved from <https://wenku.baidu.com/view/0c734ec75a1b6bd97f192279168884868662b839>. Html.
- Wang, D. (2020). Exploration on the modernization, innovation and development of vocational education and teaching management in the information age. *Industry and Technology Forum*, 19(20), 280-281.
- Wang, D. (2018). On the concept of vocational education in Singapore and the innovation of education and teaching management—and the cultivation and enlightenment of craftsman spirit talents. *Journal of Nanning Vocational and Technical College*, 23(06), 39-43.
- Xu, Y. (2020). Investigation and thinking on the teaching management of secondary vocational education in agricultural and broadcasting schools. *Farmers' Science and Technology Training*, 20(01), 36-38.

- Xi, D. (2017). Standardize the teaching management of vocational education and solidly improve the quality of teaching in colleges and universities—a symposium on teaching management in vocational colleges was held in Beijing. *China Vocational and Technical Education*, 31, 72-77.
- Xue, F. (2009). Research on Teaching Management Standards of Higher Vocational Education. *Journal of Nanjing Radio and Television University*, 20(02), 1-9.
- Xiaorong (2016). *Achieving Good Governance through Shared Governance:public Rational Logic of The Governance of Teaching Quality for Technical And Vocational Education And Training.*, Retireved from <http://dbase2.gslib.com.cn/KCMS/detail/detail.aspx?filename=1016908927.nh&dbcode=CDFD>.
- Yang, X. (2017). Vocational education teaching management should adhere to people-oriented"- Comment on "Research on the Development Model of Higher Vocational Education. *China Education Journal*, 17(09), 129.
- Zhou, B., &Yang, X. (2019). An analysis of practical teaching management in higher vocational education from the perspective of integration of production and education. *Education and Vocation*, 19(20), 90-92. DOI: 10.13615/j.cnki.1004-3985.2019.20.017.

The Use of Weak Signal in Strategic Scanning to Turn Covid Threat to Opportunity: A Case of Health Insurance Business in Thailand

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ABSTRACT

Weak signals are hints of the future to come. Being able to recognize weak signals requires proactive scanning and communication within office units to predict potential changes. This study researched how weak signals could be used for product development within the health insurance business to develop methods to change threats into opportunities. Weak signals literature, news, and grey literature was reviewed for its usage in strategic scanning and competitive strategy. Primary data collection was done using group interview by purposive sampling of 15 managers and team members of Thai and international insurance organizations. The results showed that weak signals were used in strategic scanning while believing it is useful. Furthermore, use of weak signals in health insurance business can help address crises like COVID-19 through risk mitigation and scenario planning. Interviewed members shared their venture into new product development which provided new business opportunities, innovation and lost prevention. Use of weak signal for strategic scanning for the health insurance business can provide increased opportunities for innovation. Comprehensive and holistic strategic scanning and weak signal tools and training, including short-term and long-term, provides insurance business with a competitive advantage and risk mitigation methods.

KEYWORDS: COVID-19; Insurance Industry; Weak Signal; Strategic scanning

Introduction

This research evaluates the problem of how strategic scanning in Thailand's insurance industry can be improved. The focus of the research is the use of weak signals, which were originally defined as vague or ambiguous information which could lead to strategic advantage if observed and acted on effectively (Ansoff, 1975). A more refined definition is that weak signals are future signs, which only become important when it is recognised, signified and then acted upon (Kuusi & Hiltunen, 2011).

Weak signals may be initially recognised as a hunch or feeling in the mind of the strategist, which brings together industry and regulatory news, trends, gossip, and other observations along with the experience of the observer (H. Lesca & Lesca, 2013). Weak signals can be used as the basis of a strategic scanning process, in which the organization seeks to proactively identify and respond to upcoming competitive changes (Blanco & Lesca, 1997; H. Lesca & Lesca, 2013). This utility of weak signals for this strategic scanning process is the focus of this study. Specifically, it

addresses the usefulness of weak signals for addressing the COVID-19 pandemic, which posed some significant challenges for insurance companies including higher transmission and mortality rates than typical infectious seasonal diseases (Baud et al., 2020; Liu et al., 2020). Thus, insurance companies had to respond to a rapidly changing environment and crisis conditions. The study focuses on Thailand's life insurance sector, specifically health insurance. In 2021, the life insurance sector of Thailand's insurance market grew by an estimated 2.32%, but this growth hid significant structural challenges in the market which led to several companies either ceasing to operate or consolidating with other companies (Boonsong & Viriyubusaya, 2022). The health insurance sector remains a relatively small proportion of the life insurance market, with direct premiums of 18,738 million baht (or about 7.1% of the life insurance industry's estimated direct premiums of 262,746 million baht) (Boonsong & Viriyubusaya, 2022). However, its rate of growth has been significantly higher in recent years than the average, with direct premiums rising 19.87% between 2020 and 2021, compared to 4.01% on average for the market (Boonsong & Viriyubusaya, 2022). Thus, the health insurance market is of particular importance in the insurance industry because of its current popularity, as well as its vulnerability to shocks such as the COVID-19 pandemic.

Thailand's insurance industry, while growing, had faced huge loss during and after COVID-19 lump-sum claims of 140 billion baht and 4 insurance companies filed for bankruptcy (Or, 2022; Phoonphongphiphat, 2022). The companies were not able to anticipate the risk of their new products which was health insurance scheme for COVID-19 infection insurance. Companies,

that sold "COVID-19" insurance, took a loss when Delta wave hit of the population who bought COVID-19 insurance had claimed their benefits. Health insurance business developed their 'COVID-19' insurance could not foresee the impact from the environment. This research provides a learning lesson for the insurance industry but also for all businesses to be proactive in scanning the total environment which may seemingly be unrelated but has an impact to their product or services.

In keeping with the problem of the research and its environment, the objectives of the study included: 1) investigating weak signals and their potential for strategic scanning in the health insurance industry; 2) examining how weak signals could be used to address crises like COVID-19; and 3) investigating how weak signals can be used to turn competitive threats into opportunities. The literature review addresses the core theories and evaluates the issues that are addressed here.

Purposes

1) investigating weak signals and their potential for strategic scanning in the health insurance industry; 2) examining how weak signals could be used to address crises like COVID-19; and 3) investigating how weak signals can be used to turn competitive threats into opportunities.

Benefit of Research

The usage of weak signals in health insurance business can help address crises like COVID-19 through risk mitigation and scenario planning. It also provides increased opportunities for product innovation. That is the transformation of competitive threats to competitive opportunities

Research Process

The study used a qualitative research approach to investigate how companies are using weak signals in the context of the COVID-19 pandemic. The two-stage research process began with a secondary document review on the use of weak signals in the insurance industry, then continued to exploratory interviews with representatives of 15 health insurance companies operating in Thailand.

The first stage of the qualitative research process involved a review of news sources and so-called grey literature (which is published by non-academic sources) (Schmucker et al., 2013). Academic sources were excluded because to date there have not been any papers published on the research topic. Sources were collected from 2019 to 2020, including articles about the use of weak signals for pandemic conditions generally and COVID-19 specifically, and how these weak signals could be used for strategic scanning and competitive strategy. The widespread approach to data collection was intended to address the problem that academic research has not had time to catch up to the emergent situation of COVID-19. The sources were then analysed using qualitative content analysis (Schreier, 2012).

In the second stage of the qualitative research, the researcher conducted group interviews with 15 representatives of health insurance companies who are involved in product design, marketing, or strategic direction of the firm (Beitin, 2012). Qualitative method using cases that were insightful, articulate and honest (Robinson, 2014) was chosen for its ability to understand ideas and experience that are relevant to product development and weak signals recognition. Focus group interview method is able to capture individual ideas and words that includes their thoughts and feelings

(Alshenqeeti, 2014) while sampling a specific population 'focused' on the topic (Barbour & Scholstak, 2005) Furthermore, de Almeida and Lesca (2019) suggested that for weak signals (as an input) to work, it requires a collective sense making to formulate the future potential outcomes. Thus, firms, including Thai and internationally owned insurance companies, to provide a range of perspectives were included. Samples were selected from health insurance members who were involved in product development. Members who do not work in product development team was excluded in the study since the study is focused on opportunities from using weak signals. The interviews addressed three exploratory questions, which were: 1) Does your company use weak signals? If so, how? 2) During COVID-19, did your company adopt weak signals for strategic scanning? If so, how? 3) What opportunities did your company gain from using weak signals for strategic scanning? The interviews were analysed using qualitative content analysis (Schreier, 2012), and findings were integrated with the document review from the first stage of the research. Manual thematic analysis was done on the data collected for common themes and patterns.

Population and Sample

15 representatives of health insurance companies who are involved in product design, marketing, or strategic direction of the firm; a review of news sources, weak signals research and so-called grey literature

Instruments

Qualitative research approach, qualitative content analysis, group interviews, Focus group interview method, collective sense making

Conclusion

The study revealed that weak signals, despite their potential, have seen limited adoption in the health insurance industry of Thailand. Interviewee said *“We actually have a team call “NEWS tracking” which responsible for collecting and analyzing all news that happen every day.”* While some said that they were not sure what they did here could be called weak signal. They did have their responsible unit to track down those kinds of information and trend. But they didn’t actually call it weak signal.” Many companies still rely on traditional, reactive strategies for decision-making rather than actively scanning for weak signals. The study's findings could inform the insurance companies in their approach to using weak signals for crisis management, specifically in the context of health insurance in Thailand. There are many aspects to be comprehended such as Proactive Risk Mitigation, Scenario Planning and Preparedness, Policy Adjustments, and Resource Allocation. The responses from the interviews demonstrate that these companies have effectively used weak signals not only to address potential competitive threats, such as the onset of COVID-19 but also to create new business opportunities. They leveraged these signals for early response, scenario planning, loss prevention, market expansion, product development, and innovation. This aligns with the idea that weak signals can be invaluable for transforming potential threats into opportunities in the dynamic landscape of the health insurance industry. This research has investigated how insurance companies could use strategic scanning and weak signals to turn the threats posed by the global COVID-19 pandemic into a competitive advantage. So far, it is very early to determine this from extant examples, but it is clear that strategic scanning and weak

signals could allow insurance companies to identify emerging threats and evaluate how they could also pose competitive opportunities. However, in order for this to occur, the insurance company – or any other firm – needs to be using strategic scanning and monitoring weak signals in a comprehensive, holistic way that evaluates both short-term and long-term emergence of competitive threats in multiple domains. The best available evidence suggests that firms do not, in fact, do this (or at least do not admit to doing so). This could be for competitive reasons, because they are not required to disclose, or because the firm focuses in specific, narrow threat domains or because managers have cognitive limitations on their monitoring and processing of the environment. While there obviously must be some limitations on the breadth of competitive and strategic scanning, if nothing else the COVID-19 pandemic has shown that some emergent threats will affect every sector of the economy.

As high-reliability organizations with a long-term time horizon, insurance companies should be expected to be using weak signals detection and strategic scanning to identify upcoming pandemic threats and responding to them. Thus, it is a question for further research to assess why, exactly, insurance companies use strategic scanning (or conversely do not use it) and what effect this choice has on their competitive position. There are also other opportunities that can address the limitations of this study. Particularly, a retrospective study after initial release of annual reports and disclosures of insurance firms and others could yield more information about how firms were using strategic scanning and what (if anything) was detected about the COVID-19 pandemic. This should be a top priority to improve corporate governance and long-term strategic

planning for firms in many sectors of the economy, including insurance firms.

Recommendation

For a more compelling argument, the paper could benefit from real-world case studies or empirical data to support the claims made. Providing more concrete suggestions or examples of how firms can overcome these barriers would be valuable. The evidence that is available shows that the COVID-19 pandemic will absolutely change the operating and competitive conditions of companies in all sectors. This includes everything from consumer preferences and priorities (ReD, 2020) to significant changes in the competitive environment (Momaya, 2020) to what kinds of environmental factors firms look for (Bryce et al., 2020). Thus, there is the possibility that weak signals could be used as part of the strategic scanning process to both identify future threats like the COVID-19 pandemic and to identify competitive opportunities in the wake of the current pandemic. However, to do so, it is essential that firms implement extensive generally, not just for environmental health and pandemics.

strategic scanning processes that include global public health indicators (Bryce et al., 2020; Candelon et al., 2020; Srinivasan, 2020).

This does raise the problem of how firms should implement such programs if they do not have in-house knowledge. Simply, firms must reach beyond the comfort zones and personal knowledge of managers, which all too often represent barriers to implementation of comprehensive strategic scanning programs (Holland, 2019; N. Lesca et al., 2012). For some firms, the use of outsourced strategic scanning tools and processes could be part of the solution (N. Lesca & Caron-Fasan, 2008). For others, developing this in-house knowledge may be appropriate, especially since it is not only pandemic and global health knowledge that needs to be considered. As some authors have pointed out, environmental issues also need to be considered as weak signals that affect the competitive environment, and these signals may also be overlooked (Momaya, 2020). Thus, this is a problem that needs to be solved more.

References

- Albats, E., Alexander, A. T., & Cunningham, J. A. (2022). Traditional, virtual, and digital intermediaries in university-industry collaboration: Exploring institutional logics and bounded rationality. *Technological Forecasting and Social Change*, 177, 121470. <https://doi.org/10.1016/j.techfore.2022.121470>
- Ansoff, H. I. (1975). Managing strategic surprise by response to weak signals. *California Management Review*, 18(2), 21–33.
- Ansoff, H. I., Kipley, D., Lewis, A. O., Helm-Stevens, R., & Ansoff, R. (2019). *Implanting strategic management* (3rd ed.). Palgrave Macmillan.
- Babuna, P., Yang, X., Gylbag, A., Awudi, D. A., Ngmenbelle, D., & Bian, D. (2020). The impact of COVID-19 on the insurance industry. *International Journal of Environmental Research and Public Health*, 17. <https://doi.org/10.3390/ijerph17165766>

- Baud, D., Qi, X., Nielsen-Saines, K., Musso, D., Pomar, L., & Favre, G. (2020). Real estimates of mortality following COVID-19 infection. *The Lancet Infectious Diseases*, 20(7), 773. [https://doi.org/10.1016/S1473-3099\(20\)30195-X](https://doi.org/10.1016/S1473-3099(20)30195-X)
- Blanco, S., & Lesca, H. (1997). Environmental scanning: Designing a collective learning process to track down weak signals. *Actes de La 3e Conférence de l'AIS Amérique*.
- Boonsong, S., & Viriyubusaya, S. (2022). *Thailand Insurance Outlook 2021-2022 14th Edition*. Baker McKenzie.
- Bryce, C., Ring, P., Ashby, S., & Wardman, J. K. (2020). Resilience in the face of uncertainty: Early lessons from the COVID-19 pandemic. *Journal of Risk Research*, 23(7–8), 880–887. <https://doi.org/10.1080/13669877.2020.1756379>
- Candelon, F., de Villiers, P., Reichert, T., Lang, N., Charme di Carlo, R., & Khcia, A. (2020). *How scenarios can help companies win the COVID-19 battle*. BCG. <https://www.bcg.com/en-gb/publications/2020/win-covid-19-battle-with-scenarios>
- Caron-Fasan, M.-L., Fasquelle, J., & Lesca, N. (2018). Strategic Scanning and innovative design: Fuel the C/K method through Strategic Scanning information. *Latin American Journal of Computing Faculty of Systems Engineering Escuela Politécnica Nacional Quito-Ecuador*, 4(2), 37–44.
- Crews, C. (2020). Foresight and the COVID-19 Pandemic. *Research Technology Management*, 63(4), 55–57. <https://doi.org/10.1080/08956308.2020.1762448>
- Cuhls, K. E. (2020). Horizon Scanning in Foresight – Why Horizon Scanning is only a part of the game. *Futures & Foresight Science*, 2(1), 1–21. <https://doi.org/10.1002/ffo2.23>
- Dufva, M., & Ahlqvist, T. (2015). Knowledge creation dynamics in foresight: A knowledge typology and exploratory method to analyse foresight workshops. *Technological Forecasting and Social Change*, 94, 251–268. <https://doi.org/10.1016/j.techfore.2014.10.007>
- Holland, B. J. (2019). Scanning for blind spots. In *Advanced methodologies and technologies in business operations and management*. IGI Global.
- Inayatullah, S., & Black, P. (2020). *Neither a black swan nor a zombie apocalypse: The futures of a world with the COVID-19 coronavirus*. The Futures Journal. <https://jfsdigital.org/2020/03/18/neither-a-black-swan-nor-a-zombie-apocalypse-the-futures-of-a-world-with-the-covid-19-coronavirus/>
- Kaivo-oja, J. (2012). Weak signals analysis, knowledge management theory and systemic socio-cultural transitions. *Futures*, 44(3), 206–217. <https://doi.org/10.1016/j.futures.2011.10.003>
- Khashe, Y., & Tabibzadeh, M. (2021). Interoperability in Healthcare Systems: The Application of HRO Principles in New Technology Implementation in Digital Healthcare. In J. Kalra, N. J. Lightner, & R. Taiar (Eds.), *Advances in Human Factors and Ergonomics in Healthcare and Medical Devices* (Vol. 263, pp. 72–80). Springer International Publishing. https://doi.org/10.1007/978-3-030-80744-3_10
- Kuusi, O., & Hiltunen, E. (2011). The signification process of the future sign. *Journal of Future Studies*, 16(1), 47–66.
- Lesca, H., & Castagnos, J. (2000). *Capter les signaux faibles de la veille stratégique, comment amorcer le processus? Retours d'expérience et recommandations*.

- Lesca, H., & Lesca, N. (2011). *Weak Signals for Strategic Intelligence: Anticipation tool for managers*. ISTE. <https://doi.org/10.1002/9781118602775>
- Lesca, H., & Lesca, N. (2013). *Weak signals for strategic intelligence: Anticipation tools for managers*. John Wiley and Sons.
- Lesca, H., & Lesca, N. (2014). *Strategic decisions and weak signals: Anticipation for decision-making*. ISTE.
- Lesca, N., & Caron-Fasan, M. L. (2008). Strategic scanning project failure and abandonment factors: Lessons learned. *European Journal of Information Systems*, 17(4), 371–386. <https://doi.org/10.1057/ejis.2008.21>
- Lesca, N., Caron-Fasan, M. L., & Falcy, S. (2012). How managers interpret scanning information. *Information and Management*, 49(2), 126–134. <https://doi.org/10.1016/j.im.2012.01.004>
- Lesca, N., Caron-Fasan, M. L., Loza-Aguirre, E., & Chalus-Sauvannet, M. C. (2015). Drivers and barriers to pre-adoption of strategic scanning information systems in the context of sustainable supply chain. *Systéms d’information et Management*, 3(20), 9–46.
- Limsamarnphun, N. (2018). *Thailand eyed for innovative insurance services*. The Nation. <https://www.nationthailand.com/Corporate/30346818>
- Liu, Y., Gayle, A. A., Wilder-Smith, A., & Rocklöv, J. (2020). The reproductive number of COVID-19 is higher compared to SARS coronavirus. *Journal of Travel Medicine*, 27(2), 1–4. <https://doi.org/10.1093/jtm/taaa021>
- Loza Aguirre, E., Lesca, N., Haddad, H., & Caron-Fasan, M. L. (2016). Getting a clean shot on a blurred target: Improving targeting for strategic scanning through action research in 10 french organizations. *Communications of the Association for Information Systems*, 39(1), 615–638. <https://doi.org/10.17705/1cais.03927>
- Loza-Aguirre, E. (2014). *Enabling adoption decision-making for Strategic Scanning*. L’Université de Grenoble.
- Mahase, E. (2020). Covid-19: Death rate is 0.66% and increases with age, study estimates. *The BMJ*, 369(April), 2020. <https://doi.org/10.1136/bmj.m1327>
- Mills, B., & Wilner, A. (2023). The science behind “values”: Applying moral foundations theory to strategic foresight. *FUTURES & FORESIGHT SCIENCE*, 5(1). <https://doi.org/10.1002/ffo2.145>
- Mitchell, R., & Boyle, B. (2010). Knowledge creation measurement methods. *Journal of Knowledge Management*, 14(1), 67–82. <https://doi.org/10.1108/13673271011015570>
- Momaya, K. S. (2020). Return from COVID-19: Thinking Differently About Export Competitiveness and Sustainability. *International Journal of Global Business and Competitiveness*, 15(1), 1–9. <https://doi.org/10.1007/s42943-020-00012-6>
- Nicolaidou, O., Dimopoulos, C., Varianou-Mikellidou, C., Boustras, G., & Mikellides, N. (2021). The use of weak signals in occupational safety and health: An investigation. *Safety Science*, 139, 105253. <https://doi.org/10.1016/j.ssci.2021.105253>
- Nicolaidou, O., Dimopoulos, C., Varianou-Mikellidou, C., Mikellides, N., & Boustras, G. (2022). Weak signals management in occupational safety and health: A Delphi study. *Safety Science*, 146, 105558. <https://doi.org/10.1016/j.ssci.2021.105558>

- Noh, H., Mortara, L., & Lee, S. (2023). Development of a maturity model for technology intelligence. *Technological Forecasting and Social Change*, 192, 122525. <https://doi.org/10.1016/j.techfore.2023.122525>
- OIC. (2019). *About us*. Office of the Insurance Commission. <http://www.oic.or.th/en/about/introduction>
- Pinsonneault, A., & Choi, I. (2022). Digital-enabled strategic agility: It's time we examine the sensing of weak signals. *European Journal of Information Systems*, 31(6), 653–661. <https://doi.org/10.1080/0960085X.2022.2027824>
- Pouru, L., Dufva, M., & Niinisalo, T. (2019). Creating organisational futures knowledge in Finnish companies. *Technological Forecasting and Social Change*, 140(June), 84–91. <https://doi.org/10.1016/j.techfore.2018.06.048>
- ReD. (2020). *Weak Signals from Wuhan and Shanghai*. ReD Associates. <https://www.redassociates.com/perspectives-posts/2020/6/5/weak-signals-from-wuhan-and-shanghai>
- Richter, A., & Wilson, T. C. (2020). Covid-19: Implications for insurer risk management and the insurability of pandemic risk. *The Geneva Risk and Insurance Review*, 45(2), 171–199. <https://doi.org/10.1057/s10713-020-00054-z>
- Robinson, C. V., Ahmad, F., & Simmons, J. E. L. (2021). Consolidation and fragmentation in environmental scanning: A review and research agenda. *Long Range Planning*, 54(3), 101997. <https://doi.org/10.1016/j.lrp.2020.101997>
- Salandra, R., Criscuolo, P., & Salter, A. (2022). The power of weak signals: How systematic reviews direct researchers away from potentially biased primary studies. *Cochrane Database of Systematic Reviews*, 2022(11). <https://doi.org/10.1002/14651858.ED000160>
- Schmucker, C., Bluemle, A., Briel, M., Portalupi, S., Lang, B., Motschall, E., Schwarzer, G., Bassler, D., Mueller, K. F., von Elm, E., Meerpohl, J. J., & OPEN Consortium. (2013). A protocol for a systematic review on the impact of unpublished studies and studies published in the gray literature in meta-analyses. *Systematic Reviews*, 2, 24. <https://doi.org/10.1186/2046-4053-2-24>
- Schreier, M. (2012). *Qualitative content analysis in practice*. Sage.
- Shaik, A. S., & Dhir, S. (2020). A meta-analytical review of factors affecting the strategic thinking of an organization. *Foresight*, 22(2), 144–177. <https://doi.org/10.1108/FS-08-2019-0076>
- Srinivasan, P. (2020). *Four transformational technologies to have on your radar*. EY. https://www.ey.com/en_fi/megatrends/four-transformational-technologies-to-have-on-your-radar
- Talaoui, Y., & Kohtamäki, M. (2020). 35 Years of Research on Business Intelligence Process: A Synthesis of a Fragmented Literature. *Management Research Review*. <https://doi.org/10.1108/MRR-07-2020-0386>
- Talaoui, Y., & Kohtamäki, M. (2021). 35 years of research on business intelligence process: A synthesis of a fragmented literature. *Management Research Review*, 44(5), 677–717. <https://doi.org/10.1108/MRR-07-2020-0386>

Yang, H., Du, H. S., & Shang, W. (2021). Understanding the influence of professional status and service feedback on patients' doctor choice in online healthcare markets. *Internet Research*, 31(4), 1236–1261. <https://doi.org/10.1108/INTR-10-2019-0429>.

Educational Administration Enhancing Graduate's Competency Employability in Business Vocational Colleges under Chongqing Province

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ABSTRACT

The objectives of this research were to propose a model for educational administration enhancing graduate's competency employability in Business Vocational Colleges under Chongqing Province, the People's Republic of China. This study adopted a mixed methods research design. This topic combined an in-depth interview and questionnaire survey for comprehensive data analysis. The key respondents were 17 managers obtained by the purposive sampling method. Data were collected by in-depth interview with semi-structure questions and the collected data were analyzed by content analysis. The results of the analysis showed that the tree of the graduates' employability model affecting graduates' employability for the school education management included: 1) school-enterprise cooperation, employability cultivation, strengthening connotation construction, semi-structure and teaching management, highlighting employability cultivation; 2) ordering professional settings; 3) integrate teaching design of post and class certificate, the teaching mode implementing the "academic certificate + several vocational skills level system; 4) guarantee the investment of teaching funds, improve the teaching level of teachers and practical teaching experience; 5) improve career planning; 6) career tracking and guidance function.

KEYWORDS: Educational administration, Enhancing graduate's competency, Employability, Business vocational colleges, Chongqing Province

Introduction

Since July 2018, the Central People's Government of China has responded to the intensifying trade friction between China and the United States. The international environment has changed significantly, and the economic performance has been stable with changes and worries. The central government has reviewed the situation and taken

precautions. It has made a clear decision to stabilize employment, the financial sector, foreign trade, foreign investment, investment and expectations. It has taken the "six stabilizations" as the basic requirement for making progress in achieving economic stability in China. The "six guarantees" are: employment, basic people's livelihood, market entities, food and energy security, stable industrial and

supply chains, and grassroots operation (Chen Chen, 2020).

In addition to providing talents for the society and serving the local economy, the functions of colleges and universities are more important as the key link of transferring talents to the society. Harvard Commission. (2010) a clear understanding of the specific factors affecting the employability can we develop better teaching objectives, organize and manage teachers, mobilize students' learning enthusiasm, strengthen employment education, and improve the effectiveness of school culture. Only in this way can the employability of college students be better improved (Ji Xiaojun, 2017).

The number of college graduates in China has been rising year by year, exceeding 7 million for the first time in 2014, reaching 7.27 million. An increase of 220,000 over 2014 in 2015; an additional 160,000 in 2016; 10 million by 2022 (Max Institute, 2021). An important issue behind this set of rapidly increasing figures is the increasingly severe situation of college employment for students. How to improve the employability of college students is an important issue related to the national economy and people's livelihood and the sustainable development of higher education. With the deepening reform of China's economic system, fundamental changes have taken place in the employment market of college graduates. Employers have high requirements on college students and tend to recruit candidates with practical experience. This phenomenon is mainly caused by the lack of career choice and career development ability of college students and the lack of targeting the development of college students' employability (Chen Yong, 2010). For the lack of college students to develop employability as the goal. The interaction

mechanism between the school and the industry is mainly based on the employment practice, the teacher evaluation mechanism is mainly based on the evaluation of the scientific research ability, the teaching link lacks the implantation of the employability, the effect of the practical education link is not ideal, and so on. The existing internal system and mechanism of colleges and universities lead to the emphasis on the cultivation of theory, but neglect the cultivation of students' employability. In fact, employers' demands for vocational positions are based on ability, while colleges and universities still pay more attention to the teaching of professional theoretical knowledge, and ignore the cultivation of professional abilities such as professional attitude and professional quality (Chen Shusheng, 2007).

China Employment Strategy Report 2008-2010 refer the employment problems of college graduates, and believes that the main responsibility for the lack of employability of college graduates at present lies in colleges and universities. The report points out that due to the irrationality in the specialty setting and the design of students' ability training programs in colleges and universities, the actual employability of undergraduates is significantly different from the expectations of the industry (Li Bin, 2010).

Therefore, the match between college students' employability and social demand is not a permanent one, but a dynamic and continuous evolving cycle, involving social demand, college students' employability, college students' training mechanism and other factors, which requires the joint efforts of universities, employers, college students, government and other subjects. (Sun Jin, Chen Fuqiang 2016)

Based on the research results of local and international employability promotion, this paper compiled a preliminary questionnaire on the factors affecting the employability of students in Chongqing Vocational College of Commerce through field interviews. Based on the actual situation and problem solving, the structural model of college students' employability is composed of three main components: knowledge, ability and quality. It is hoped that this research paper can be helpful to how to improve the management and guidance development mode of students' employability in Chongqing Vocational College of Commerce (Sun Jin and Chen Fuqiang , 2016)

From the above analysis, it is not difficult to find that the influencing factors of graduates' individual employability include intrinsic quality (research on college education and management, including educational goals and strategies (higher education strategies), employment guidance, employability training included in the curriculum, teacher education and teaching ability, school evaluation and encouragement, etc.). School-enterprise cooperation degree, career planning guidance, campus culture construction (influencing factors) and external environment (government policies, social enterprises and family support). The external situation includes the external environmental factors that affect the employability of college students, including the government's market economy situation, employment preference of social enterprises, and the support of individual family growth environment.

Purposes

To propose a model for educational administration enhancing graduate's competency employability in Business

Vocational College under Chongqing Province, the people's republic of China.

Benefit of Research

Administrators provide policy support management, design courses and courses, and student activities to enhance student employability.

Teachers improve teaching skills to improve students' employability, continue professional development to develop strong teaching talent, develop students with ability, In-depth interview of Educational Administrators and Management level staff totaling 17 people with Purposive sampling), Focus group discussion by Qualified people of 9 people for confirm a Model for verify model .

For students, the results of this study can help them find the direction and Angle to improve their employability, so as to make clear career goals and study plans.

Research Process

Step1: Through literature review and content analysis of relevant studies, the influencing factors and policies of employability enhancement are studied.

Step2: Conduct in-depth interviews with targeted sampling. 17 key information providers are managers.

Step3: Formulate and analyze the questionnaire of influencing factors of employability, and design the "Tree of the future" employability enhancement model

Population and Key informants

1. The interviewees are administrative personnel and teachers who have worked in the 2022 academic year. Through targeted sampling, 17 administrative personnel and senior teachers are interviewed in depth. The selection and focus group discussions of key informants with more than 3 years of

management experience were guided and modified by 9 experts.

Instruments

1. Interviews in semi-structure
2. Focus group discussion

Data analysis

(1) Conduct content analysis on the frequency in-depth interview data.

(2) The focus group discussion was conducted by the researcher, and the discussion theme was "Employability Enhancement of Chongqing Vocational College of Commerce".

(3) The experts spoke freely in the discussion on a free and voluntary basis.

Conclusion and discussion

Conduct content analysis on the frequency of 17 key informants (Frequency total 17)

1. College background in student employability enhancement

1.1 Set up public foundation platforms to enhance individual foundation competencies and professional cluster foundation platforms to enhance individual key competencies (12)

1.2 Universities offer career guidance courses (optional/compulsory) and set up module courses for vocational positions (11)

1.3 Schools set up career guidance service centers and follow up files on student employment (10)

2. The light of employment situation of graduates, what are the factors that affect the employability of students. (Talk mainly in terms of schools and families)

2.1 School teaching management, teaching model (organic link between theory-case-practice and employment), and evaluation of teaching quality (15)

2.2 Curriculum (logical sequence of the curriculum, rational distribution of theoretical and practical hours) (13)

2.3 Quality of teachers in schools, level of teaching skills (teaching ability, teaching art, business experience), family environment in which students grow up (personality of family members, educational background), interests (professionalism, artistic specialties, labor awareness) (12)

3. Employability skills should students have in relation to graduate employment?

3.1 Personal honesty and integrity, willingness to learn, innovation, hard-working, rigorous and realistic (13); good language and written expression and communication skills (14)

3.2 Self-management skills, self-change skills; problem analysis and problem-solving skills (12);

3.3 Ability to retrieve information, summarize and organize information (10); spirit of inquiry, lifelong learning; teamwork, communication skills (10);

4. The three core 21st century skills important to students' employability in the most important.

4.1 Basic qualities (literacy, numeracy, scientific literacy, ICT literacy, financial literacy, cultural and civic literacy) (15)

4.2 Qualities (curiosity, initiative, perseverance, adaptability, leadership, social and cultural awareness) (15)

4.3 Competencies (critical thinking and problem-solving skills, creativity, communication and collaboration skills) (11)

5. School management be used to develop or enhance students' core 21st century employability skills

5.1 Establish an evaluation system that combines on-campus performance assessment with enterprise practice

assessment and process assessment with summative evaluation (12)

5.2 The introduction of third-party assessment by means of an information-based platform for professional examinations; the full implementation of project-based teaching guided by the concept of "student main body, competence-based and engineering as one" (10)

5.3 Set up module courses for vocational positions, rely on industry enterprises to develop standards for employability requirements; use case teaching method, etc. to integrate Civic and Political elements into professional courses and professional elements into Civic and Political courses (9)

6. Suggestion for families to improve their students' core competencies for employment.

6.1 Increase the habit of going on outings to develop brave and positive qualities (15)

6.2 Increase students' participation in physical work at home to develop a healthy body and physical fitness (14)

6.3 Exercise brave and positive spirit of exploration through sports \ Create a good family atmosphere, communication style, career goal setting (10)

7. Suggestion for schools to improve employability both advice on curriculum,

education and teaching or student activities to improve the employability of students.

7.1 Establish off-campus internship and training bases in order to provide stable internship sites for students and build a practical platform for enhancing employability (15)

7.2 Establish on-campus internship and training rooms; meet the needs of professional clusters for course teaching and students' internship and training, and provide strong support for professional clusters to cultivate technically skilled talents (14)

7.3 Set up a modular curriculum system of public foundation platform plus professional group foundation platform plus professional direction module plus professional development module plus quality development module, implement "big professional in, small professional out" personalized talent training, course content and X certificate integration The curriculum content is integrated with the X certificate, and the training system is based on the objective of cultivating aesthetic and humanistic qualities and building a comprehensive training system of moral, intellectual, physical, social and aesthetic skills to enhance the employability of graduates(10).

Table 1: Create components of the employability Enhancement development model

Item	Content Analysis to create model		
	Input	Process	Outcome
1. Literature review and related research	The employability component is 1) Basic ability 2) Core competence 3) Personal quality	1. Employability education 2. Professional knowledge learning 3. Lifelong learning attitude 4. Teamwork training	1. Acquisition of knowledge 2. Skill formation 3. Quality improvement
2. In-depth interviews (17 administrators and teachers)	1. Focus on the relationship between college students, family and society 2. Combine performance assessment with enterprise 3. Integrated course	1. Professional certificate examination 2. Management improves teaching effectiveness 3. Business practice 4. Teamwork training	1. Acquire practical knowledge 2. Communication skills, teamwork, 3. Innovation and problem-solving 4. Good physical, ideological and moral quality
3. Focus group discussion with 9 experts	1. Government policy support 2. Improve the management of school employment services 3. Enhance teachers' teaching ability 4. Implement school-enterprise cooperative teaching 5. Provide practice bases inside and outside the school	1. Focus on guiding college family relationships 2. Provide a team entrepreneurship platform 3. Create engagement 4. Attach importance to the stimulation of communication and coordination ability 5. Follow up on pre-job internships	1. Acquire employability 2. Maintain employability

The concept of this model is outlined below.

1. The influencing factors of graduates' employability are influenced by school education management, family living environment and government guarantee.

1) Educational management. It involves the strategic setting of the school's talent training objectives, which is directly reflected in the setting of the curriculum

system, the teaching model of teachers, the level of teachers' individual teaching ability, to ensure that enterprises participate in the key links of the school's talent training. In the same proposed by Chen Yong. (2010) if colleges and universities can introduce enterprises to participate in the curriculum system setting and planning, employment ability training tracking guidance services, so as to better enhance the practicality of what students have learned in school.

First, the curriculum of colleges and universities. We should strengthen the connotation construction and teaching management, and emphasize the cultivation of vocational ability. In the personnel training program, related with Li Bin (2010) pay attention to the embedded involvement of employability, and strengthen the construction of employment guidance team by establishing employment guidance institutions. We will fully mobilize and integrate the sharing of scientific and educational resources among universities, research institutes and enterprises, promote the cooperation between universities and enterprises and the mode of in-depth cooperation between universities and colleges, and further form a whole-process and all-inclusive employment personnel training system this main point to relate with Guilbert L, et. al (2016) for employability enhancement for student

Second is the teaching model. "Qualifications plus a number of professional skill level certificate" pilot (1 plus X) system, according to the standard and professional skill level professional teaching standards, the certificate training content organic professional talent training plan, optimize the curriculum and teaching content, exploring the related professional examination and assessment of synchronous test (evaluation) professional skill level. Refer from Mariano Ramíre (2012) to propose the main collaboration from University-enterprise cooperation to solve professional knowledge in the same relative to meet enterprise requirements, degree and certificate link training students to promote more solid and solid basic theoretical knowledge, practice teaching improve the students' ability to apply theoretical knowledge, through the practice of enterprises to exercise the students'

ability of communication and coordination, information processing ability, team cooperation ability and the core competence of plan management ability and so on. It attaches great importance to practical teaching and the cultivation of students' ability, takes improving students' practical ability and innovation ability as the goal, condenses the cultivation characteristics in breadth and depth, constructs the training mode of compound talents to improve students' employability, promotes the employment mode at two levels of schools and colleges.

Third, the level of teachers. Teachers' education and teaching level and their own practical teaching experience have a profound impact on the formation of college students' employability. The education of college teachers is the key for college graduates to obtain the basic theoretical knowledge of employability and form better practical experience through campus practice teaching.

2) Family living environment. The growth environment of college students directly affects whether they are optimistic and positive, healthy, and have a sense of employment planning, etc. Having a good family atmosphere is conducive to college students to form a healthy and positive career attitude. The family living environment has an important influence on the growth of college students' employment ability. The ability construction and formation of good physical fitness, sunny and positive personality, correct career employment goal and other aspects are inseparable from the harmonious relationship between families, the influence of family members' personality and the family help to form the career goal planning.

The formation of college students' good personality without the influence of

the characteristics of the family members, the optimistic positive upward and diligence respect-work spirit cannot leave the family atmosphere influence, and the formation of these mental directly decided to college students in acquiring professional after can better maintain the profession, with people, communication and coordination ability and better qualified for the team work same pointed from Fred C. Lunenburg and Allan C. Ornstein. (2003).

3) The relationship between government guarantee and the improvement of college students' employability.

First, the government should have a long-term plan to improve the employability and provide practical institutional guarantees, such as providing employment security policies for college students and developing continuing education and learning system guarantees.

Second is to give more encouragement and extra rewards for innovation and entrepreneurship, same main point from Mckeown et.al (2013) to set up more excellent job models, enhance college students' confidence in employment prospects, promote them to better learn theoretical knowledge and professional related legal knowledge;

Third, the government should improve the vocational qualification system. The setting of vocational qualification certificates is conducive to stimulate the desire of college students to take exams and better transform knowledge into ability to support this point from LIANG Jinlong. (2022) to point that the government plays an important role in promoting employability, it can better enhance the employability of college students.

Discussion in the process from model for students' affairs in mental health for guideline as below.

(1) Government support

1) Policy guidance to provide investment in sustainable employability improvement

2) Improve the professional qualification certificate system

3) Increase the way of college qualification certification

(2) College mechanism

1) Ordering professional setting

2) Cultivation of employability of school-enterprise cooperation

3) Integrated teaching design of post, class and certificate

4) Guarantee the investment of teaching funds

5) Improve career planning,

6) Career tracking and guidance function

(3) Family support

1) Create a career plan

2) Build a healthy body

3) Establish a harmonious relationship

(4) Employability of college students

1) Knowledge

Professional Qualification

Certificate

Professional practical experience

Knowledge of computer operation

Foreign language Certificate

Common sense of economic Law

2) Ability

Information processing capacity

Ability of thinking

Problem solving skills

Team work ability

Communication skills

3) Quality

Be honest and trustworthy

Bear hardships

Be conscientious and responsible

Diligent and steadfast

Be optimistic.

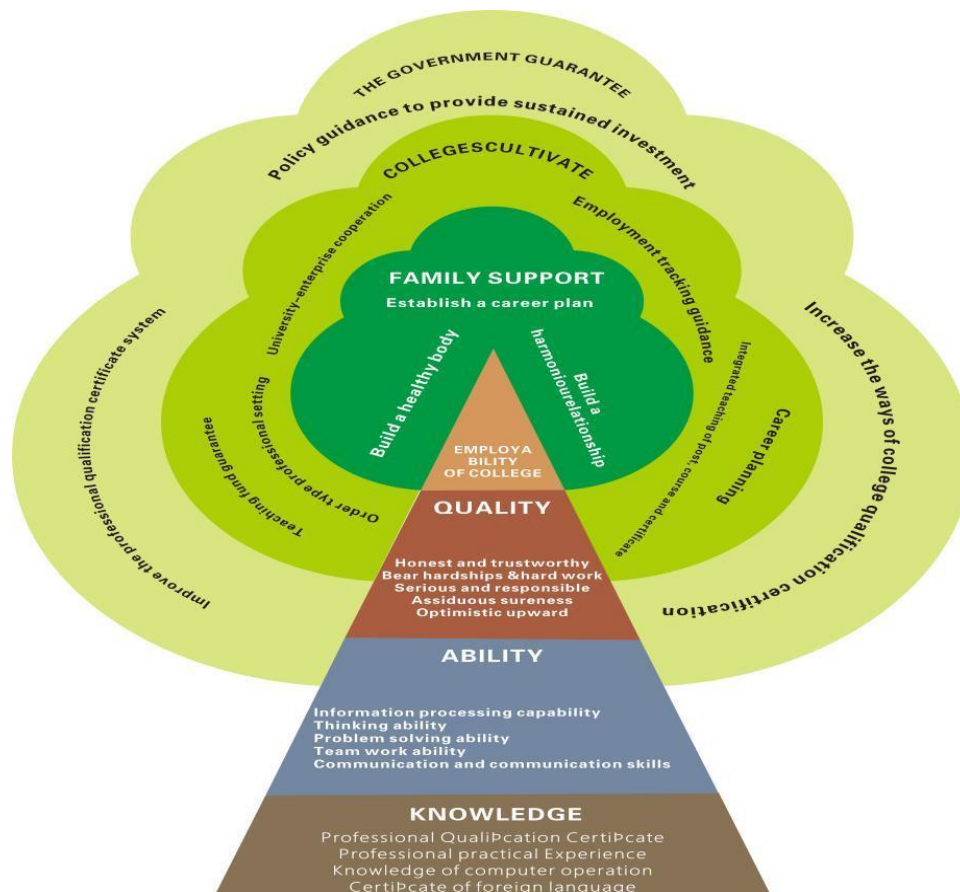


Figure 1: A model for educational administration enhancing graduate's competency employability in Business Vocational College under Chongqing Province.

According to this development model, the specific explanation is as follows:

1. Professional qualification certificate. It means that college graduates obtain a certificate through the unified qualification examination through learning in school or continuing learning outside school, which can measure a student's mastery of professional knowledge.

2. foreign language level certificate. It means that college graduates obtain a certificate through the unified qualification examination through learning in school or continuing learning outside school, which can measure a student's mastery of foreign language knowledge.

3. Professional practical knowledge and experience. Specifically, it refers to the knowledge gained by participating in various

practical activities in and out of school, as well as the experience gained indirectly through others. The reason why practical knowledge experience is different from professional knowledge and English computer knowledge is that it can only be acquired in the school or in the classroom, while practical knowledge must be actively acquired outside the classroom or through extra time outside the school.

4. Common sense of economic law. Any job is inevitable to have business contacts with taxation, industry and commerce, as well as the same industry. A certain knowledge of economic law will help the university understand the boundaries of work and business, and avoid business or other subsequent legal disputes.

5. Information processing ability. Including information acquisition ability and information understanding ability, refers to the ability to obtain the information needed to complete the task through various channels on the basis of the existing knowledge, and can fully understand various forms of information, and then quickly comprehensive analysis, master the key information ability.

6. Knowledge of computer operation. The development of information technology today, the development of work is inseparable from the application of computers, skilled use of computer office software, or have some special software tool application ability, such as WPS, Foot shop and other software use, can be better qualified for a career.

7. Problem solving ability. It refers to the ability to make judgment in a complex environment and coordinate the relationship between all parties to solve difficulties in the best way as soon as possible and lead the team out of difficulties. This requires the corresponding sense of responsibility, responsibility ability, execution ability and choice ability.

8. Teamwork ability. Specifically, it includes understanding the roles of myself and my team members in the team, recognizing and learning the strengths of my team members, accepting suggestions and giving feedback in the team, solving key problems through teamwork, and predicting and judging the upcoming opportunities and adverse factors in the development of events.

9. Communications skills. Communication ability mainly refers to the ability to express one's opinions timely in the environment and win support and recognition from various parties, including listening and understanding ability, written expression ability and oral expression ability.

10. Thinking ability. The ability to identify problems at work, design and execute plans, think creatively to generate new ideas,

learn to reason, think figuratively, and make decisions.

11. honest and trustworthy. Honesty is being true to things as they are, not hiding their true thoughts, not hiding their true feelings, not lying, not cheating. Trustworthy, is to say credit, say credit, keep promises, be faithful to their obligations, promised to others must do.

12. Bear hardships and stand hard work. Strong will, not afraid of difficulties, pioneering and enterprising is an excellent quality of a person, this quality can be formed through hard tempering, a person to achieve a career to make a difference, suffering hardship is necessary.

13. serious and responsible. Do a small thing is the basis of doing a big thing, and no serious and responsible attitude is impossible to be competent for a career, the so-called sincere to the touchstone is not open is the enterprise to a person's work style requirements.

14. hard practical. A gentleman should be unyielding, the world events only fear frequently. To do a good job and maintain a good personal competitiveness, we have to rely on a diligent and practical attitude. Having a diligent and practical working attitude is the essential quality emphasized by enterprises.

15. optimistic. A good positive attitude is the premise of a good career, but also can infect the team and colleagues around, better play the subjective initiative.

16. College Training:

1) Order-style major setting: The "order-style" talent training mode requires the school to formulate a talent training plan according to the ability needs of the enterprise's job, including training objectives, training specifications, vocational ability analysis, curriculum setting and development, curriculum standards, teaching methods and requirements, performance assessment methods, etc. The professional course

system can be consistent with the job, so as to effectively achieve talent training. Keep with the enterprise needs seamless connection of professional setting and training mode.

2) Cultivation of employability of school-enterprise cooperation: establish a long-term system and mechanism of school-enterprise active cooperation. We will formulate relevant preferential policies for school-enterprise cooperation to encourage enterprises to participate in education, and introduce specific measures to implement school-enterprise cooperation policies so as to institutionalize school-enterprise cooperation. Strengthen curriculum reform and improve teaching quality. Schools must make necessary adjustments to all aspects of teaching, so that students can learn, and pay attention to teaching team construction and cooperation; That is, to establish a professional teaching guidance "expert team" composed of leaders, experts and professors from industries, enterprises and schools, and to establish a reasonable "dual professional structure" and "teaching team" with a combination of professional and professional training; Actively carry out science and technology promotion, technical services, organize teachers to actively participate in the school-enterprise cooperation projects, through these activities to cultivate double-qualified teachers, master the technology frontier trends, enrich teachers' practical experience, improve teachers' skills.

3) Integrated teaching design of Post

and Class Certificate:

4) Guarantee the investment of teaching funds

5) Improve career planning

6) Career tracking and guidance

17. Government guarantee needs: Policy guidance to provide investment in improving sustainable employability 2) improve the professional qualification certificate system 3) increase the channels for college qualification certification.

Recommendation

1) The government sets up a support system for employability innovation and entrepreneurship competition in colleges and universities, with fixed funds to support the implementation of student entrepreneurship plans.

2) Schools should establish more knowledge and skill competitions to promote learning and teaching;

3) Teachers and professors should enhance the understanding of students' knowledge, adopt effective teaching methods for teaching content, and guide and cultivate students' interest in learning;

4) Students should enhance their learning ability, construct the concept of continuous learning, and maintain a healthy body through regular exercise;

5) High-level professional experts of the enterprise regularly come to the campus to hold lectures, and tell the enterprise development, enterprise needs and enterprise employment standards to college students in time.

Reference

- Chen Shusheng (2007) *Wide Angle Curriculum Culture the core of school cultural Construction*. Shanghai.
- Chen Yong. (2010). *Research on the employability of College Students and its Development Path*. Cnki. net. P.3.

- Chen Chen. (2020). *Do a good job of "six stability" and implement "six guarantees"*. Three perspectives on how to accomplish the goals and tasks of economic and social development throughout the year. *Guangming Daily* .p.20.
- Fred C. Lunenburg and Allan C. Ornstein. (2003). *Educational Administration: Concepts and Practices*. Belmont, CA: Wadsworth Publishing.
- Guilbert L, et. Al (2016). Employability: Review and research prospects. *International Journal for Educational & Vocational Guidance*, 69-89.
- Harvard Commission. (2010). *Harvard Redbook on General Education*. Beijing, China: Peking University Press.
- JiXiaojun. (2017). *Research on the impact of college students' financial aid on humanCapital Development*. Cnki. net.
- LIANG Jinlong. (2022). *Flexible employment in the context of COVID-19*. A Study on the Path of Social Work Intervention in Promotion .Cnki.net.p.8.
- Li Bin (2010). *China Youth Daily*, "The Employment Strategy Report of China" released by colleges and Universities is obviously insufficient in employability training)
- Mckeown et.al (2013) Graduate entrepreneurship education in the United Kingdom. *Education & Training*, 13(48), 597-613.
- Mariano Ramíre (2012). Employability attributes for industrial design graduates. ICERI2012. *Proceedings The 5th International Conference on Educational Research and Innovation November*. 19-21,
- Sun Jin and Chen Fuqiang (2016) The Matching Research of College Students' Employability and Social Demand. *China Adult Education*, 16,(22), 62-64.

Demographic Challenges Facing Higher Education Market: Thai Perspective

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ABSTRACT

Globalization and internationalization have caused pressure on the education market. This academic paper aims to analyze the challenges faced by higher educational institutions (HEIs) and provides recommendations for HEIs in curriculum planning. The researcher applied PEST analysis as a descriptive method to identify the global challenges encountered and proposed both short-term and long-term plans for HEIs. The most critical challenge is the demographic change of the declining fertility rate that the government needs to focus on. The proposed plan for the educational institution is to emphasize employability skills such as practical internships, which increase students' exposure to both knowledge, social, and cultural aspects.

KEYWORDS: Higher education market, Demographic challenges, Higher educational institutions, internationalization

Introduction

Globalization is a strong driving force responsible for changes in all industrial sections of a country. The interdependence of the world's economies, politics, cultures, and populations increases the interconnectedness of the nations. The process of globalization has impacted education and the world in diverse ways. The implementation of the 1999 National Education Act in Thailand was one of the solutions to the pressures of globalization. The Act emphasized the restructuring of the education system to improve the overall quality of Thai education. It focuses on moral education through the Theory of Sufficient Economy, introduces new teaching and learning methods, embraces diversity in the establishment of international partnerships, and emphasizes English as the

second major language in Thailand (Ministry of Education, 2017). The education reform aims to improve human capital and increase Thailand's competitiveness in the world.

Through globalization, the lifelong learning process of education becomes affordable to the mass public, or massification (Crocco, 2018). With the given equal opportunity of learning, education has turned out to be an effective national advancement tool for capital and economic development. The role of higher education becomes crucial in the linkage to the betterment of human capital. World Bank (2018) declared that higher education is the key to fostering long-term growth and boosting shared prosperity in both low- and middle-income countries. Higher education benefits individuals and society by producing competent youth

working capital and, in return for employable and higher wages. In the book *Poor Economics*, a longitudinal research study conducted by Banerjee & Duflo (2011) aimed to understand how poor people think in hopes of finding solutions for global poverty and found that education is the key to the problem. With the findings, it is inevitable that nations are prioritizing investments in education. According to national statistics from the Ministry of Education (MOE) in Thailand, expenditures on education have increased steadily since 2012, from 73.4 million Baht to 102.3 million Baht in 2021 (National Statistic Office, n.d.). Thai government sees the importance of education in assisting the nation's overall competitiveness in the global arena.

Unlike the business industry, the higher education industry is increasingly complex, having its own unique characteristics, for instance, the decision-making authority that consists of multiple stages with collaborative efforts from committee boards, administrative, and faculty members (Sajwani et al., 2021). The rise of globalization highlighted demands for new expertise, challenges, and opportunities (UNESCO, 2014). The roles of higher educational institutions (HEIs) include teaching, conducting research, and engaging in public services (Olo et al., 2021; Radinger-Peer & Pflitsch, 2017). The goal of teaching is to provide knowledge, skills, values, and the right attitude to promote human capital and economic development. In addition, HEIs need to concentrate on research areas that help improve economic development. Studies have shown that a positive relationship exists between nations with higher GDP per capita and higher expenditure on R&D (research and development) in the higher education sector (Buasuwan, 2018; Olo et al., 2021). The last distinctive role of HEIs involves community

services, where HEIs interact and collaborate with business sectors, such as the successful example of patents and innovations under the European Patent Organization (EPO) (Olo et al., 2021). HEIs can work closely with companies to develop innovative products and services to increase the nation's competitive edge. A report conducted by UNESCO (2021) indicated the purpose of higher education by 2050 should include promoting the well-being of global citizens, contributing to social and economic development, creating public good, and connecting higher education as an ecosystem for people to live together in a better world.

Challenges to Higher Education

An effective PEST analysis provides a framework to identify the external forces to comprehend the challenges facing higher education under pressure from globalization. PEST analysis, credited by Francis J. Aguilar in 1964, is a macro analytical tool used to examine external environmental influences, which consist of political, economic, social, and technological factors (PESTLE analysis, 2014). The analysis of the challenges facing higher education will be explored under the framework of PEST.

Political

Political factors refer to the degree of government support and legal and regulation factors that revolve around HEIs. Governmental support plays an important role that impacts higher education and the nation. The promotion of joint international projects financed by government grants, such as Erasmus, influences HEIs.

Under the new Higher Education Plan 2023-2027, the Minister of Higher Education, Science, Research and Innovation (MHESI) aimed to focus on improving education quality in Thailand to meet the labor market demands.

The main four strategies that MHESI focuses on are: (1) developing a value-driven economy by being competitive among ASEAN members; (2) enabling sustainable social and environmental development to overcome challenges; (3) developing cutting-edge science and technology through research and innovations to create more opportunities; and lastly (4) develop manpower, higher education, and research institutions to support the strategies. The budget for higher education consisted of THB 114.63 billion and THB 29.1 billion for science, research, and innovation (NXPO, 2022). The total education spending figure in 2022 was about 19.41% of the total public spending from the government (The Global Economy, 2022). Moreover, the latest Programme for International Student Assessment (Pisa) ratings indicated that Thailand's education quality is showing signs of decreasing in the fields of Reading, Mathematics, and Science. Thus, there are gaps between what the Thai curriculums offer and the Pisa assessment measurements (Charoensuthipan, 2023). As a result, the Ministry of Education needs to pay close attention to the decreased education quality of students and the drive to push for developing competent graduates to meet the nation's agenda of the Bio-Circular-Green Economy (BCG) and build competitiveness for Thailand to become a developed country.

The government's decision directly affects the amount of funds available and, consequently, impacts the number of students engaged (Kolomeits et al., 2019). The governmental support for the internationalization of HEIs results in increased mobility of students and faculty members (Olo et al., 2021; Thanosawan, 2017). The challenge for HEIs is to attract and retain the inflows of foreign students and instructors. With the vast cultural diversity backgrounds, HEIs need to adapt

organizational cultures to be inclusive. Rhein (2017) addressed faculty retention as one of the challenges among Thai HEIs because of the non-competitive salaries of academic professionals compared to international communities. Furthermore, he pointed out that the political instability in Thailand impacts the number of international students and faculty members coming to Thailand. The political decision by the government directly impacts HEIs, for example, in China, where the current government restricts Chinese students from studying abroad by limiting quotas of issuing passport (Long & Chan, 2021). A recent study about challenges faced in Pakistan's higher education indicated poor institutional facilities and bureaucratic management style hinder the effectiveness of education quality (Murtaza & Hui, 2021).

Economical

Economic disputes include the financial liabilities of students or parents and the nation's unemployment rate. Since the eruption of the COVID-19 pandemic in 2019, world economies have shrunk, millions have lost jobs, and the unemployment rate has staggered across the world. The Pandemic increased financial difficulties, which widened the gap of inequalities (Funk, 2021; International Labour Organization, 2021). According to the Household Debt report from the Bank of Thailand in 2023, as of 2022, the household debt was 14.9 trillion Baht and is likely to continue to rise. Therefore, it is an alarming issue for the government to take care of and urgently find sustainable solutions. One mentioned sustainable solution was to incorporate financial education for students in HEIs, such as financial products, investments, interest computation, and financial crimes and frauds (Bank of Thailand, 2023). By introducing such curriculums throughout HEIs in Thailand benefits the graduates in

terms of their household or future financial budgeting and planning.

According to an article published by the World Bank, Thailand has 710,000 fewer jobs than in 2020 (as of July). The unemployment rate increased from 1% to 2%, and the poverty rate surged to 7%, with the highest increase in rural areas in Thailand. In coping with the pandemic, the Thai government allocated a 23 billion Baht relief plan to assist education sectors, easing student debts or loans and subsidizing tuition plans. Education relief plans from the government help lighten the pressure on educational sectors. However, they are temporary yet short-term solutions. With the decline in the financial power of students or parents, private HEIs has direct consequences since tuition fee is their main revenue source (Crocco, 2018). The rising of student loans, decrease in inflows of international students, low level of foreign faculty retention, and dropout rates of students are several economic challenges of HEIs.

Differences in income level and increasing household debts pose challenges to lowering inequality in Thailand. The rising cost of living is yet to be another complication added to the challenges of education.

Sociocultural

Sociocultural factors relate to demographic changes, cultures, gender discrimination, and the attitudes of the students. Globalization eases the influx of immigrants to a nation. Private HEIs faced pressure to transform the institution to be inclusive with a diverse set of students from a wider range of socio-cultural backgrounds (Mitchell & Nielsen, 2012), for instance, the increase of Chinese university student applicants (Office of the Higher Education Commission OHEC, 2020). Demographic change plays an essential role in altering the need and adaption of HEIs. Demographics is

defined as a particular set of populations within a nation. HEIs are required to understand the generation of students and the demographic mix. Different generations require different needs. The level of student enthusiasm or willingness to study affects the overall planning of the curriculum. According to Hofstede's cultural dimension, Thailand is classified as a high power distance country where the concept of *greng-jai* plays an important role that avoids direct conformation with superiors. *Greng-jai* obstructs the creativity and independent thinking of students (Rhein, 2017). A mixed-method research by Buasuwan (2018) drew the same conclusion that creativity, courage to challenge norms and traditions, and authentic ideas were among the main factors Thais opt to improve.

Over the past few years, Thailand has turned into an international education hub alternative for students in Asia, especially with the growth of Asian students at Thai universities. Thai HEIs have a good advantage of being lower cost, having quality campus facilities, and welcoming friendly attitudes among foreigners. With the vast number of incoming international students, in particular Chinese students, Thai students have a chance to be exposed to diverse cultures, which brings benefits to graduates in terms of increasing cultural sensitivity and understanding among students. Moreover, HEIs can utilize the given environment to enhance the fostering of global citizenship among the graduates. International students bring direct contributions to the local economy by tuition fees, accommodation fees, and other expenditures. However, several threats indicated to the incoming waves of international students include language barriers, cultural misunderstandings, and strict cumbersome of Thai student visa processes (Pongsin, V. et al., 2023).

The low fertility rate has made Thailand one of the fastest-aging nations among the developing countries (Srithanaviboonchai et al., 2014). Demographers predicted that by 2040, a quarter of the Thai population will fall into the old age bracket. Reports indicate that, with a low birth rate, fewer high school graduates sit for the Thai Central University admission examination (ICEF, 2017). In countering the decline of high school students, HEIs have expanded their customer base to offer both long and short-term programs to working individuals or the elderly (Mala, 2019). Pongsin, V. et al. (2023) stated that the Thai supply of available seats in the universities outweighs the demand of local students applying. To close the gap, the best solution was the internationalization of HEIs by accepting international students.

Technological

Technological challenges facing HEIs comprise areas of educational technologies as well as internal competencies of each HEI. The rankings of universities, numbers of publications, and research (R&D) are a few mentioned factors related to the quality of education that different HEI offers (Guàrdia et al., 2021; Kassim et al., 2021; Mala, 2019; Murtaza & Hui, 2021; Olo et al., 2021; Rhein, 2017). Digital disruptions provided both threats and opportunities to HEIs. With the pandemic in place, online learning technology became inevitable for HEIs to adapt for survival. The hardware of digital technologies can be solved easily. However, the challenges of applying the technologies across all stakeholders require time to adjust and learn, positive attitudes, and perseverance.

One major trend of technological change - robotics and artificial intelligence (AI), which is transforming in various industries is what many Thai HEIs are falling

behind (Dumrongkiat, 2019). For Thai HEIs to develop competitive graduates in alignment with BGC economy development, universities need to transform themselves into a technology-friendly future with a focus on research and innovation development opportunities and collaborations with industries to enhance graduates' practical experiences or skills.

There are numerous challenges HEIs face, and PEST analysis addresses some aspects pertaining to the literature review of articles in the year 2020-2021. HEIs in different nations face distinctive challenges, yet every HEI poses its own unique characteristics, which contribute to the diverse, unique challenges each faces. In conclusion, there is, however, no one-solution-that-fits-all for countering the threats of HEIs.

Demographic Challenges: Decline of Fertility Rate

The most critical threat pertaining to HEIs is the demographic change of low fertility rate. A BBC report by Gallagher (2020) projected the global fertility rate will fall below 1.7 births per woman by 2100 as compared to 2.7 births per woman in 2017. This phenomenon will create an enormous social change to the world. Low birth rate is related to rising economic risk, social changes of gender equality, lack of governmental support (Yang et al., 2020), family formation involving greater sacrifices from women, and equality of education (McDonald, 2008). Recent studies by Istihak et al. (2018), Gray & Evans (2019), and Cornett (2020) indicated a significant positive correlation between female education and the fertility rate: the higher the education of a woman, the lower the birth rate. The consequences of a low birth rate are associated with the national population and reduction of the labor workforce. The

reduction of working capital in a developing country holds back a nation's competitiveness. More so, the phenomenon of entering an aging society takes a longer time-lapse to bounce back to a healthy age demographic (McDonald, 2008).

Thailand, one of the fastest aging populations among developing countries, will be facing potential educational challenges in fighting against the low fertility rate. The sharp drop from 6.3 birth rate in mid 1960s to 1.51 birth by 2019 (Bangkok Post, 2021) creates an alarming sign for the government and education sectors. The number of college-age students is projected to drop sharply by 2040, which contributes to major challenges for HEIs in maintaining enrollment numbers, especially in private sectors. Reports projected that the downward trend of the population would result in Thai HEIs facing either downsizing or closure decisions (ICEF, 2017). Without maintaining a sufficient university enrolment rate, Thai HEIs are unable to produce enough working capital for the nation, and the nation's transformation to Thailand 4.0 would be difficult. Thanosawan (2017) indicated that for Thailand to enter the ASEAN Economy Community (AEC), several restructurings are inevitable among Thai HEIs. The agreement of transferable eight professions (medicine, nursing, engineering, accounting, architecture, hospitality and tourism, and surveying) within ASEAN countries intends to solve the decline of Thai youths and maintain the professional workforce in the country.

Internationalization of Thai HEIs can ease the decline of local university-grad students' enrollment problem; however, with the global fertility rate dropping, it is likely to remain an essential long-term challenge for HEIs. The increasing acceptance of Chinese students answers the decline in local student enrollment rate. However, overly emphasis on

international students (for example, Chinese students) can increase the risks. The number of international students coming to Thailand depends on political influences, which is not within the controls of HEIs.

The decline in birthrate impacts student enrollment not just HEIs but also basic education (K-12). A study conducted in Taiwan, revealed the Ministry of Education reluctantly shrink schools, close schools, or even merge schools (Yang et al., 2020) due to the sharp drop of students. It is wise to investigate countries that are in ageing society as case studies for Thailand. An interesting finding of Yang and others showed that public primary school's enrollment declines where the private schools are gaining more enrollments. The tradeoff between quantity and quality leads to an explanation of this negative relationship. Smaller family can afford to invest more in a child with better quality of education, health, and cognitive ability. Likewise, Thailand has seen an increase in enrollment in bilingual or international schools among Thais (Wei & Mhunpiew, 2020).

Recommendation

The decline in the fertility rate causes social demographics to change. In response to the challenge, a short-term and a long-term initiative plan is proposed for private HEIs in Thailand because private institutions have a higher degree of flexibility for changes, unlike public or autonomous universities with centralized governmental supervision. Low fertility contributes to the decreasing number of local university enrollments. The goal of the private HEIs is to increase or maintain the number of applicants. Prospective applicants are separated into attracting both local and international students. Private HEIs should first focus on increasing marketing spending on advertising their institutions and creating

exposure of their core competencies to the public and international education market. The creation of a strong university image helps increase the chances of recognition. Times Higher Education, an international magazine reporting on news and issues related to higher education since 1971, published an article about the increase in HEIs' submission to The Impact Rankings in Thailand has gone up to 55 from 26 universities (Bothwell, 2022). This indicated that universities are trying to increase their publicity and credibility to both local and international markets to attract more potential students.

Secondly, with the limited funding for R&D in private HEIs, universities can approach community or business sectors to enhance one of the roles of HEIs' which is to collaborate with the public sector to increase national competitiveness. HEIs can survey the practical requirements or needs of the communities and joint projects.

Third, private HEIs need to incorporate more practical experiences in all programs offered by adjusting existing curriculums for internships. The practicality of an internship can bridge the gap between a student's theoretical knowledge and reality. Studies have shown that Thai students are used to spoon-feeding knowledge, and it hinders their ability to learn (Buasuwan, 2018); therefore, by addressing internships in all majors, students can increase their experiences and enhance their personal development. In addition, the public services and business sectors benefit from the recruitment of students with prior knowledge and skills after graduation.

Short-term Plan

The author proposed a short-term plan of incorporating one-term to two-year internship or CWIE requirements in all programs offered by HEIs. In 2002, the

Ministry of High Education, Science, Research and Innovation introduced Cooperative and Work-Integrated Education or CWIE. It is a co-designed educational program that asks workplaces to participate in designing the student learning outcomes and the program's management system. The main objective is to provide students with hands-on experiences through working as full-time staff in actual workplaces (MHESI, 2022). CWIE emphasizes the importance of HEIs collaborating with industry workplaces.

The collaborative program will adapt Drucker's SMART framework that focuses on goals and plans to analyze the desired outcome (Caramela, 2018) clearly.

Specific:

With the goal of increasing student enrollment, altering curriculums to be more attractive and practical for prospective students is an alternative. Benefiting from the Memorandum of Understanding on the promotion of CWIE between MHESI and the Council of University Presidents of Thailand, building the relationship built between HEIs and public or business communities should become easier and faster (MHESI, 2022). However, such promotion is a rather top-down management indication. The stakeholders involved in this plan include administrative and educational leaders, and faculty members should all have the same objective in changing and implementing the new cooperative program. The resources needed for the plan require field studies of the willingness of the public sector and the current students about the internships. After the preliminary studies, HEIs can then check and adjust the curriculum accordingly. The field study is important because developing a curriculum takes time.

Due to the increase of international students in Thai HEIs, CWIE could remain challenged in facilitating international students

because of language and cultural barriers (Pongsin, V. et al., 2023). However, to overcome such challenges, Thai HEIs can offer courses to improve language skills to equip international students with the basic competencies to work in Thai labor markets.

Measurable:

Assuming that the desired curriculum is offered to the public, the measurable plan will be the number of applicants enrolled in the program. Moreover, questionnaire surveys of students' evaluations can serve as a measurement of the success or failure of the program. The interviews from industry data are required to collect for adjusting and improving the curriculum specifications or objectives.

Achievable:

The goal is achievable for related parties within the HEIs because the administration, faculties, and leaders have already obtained the knowledge and skills to implement the changes.

Relevant:

The relevant section answers whether the goals are aligned with the mission and visions of the HEIs. Based on the proposed adjusting curriculum with required internship, it will not change the general direction of the HEI, but rather bridge school, public sector, and students closer to societal needs, which align with Thailand's overall BCG Economy (NXPO, 2022).

Time-based:

The field study and the change of curriculum require approximately one year to complete. It is well within the consideration of a short-term plan of one to three years.

Incorporating internships in all curriculums could attract prospective

enrollments since it provides added value in combining real-work experiences with theories. Internships are considered a high-impact practice tool (Hora, 2020) and a solid indicator of future employability (Bender, 2020) that HEIs can exploit. It promotes the smooth transition of graduate students from higher education settings to real-life working environments. Numerous research studies across the continent revealed that internships do indicate positive significance with educational knowledge and practical experiences. Both studies of accounting-related major students, Bayerlein (2020) in the USA and Hairston et al. (2020) in Australia indicated that students' learning outcome is strongly influenced by their prior real-world working experiences acquired during internship. The experiences obtained from internships are classified into three main categories: start-up experiences, industrial-specific experiences, and managerial experiences (Chou et al., 2017). A case study of Japanese engineering students expressed the increasing student satisfaction with internship experiences in Malaysia and the rising number of participants in the program (Tan & Umemoto, 2021). Aleshkovski et al. (2020) studied the perception of quality education and career choices among 1,472 Russian students. The result showed that Russian students chose a particular college or university to 38.4% university reputation, 28.6% on their personal interests, and 15.8% on the university's partnership or relationship with companies. As stated above research, an internship plan can provide an alternative to attract prospective students.

Long-term plans are plans that range from five years and above. The proposed

Long-term Plan

The long-term plan for countering the nation's low fertility rate is the merger and acquisitions (M&A) of educational

institutions if a local number of students is not reaching the expected amount. Whether to merge or acquire another institution, through the transaction, both HEIs can complement each other's resources or competitiveness. Thai HEIs should have the long-term goal of prospective institutions for M&A because, with the decrease in the overall population, HEIs will soon be forced to downsize, close, or merge schools (Yang et al., 2020) as the Taiwanese government is facing with the drop in a number of students. Report articles indicated that the number of M&A in higher education is rising in the United States. The acquirement of Kaplan, an educational service provider, by Purdue University in 2017 sets a success exemplar for many HEIs to follow (Moyer & Robinson, 2020). The main reasons for acquiring Kaplan were to expand its client base (Kaplan has adult learners) and defend against new industry rivals such as Kahn Academy. Leslie et al. (2018) conducted a qualitative study to understand further in-depth of the merger of two distinctive HEIs in the USA. Results revealed that a merger might appear plausible, but behind the transaction, unexpected challenges await, and researchers suggested that effective leadership in managing the new institution is the key to overcoming the difficulties.

M&A decisions are difficult and challenging for institutions because they require a tremendous amount of due diligence and analysis for the success of the transaction. The complex structure of HEIs makes it challenging to fulfill all the expectations of all stakeholders involved. In the Sajwani et al. (2021) study, findings highlighted several significances in the process of M&A of HEIs. First, government support in policies, technological support, and financial support contribute positively to merger effectiveness. Second, the strategic decision toward choosing the right strategic alliances or

mergers must strengthen the institution's competitiveness. Third, finding the matching compatibility partner is essential during M&A. Lastly, the decision to evaluate future foresight resources (such as a digital online platform or a technological foresight resource) of the institution is important.

The outcomes of M&A in higher education are challenging to evaluate (Williams, 2017). The diversity and uniqueness of each institution make it harder to generalize. Although some studies see benefits such as improvement of student retention, growth in enrollments, institution offerings, and strengthened academic portfolios, some studies indicated no success or failure impacts of M&A. A mixed attitude toward M&A of higher education exists in literature reviews. Thus, understanding one's own institution, its strategic position in the industry, and its missions before a strategic M&A plan is necessary. However, the success of M&A will gain numerous advantages and overcome the most challenging demographic changes.

Conclusion

The external influences of PEST analysis pressure all educational institutions. The decline in the fertility rate pressures the Ministry of Education, schools, HEIs, and educator leaders to rethink the concept and the direction of education and management style and adjust administrative strategies and policies to respond to social change. Transformation of HEIs is a must, and it is no longer a place for only university students but rather a study place that includes students of all ages. A university becomes a place where students and industries solve real-life problems together. The old education model will soon be obsolete and Thailand needs to change fast.

References

- Aleshkovski, I. A., Gasparishvili, A. T., Krukhmaleva, O. V., Onosov, A. A., Federation, R., Federation, R., Sociology, A., & Federation, R. (2020). Students' perceptions of quality in higher education and career choices: A case study of the Russian Industrial Region. *European Journal of Contemporary Education*, 9(4), 710–725.
- Banerjee, A. V., & Duflo, E. (2011). *Poor Economics*. Public Affairs.
- Bank of Thailand. (2023, February). *Sustainable solutions to Thailand's household debt problems*. BOT Directional Paper on Financial Landscape.
- Bayerlein, L. (2020). The impact of prior work-experience on student learning outcomes is simulated internships. *Journal of University Teaching and Learning Practice*, 17(4), 1–19.
- Braun, V., & Clarke, V. (2012). *Thematic analysis: A practical guide*. SAGE Publications.
- Bothwell, E. (2022, February 21). *More than 1,500 universities submit data for impact ranking*. Times Higher Education. <https://www.timeshighereducation.com/world-university-rankings/more-1500-universities-submit-data-impact-rankin>.
- Buasawan, P. (2018). Rethinking Thai higher education for Thailand 4.0. *Asian Education and Development Studies*, 7(2), 157–173.
- Caramela, S. (2018). *4 Ways to implement Peter Drucker's Theory of Management*. Business News Daily. <https://www.businessnewsdaily.com/10634-peter-drucker-management>.
- Charoenkul, N. (2021). Approaches to developing future teacher leadership to enhance students' human value creating global citizenship. *Psychology and Education Journal*, 58(1), 5443–5453.
- Chou, C.-M., Shen, C.-H., Hsiao, H.-C., Shen, T.-C., & Tsen, Y.-J. (2017). Assessment indicators of tertiary student of internship programs adjust Industry 4.0. *International Journal of Psychology and Educational Studies*, 4(2), 24–33.
- Cornett, A. (2020). *Analyzing the relationship between female education and fertility rate*. Drake Undergraduate Social Science Journal, Spring.
- Creswell, J. W. (2015). *Educational Research - planning, conducting, and evaluating quantitative and qualitative research (5th ed.)*. Pearson.
- Creswell, W. J., & Creswell, J. D. (2018). *Research design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.)*. Sage Publication.
- Crocco, O. S. (2018). *Thai higher education: Privatization and massification*. In G. W. Fry (Ed.), *Education in Thailand An Old Elephant in Search of a New Mahout* (Vol. 42, pp. 223–255). Springer. https://doi.org/10.1007/978-981-10-7857-6_9
- Dumrongkiat, Mala. (2019, August 1). *Thai unis face major challenges*. Bangkok Post. <https://www.bangkokpost.com/thailand/general/1722615/thai-unis-face-major-challenge>
- Funk, R. L. (2021). Challenges for higher education in times of COVID-19: How three countries have responded. *Higher Learning Research Communications*, 11(0), 106–111.
- Gallagher, J. (2020). *Fertility rate: "Jaw-dropping" global crash in children being born - BBC News*. BBC News, 5–8. <https://www.bbc.com/news/health-53409521>
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update (4th ed.)*. Allyn & Bacon.
- Gray, E., & Evans, A. (2019). Changing education, changing fertility: A decomposition of completed fertility in Australia. *Australian Population Studies*, 3(2), 1–15.

- Guàrdia, L., Clougher, D., Anderson, T., & Maina, M. (2021). IDEAS for transforming higher education: An overview of ongoing trends and challenges. *International Review of Research in Open and Distance Learning*, 22(2), 167–184.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis*. In Volume 7th ed (8th ed.). Cengage.
- Hairston, S., Harter, C., & McKay, B. (2020). Bridging the CPA exam gap: Do internships matter? *American Journal of Business Education (AJBE)*, 13(1), 9–18.
- ICEF. (2017). *Thailand's growing supply-demand gap in higher education*. ICEF. <https://monitor.icef.com/2017/10/thailands-growing-supply-demand-gap-higher-education/>
- International Labour Organization. (2021). *Unemployment*. The World Bank Data. <https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS>.
- Istihak, R., Khaled, A., & Islam, M. S. (2018). Determinants of fertility rate decline in the South Asian countries: A panel data approach. *International Journal of Development Research*, 8(7), 21583–21589.
- Kassim, M. A., Damio, S. M., & Omar, A. R. (2021). Conceptualising higher education Asianization: ASIANur. *Asian Journal of University Education*, 17(2), 122–131.
- Kolomeits, A., Grinchenkov, D., & Vodenko, K. (2019). PEST- and SWOT-analysis of university internationalization factors. *Journal of Physics: Conference Series*, 14(15), 12.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610.
- Leslie, H., Abu-Rahma, A., & Jaleel, B. (2018). In retrospect: a case of merger in higher education. *International Journal of Educational Management*, 32(3), 382–395.
- Long, Q., & Chan, E. (2021). *China stops issuing new Passports, slaps entry, exit curbs on citizens*. *Radio Free Asia*. <https://www.rfa.org/english/news/china/curbs-08062021095546.html>.
- Mala, D. (2019). *Thai universities struggle to keep up*. Bangkok Post. <https://www.bangkokpost.com/thailand/general/1604990/thai-unis-struggle-to-keep>
- McDonald, P. (2008). Very low fertility: Consequences, causes and policy approaches. *Journal of Population Problems*, 64(1), 19–23.

Innovation and Practice of Collaborative Education Model Based on School and Enterprise Joint Construction of Laboratories-- Taking Jiangxi Institute of Fashion a Case Study

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Abstract

This study took Jiangxi Institute of Fashion Technology as an example and used a qualitative research method to explore the role of innovation and practice in the collaborative education model based on the joint construction of laboratories between schools and enterprises through face-to-face interviews. The study found that the collaborative education model of joint building laboratories between schools and enterprises had a positive impact on education quality and student development, improving education quality, cultivating students' practice and problem-solving abilities, and helping them better adapt to practical work needs. In addition, the joint construction of laboratories by schools and enterprises has improved students' innovation awareness and abilities, and has had a positive impact on their career development, teamwork spirit, and communication skills. University administrators stated that joint construction of laboratories with enterprises and adopting a school enterprise collaborative education model could help break traditional teaching models and cultivate high-quality talents with both professional knowledge and practical experience.

Keyword: Collaborative education model, Creative education, Education quality

Introduction

1.1 Rationale for undertaking the research project

The cultivation of practical ability is one of the important indicators of higher education quality. In the current context of education reform, universities must adapt to the changes of the times and explore new educational models to better meet the demand for high-quality talents in society (Brammer, 2020) . The collaborative construction of laboratories between schools and enterprises is a noteworthy innovative educational model aimed at improving students' practical and innovative abilities.

School enterprise co construction laboratory refers to a laboratory jointly established, managed, shared resources, and mutually beneficial cooperation between higher education institutions and enterprises. It

emphasizes the concept that schools and enterprises jointly shoulder the responsibility of talent cultivation. This model not only helps to improve teaching quality and talent training effect by combining academic and practical knowledge, but also can strengthen cooperation and exchange between universities and enterprises, and promote scientific and technological innovation and economic development.

The collaborative education model is an important component of the joint construction of laboratories by schools and enterprises. The basic principle is to combine theoretical knowledge with practical operation, promoting students' innovation ability and problem-solving ability in practice (Cheatham, 2019). The collaborative education model emphasizes students' subjectivity and independent thinking ability, emphasizes teacher-student interaction

in the practical process, enables students to master practical skills and professional literacy in practical operations, and strengthens the connection and communication between schools, enterprises, and society.

Currently, many universities both domestically and internationally are exploring and implementing collaborative education models. For example, the Massachusetts Institute of Technology in the United States has developed a series of projects jointly conducted by students and teachers through collaboration with the industry, aiming to cultivate students' collaborative, innovative, and leadership abilities (Criado, 2021). The University of Manchester in the UK provides students with the "real world experience" course, encouraging students to actively participate in practice in the learning process, so as to obtain more in-depth theoretical and practical experience.

In China, the joint construction of a laboratory by Jiangxi Fashion University and enterprises is a good example. Jiangxi Institute of Fashion has established a laboratory that integrates teaching, industry, and scientific research through collaborative cooperation with enterprises, providing students with many opportunities to participate in real projects and providing more professionals and technical support for enterprises. In practice, students can learn and master key professional abilities and skills in the industry through teamwork, such as brand design, marketing, etc.

The implementation of collaborative education mode requires the establishment of a good cooperation mechanism, through the cooperation of schools, enterprises, and society, to achieve collaboration in teaching resource sharing, knowledge accumulation, technology research and development, and other aspects (Mendonça, 2018). This places higher demands on teachers and managers in universities, requiring greater emphasis on the cultivation of students' practical operational skills and professional qualities, improving teaching methods and means of practical teaching, and strengthening communication and exchange between teachers and schools.

The purpose of this study is to analyze and explore the collaborative education model of the school enterprise joint construction laboratory of Jiangxi Fashion University, in order to explore the promoting effect of the collaborative education model of the school enterprise joint construction laboratory on talent cultivation work in universities.

Firstly, the joint construction of laboratories by universities and enterprises is an important carrier for cooperation between universities and enterprises. It plays an important role in promoting higher education teaching reform, strengthening practical training, and improving the quality of talent cultivation. The collaborative education model of jointly building laboratories between schools and enterprises is an important means to achieve this goal. Therefore, conducting in-depth research on it can help reveal its promoting role and influencing mechanism for talent cultivation in universities, and provide effective reference basis for higher education teaching reform.

Secondly, talent cultivation in universities is one of the core tasks of higher education, and the collaborative education model is a brand new talent cultivation method that can combine theoretical knowledge with practical operations to cultivate students' practical abilities and comprehensive qualities (Dianto, 2020). Therefore, the purpose of this study's topic selection is to analyze the implementation effect of collaborative education mode, reveal its positive impact on talent cultivation work in universities, and provide reference for universities to formulate more scientific and reasonable talent cultivation plans.

Thirdly, the implementation of the collaborative education model requires cooperation from schools, enterprises, and society, which will help further improve the cooperation mechanism between industry, academia, and research, and promote the deep integration of industrial technology innovation and talent cultivation. Therefore, the purpose of this research topic is also to explore the potential of industry university research cooperation through the study of collaborative education models, find more effective ways of education and teaching reform, and provide strong support for building an innovative country.

In summary, conducting in-depth research on the collaborative education model of the school enterprise co construction laboratory of Jiangxi Institute of Fashion Technology will help reveal its important role and impact mechanism on talent cultivation in universities, and provide important theoretical and practical references for promoting higher education teaching reform and promoting practical ability cultivation.

1.2 Outline of study

The scope of this study mainly revolves around the innovative and practical role of the collaborative education model of school enterprise co construction laboratories in higher education. Specifically, the study will focus on exploring the following issues:

Firstly, this study will explore the innovative and practical role of school enterprise co construction laboratories in collaborative education models. By analyzing the characteristics and advantages of school enterprise co construction laboratories, as well as the cooperation methods and experiences between schools and enterprises in education and teaching reform, this paper reveals the positive impact of school enterprise co construction laboratories on education quality and student development.

Secondly, this study will investigate how to utilize the joint construction of laboratories by schools and enterprises to promote the cultivation of practical abilities of university talents. Through interviews, collect relevant and opinions, explore the improvement effect of school enterprise co construction of laboratories on students' practical and problem- solving abilities, and provide specific cases and experiences.

Thirdly, this study will draw on the experience of jointly building laboratories between schools and enterprises at Jiangxi Institute of Fashion Technology to explore how to promote higher education teaching reform. Through in- depth research on the joint construction of the laboratory between the school and enterprise of Jiangxi Institute of Fashion Technology, the successful experience and existing problems are analyzed, providing reference and reference for other universities, and promoting the process of higher education teaching reform.

In terms of research methods, this study will adopt qualitative research methods, combining questionnaire surveys and interviews to collect relevant data. Through the organization and analysis of data, the innovative and practical role of school enterprise co construction laboratories in collaborative education mode is revealed, and corresponding conclusions and suggestions are provided.

2. Literature Review

2.1 Introduction

This chapter mainly provides an in- depth review and analysis of the joint construction of laboratories and collaborative education models between schools and enterprises. In this chapter, we first introduce the basic concepts and existing problems of school enterprise co construction laboratories. The school enterprise co construction laboratory is a laboratory jointly created by universities and enterprises, with the aim of providing both a scientific research platform for schools and technical innovation and talent training services for enterprises (Huy, 2021) . However, due to the lack of in- depth communication and inconsistent understanding between the two parties, there are still some problems and challenges in the joint construction of laboratories by schools and enterprises.

Next, we introduced the relevant theoretical and practical research on collaborative education. Collaborative education is a new type of educational and teaching model, with its core concept being "collaboration" rather than "competition". In collaborative education, schools, enterprises, and society jointly participate in the education and teaching process to cultivate talents. In specific practice, collaborative education can include multiple aspects such as practical teaching, course design, and teacher collaboration (Misra, 2020) . The purpose of collaborative education is to provide students with better exposure to real-life work scenarios, enhance their practical and operational abilities, and thus better adapt to the needs of social development.

After introducing relevant theories, we further explored the application of collaborative education model in higher education. Through practical cases of laboratory and collaborative education models jointly built by schools and enterprises, we can find that this model can effectively improve students' practical abilities, cultivate their innovation awareness and practical abilities, and provide more talent resources and technical support for enterprises (Lauterbach,2019).

Finally, we proposed the hypothesis of whether the joint construction of laboratories by schools and enterprises contributes to the innovation and practice of collaborative education models in this study, and introduced the design of subsequent research methods

(Serdyukov, 2017). In summary, this chapter mainly provides a theoretical basis and methodological support for subsequent research by conducting an in-depth review and analysis of relevant literature in the field.

2.2 Theories

2.2.1 Coordinating education between schools and enterprises

Promoting collaborative education through internships and practical activities: Hunaidah's research suggests that collaboration between schools and enterprises can promote learners' career preparation and skill development in real work environments through internships and practical projects. This collaborative education model can improve students' practical abilities and enhance their competitiveness in the job market. (Hunaidah, 2018)

The importance of cross-border teacher team cooperation: Patrawalla's research points out that collaborative education between schools and enterprises requires the establishment of a cross-border teacher team cooperation mechanism. School teachers and business personnel can jointly participate in teaching design, curriculum development, and evaluation, ensuring a close integration of educational content and professional needs, and cultivating talents that meet industry requirements. (Patriwalla, 2019)

Effective communication and coordination mechanisms: Rajib's research has shown that educational collaboration between schools and enterprises requires the establishment of effective communication and coordination mechanisms. Both parties should actively communicate their needs and expectations, clarify their respective roles and responsibilities, and ensure the consistency and implementability of educational goals. (Mahoney, 2021)

2.2.2 Joint adoption of enterprise open laboratories

The definition and characteristics of an enterprise open laboratory: An enterprise open laboratory refers to the opening of its internal research and development laboratories, technology platforms, and other resources to the outside world, and the collaboration of scientific and technological innovation with other enterprises, universities, research institutions, etc. Under this model, enterprises reduce research and development costs and improve innovation efficiency by collaborating with external partners to build laboratories,

share technical equipment, and professional knowledge. (DePetris, 2017)

The impact of enterprise open laboratories on innovation capabilities: Enterprise open laboratories can also promote industry university research cooperation and cross disciplinary and cross-border innovation, promoting sustainable innovation development. Research has found that enterprises adopting an open innovation approach are more likely to engage in innovation cooperation with external partners, thereby forming innovation alliances in different fields and promoting industry university research cooperation. (Marconi, 2020)

Innovation and operation of enterprise open laboratory model: The continuous operation of enterprise open laboratories requires the establishment of long-term and stable partnerships, and the emphasis on balancing the interests of both partners. Research suggests that the operation of enterprise open laboratories requires many aspects of work, including establishing appropriate intellectual property protection mechanisms, formulating clear sharing rules, and establishing trust among collaborative partners. (Miranda, 2019)

2.2.3 Introducing company executives personally into the classroom

The definition and characteristics of corporate executives entering the classroom: Corporate executives entering the classroom refers to interactive communication or teaching activities conducted by corporate executives at schools or educational institutions. Under this model, corporate executives can have face-to-face communication with teachers, students, or training subjects to share their experiences, insights, and thoughts. The purpose of corporate executives entering the classroom is to enhance teaching quality, improve students' professional literacy, and expand the influence of the enterprise. (Moldoveanu, 2019)

Advantages of corporate executives entering the classroom: Entering the classroom can enhance students' workplace awareness and professional confidence, enhance their self-awareness and self-evaluation abilities. Research has shown that during the process of corporate executives entering the classroom, students can come into contact with company decision-makers and leaders, understand corporate culture and values, and thus have a clearer grasp of their own development direction. (Peurach, 2019)

The challenge of corporate executives entering the classroom: Corporate executives need to coordinate and communicate with multiple aspects such as schools, teachers, students, and parents when entering the classroom. Research has found that corporate executives entering the classroom involves multiple interests and needs, and it is necessary to establish reasonable communication mechanisms and cooperation models to reach consensus and promote cooperation. (Pals, 2020)

2.2.4 Innovation and practical collaboration

The definition and characteristics of innovation and practical cooperation: Innovation and practical cooperation refers to the cooperative relationship between different disciplinary fields or between academia and industry, aiming to achieve the transformation and application of innovative achievements. Research has shown that the characteristics of innovation and practical cooperation include: 1) emphasizing openness and collaborative innovation; 2) Pay attention to solving practical problems and promoting industrial development; 3) Efficiency oriented, requiring practical application value. (Secundo, 2020)

The advantages of innovation and practical cooperation: Innovation and practical cooperation can promote communication and exchange between academia and industry, and promote interaction and cooperation between both parties. Research has shown that in the process of innovation and practical cooperation, the academic community can better understand industry needs and trends, while the industry can better acquire the theoretical foundation and professional knowledge of the academic community. (Vicente, 2020)

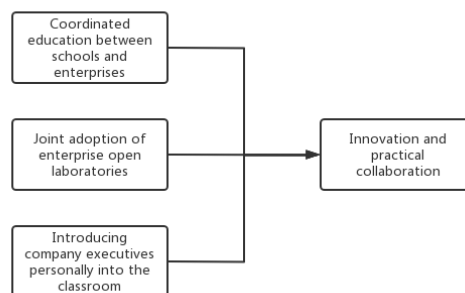
The challenge of innovation and practical cooperation: Innovation and practical cooperation need to coordinate the interests and goals of both parties, establish good cooperation mechanisms and management models. Research has found that in the process of innovation and practical cooperation, there may be issues such as inconsistent cooperation goals and intellectual property rights between both parties. It is necessary to establish reasonable cooperation mechanisms and management models to reach consensus and promote

cooperation. (Mendonça, 2018)

2.3 Conceptual framework

The research framework of this study aims to explore the impact of coordinating education between schools and enterprises, collaborating through enterprise open laboratories, and personally introducing corporate executives into the classroom on innovation and practical collaboration.

Independent variable Dependent variable



Study framework diagram

3. Methodology

3.1 Aim of research

(1) To research the innovative and practical roles of school enterprise co construction laboratories in collaborative education models.

(2) To research how to utilize the joint construction of laboratories by schools and enterprises to promote the cultivation of practical abilities of university talents.

(3) To research how to promote teaching reform in higher education.

3.2 Qualitative approach

This study adopted a qualitative research method, mainly collecting information through interviews. Qualitative research aimed to provide a deeper understanding and explanation of the complexity and diversity of specific phenomena. In this study, it was hoped to interview professors and university administrators to obtain their views, experiences and perspectives on the collaborative education model of university enterprise joint construction laboratory, so as to explore the innovation and practical role of this model, as well as its driving role in the cultivation of university talent's practical ability and teaching reform.

Through open-ended interview questions, the researcher guided respondents to engage in in-depth thinking and discuss relevant concepts, educational models, and cooperation effectiveness in detail. By organizing and

analyzing interview results, and empirical cases, key viewpoints, common characteristics would be extracted, to answer research questions and support the main viewpoints of the paper.

The advantage of qualitative research is that it can provide rich and detailed data, gain a deeper understanding of participants' perspectives and experiences, and reveal the complexity and diversity of research phenomena. Through interviews, we can collect participants' direct feedback and practical experience on the collaborative education model of university enterprise joint construction laboratory, which will help us to deeply understand the innovation and practical role of this model. At the same time, qualitative research also has certain limitations, such as limited sample size, which may limit the universal applicability and universality of the results.

3.3 Interview

This study adopts face-to-face or online interviews, mainly through interviews with professors and university management personnel to obtain their views, experiences, and perspectives on the collaborative education model of university enterprise joint construction laboratories. The following is an interview guide for this study:

Interview questions with professors:

Do you think that under the collaborative education model of jointly building laboratories between schools and enterprises, how does the collaborative cooperation between schools and enterprises affect the quality of education and student development?

Has the joint construction of laboratories by schools and enterprises improved students' practical and problem-solving abilities? Please share some specific cases or experiences.

How do you think the joint open laboratory has an impact on students' innovation awareness and ability? Are there any relevant successful cases that can be shared?

Has introducing corporate executives into the classroom played a positive role in students' career development in school enterprise cooperation? Please share some relevant viewpoints or practical experience.

Does the collaborative education model of jointly building laboratories between schools and enterprises help cultivate students' teamwork spirit and communication skills? Please share your thoughts on this.

Interview questions for university management personnel:

Why did your school choose to co build a laboratory with a company and adopt the collaborative education model of school enterprise co construction? What is the goal?

What challenges do you think have been encountered in the implementation of the school enterprise co construction laboratory? How to overcome it?

Has the collaborative education model of jointly building laboratories between schools and enterprises received positive feedback from students and enterprises? Please share some relevant feedback or cases.

What role does the school play in collaborating with enterprises? How can schools and enterprises coordinate and collaborate on educational plans, curriculum design, and teaching methods?

How can the collaborative education model of jointly building laboratories between schools and enterprises achieve the integration and sharing of resources between schools and enterprises? What are the impacts on education quality and student development?

3.4 Sampling and selection

This study adopted a convenient sampling method and selected 5 professors and 5 university administrators from Jiangxi Institute of Fashion as respondents. The researchers chose to interview individuals between the ages of 30 and 40, These interviewees have rich experience and knowledge in the field of university teaching and management, and have a certain understanding and participation experience in the collaborative education model of school enterprise cooperative laboratory construction. Through their interviews, insights, experiences, and perspectives on this model can be gained, leading to a deeper understanding of its innovative and practical role.

When selecting interviewees, consider their level of participation and understanding of the model to ensure a diverse and comprehensive perspective.

Through open-ended interview questions, guide respondents to engage in in- depth thinking and discuss in detail the collaborative education model and cooperation effect of the school enterprise co construction laboratory. The interview will be recorded and organized and summarized in subsequent analysis.

Interviewer information sheet

Participant	College	Sex	Age	Marital Status	Job Title
1	Fashion design institute	Male	37	Married	Experimentalist professor
2	Fashion design institute	Male	36	Married	Experimentalist professor
3	Fashion design institute	Male	35	Married	Experimentalist professor
4	College of Fashion Engineering	Female	35	Married	Experimentalist professor
5	College of Fashion Engineering	Female	34	Married	Experimentalist professor
6	College of Fashion Engineering	Female	33	Married	Administrator
7	College of Fashion Engineering	Female	32	Single	Administrator
8	College of Fashion Engineering	Female	31	Single	Administrator
9	Fashion design institute	Male	30	Married	Administrator
10	Fashion design institute	Male	30	Married	Administrator

3.5 Data collection

This study adopts qualitative research methods and collects data and information through face-to-face interviews. We selected professors and university administrators from Jiangxi Institute of Fashion Technology as the interviewees. During the interview process, we will use open-ended survey questionnaires to guide the interview and delve into the innovative and practical role of the collaborative education model of school enterprise joint construction laboratories, as well as its promoting role in cultivating students' practical abilities and teaching reform.

We will invite 5 professors and 5 university administrators to participate in the interview, and a total of 10 interview samples will be obtained. Through these interviews, we hope to collect the views, experiences and opinions of professors and managers on the collaborative education model of the joint construction of laboratories by schools and enterprises, better understand the innovation

and practical role of this model, and provide support for the main points of the paper.

During the interview process, we will carefully record the respondents' answers and organize and analyze the data. By summarizing and summarizing common viewpoints, key experiences, and typical cases, we will answer research questions and further support and expand the main points of the paper.

3.6 Data analysis

This study adopts qualitative research methods and collects data and information through interviews. We selected professors and university administrators from Jiangxi Institute of Fashion Technology as the interviewees. During the interview process, we will use an open-ended survey questionnaire to guide the interview and delve into the innovative and practical role of the collaborative education model of the school enterprise joint construction laboratory, as well as its promoting role in cultivating the practical ability of university talents and teaching reform.

We will invite 5 professors and 5 university administrators to participate in the interview, and a total of 10 interview samples will be obtained. Through these interviews, we hope to collect the views, experiences and opinions of professors and managers on the collaborative education model of the school enterprise joint construction laboratory, deeply understand the innovation and practical role of this model, and provide support for the main points of the paper.

During the interview process, we will carefully record the respondents' answers and organize and analyze the data. By summarizing and summarizing common viewpoints, key experiences, and typical cases, we will answer research questions and further support and expand the main viewpoints of the paper.

3.7 Ethical considerations

During the research process, this study will follow the following ethical principles:

Informed consent: When inviting and selecting participants, this study will respect their wishes and clearly explain the research purpose and content. Participants will be informed that they can withdraw from the study at any time and their personal information will be kept confidential.

Protection of privacy: All information provided by participants in the study will be treated as confidential. In research reports and publications, it will be ensured that personal information is processed anonymously and the true identities of participants are not disclosed.

Respect for Rights: This study will respect the rights of participants and ensure that they do not suffer any harm due to their participation in the study. We will take reasonable measures to ensure the safety and reliability of the research.

Research legitimacy: This study will comply with relevant Chinese laws and regulations, and will not involve any illegal activities or unethical behavior. We will ensure that the research content complies with academic ethical standards and strictly adheres to research ethical norms.

Interpretation and Use of Research Results: This study will present the research results accurately and objectively, without distorting or misleading the research findings. The research results will be used for academic purposes, such as promoting educational reform and practical innovation, without being used for commercial or other inappropriate purposes.

During the research process, we will strictly adhere to the above ethical principles and take corresponding measures to protect the rights and privacy of participants. We will provide reasonable explanations and answer participants' questions to ensure that their understanding and participation in the study are clear and sufficient. At the same time, we will respect the ethical norms of the academic community and research community to ensure the quality and credibility of research.

3.8 Limitations of the study

This study has some limitations, mainly including the following aspects:

Limitations of sample selection: This study used convenience sampling method to select 5 professors and 5 university administrators from Jiangxi Fashion College as interview subjects. Due to the small sample size and the fact that it only comes from two colleges, the research results may not fully represent the situation of the entire university and other colleges. Therefore, the generalization ability and universality of the research results may be limited to some extent.

Subjectivity of information: This study mainly collects data through interviews, and the responses of interviewees during the interview process may have some subjectivity. The opinions, experiences, and perspectives of interviewees may be influenced by their personal background, biases, and subjective judgments. Therefore, the research results may not fully objectively reflect the actual situation.

Subjectivity of data analysis: This study will extract key viewpoints, common features, and empirical cases by organizing and analyzing interview data to answer research questions and support the main viewpoints of the paper. However, the process of data analysis may also be influenced by the subjective consciousness and personal preferences of researchers, and there may be a certain degree of subjectivity.

Limitations of question design: This study used interview guidance questions to guide respondents to delve deeper into their thinking and discuss relevant concepts, educational models, and cooperation effects in detail. However, problem design may have certain limitations and fail to cover all possible aspects and details. Therefore, some important information and viewpoints may not have been fully explored and recorded in interviews.

4. Findings

4.1 Analysis of Professor Interviews

(1) Do you think that under the collaborative education model of jointly building laboratories between schools and enterprises, how does the collaborative cooperation between schools and enterprises affect the quality of education and student development?

Professor A: Under the collaborative education model of jointly building laboratories between schools and enterprises, collaborative cooperation between schools and enterprises has a positive impact on education quality and student development. Through school enterprise cooperation, schools can closely integrate with enterprises, timely understand industry needs and development trends, adjust education content and teaching methods, and improve education quality. At the same time, students can be exposed to real business problems and improve their practical and problem-solving abilities in cooperation with enterprises.

Professor E: Collaborative cooperation between schools and enterprises has a significant improvement effect on education quality and student development. Through cooperation with enterprises, schools can combine theoretical knowledge with practical applications to cultivate students' ability to solve practical problems. At the same time, students can directly participate in enterprise projects, obtain practical opportunities, improve their overall quality and employment competitiveness.

From the answers of the two professors mentioned above, it can be seen that the collaborative education model of school enterprise joint construction of laboratories has a positive impact on education quality and student development. This collaborative cooperation model can improve the quality of education, increase students' practical and problem-solving abilities, and enable them to better adapt to practical work needs.

(2) Has the joint construction of laboratories by schools and enterprises improved students' practical and problem-solving abilities? Please share some specific cases or experiences.

Professor C: The joint construction of laboratories by schools and enterprises has indeed improved students' practical and problem-solving abilities. Taking the cooperation between our school and a clothing

enterprise as an example, students conducted practical activities in clothing design and production in a jointly built laboratory. Through practical operation, students have become familiar with the technical process and equipment usage, and have solved various problems encountered in the practical process. This practical approach enables students to truly apply the knowledge they have learned to practical situations, improving their practical and problem-solving abilities.

Professor D: The joint construction of laboratories by schools and enterprises has significantly promoted students' practical and problem-solving abilities. In the laboratory where our school collaborated with an IT company, students participated in software development projects. By collaborating with enterprises, students are exposed to real project requirements and development processes. They not only learn professional technical knowledge, but also cultivate the ability to solve complex problems. After the completion of the project, students' practical experience and problem-solving abilities have been greatly improved.

From the interviews and responses of the two professors mentioned above, it can be concluded that the joint construction of laboratories by schools and enterprises has indeed improved students' practical and problem-solving abilities. By participating in real projects and practical operations, students can better apply their knowledge, cultivate practical skills, and problem-solving abilities.

(3) What do you think the impact of joint open laboratories on students' innovation awareness and abilities? Are there any relevant success stories that can be shared?

Professor B: The joint open laboratory has a very positive impact on students' innovation awareness and abilities. In the open laboratory where our school collaborates with a technology enterprise, students have the opportunity to be exposed to the latest technological equipment and cutting-edge research fields. Through interaction and communication with enterprises, students' innovation awareness is stimulated, and they are able to more actively propose innovative ideas and try to put them into practice. In this laboratory, we have also achieved some innovative results, such as developing an intelligent wearable device and obtaining patent certification.

Professor E: The joint open laboratory has a significant promoting effect on students' innovation awareness and ability. In the open laboratory where our school collaborates with a clothing manufacturing enterprise, students have the opportunity to be exposed to the latest clothing design and manufacturing technologies. Through communication and guidance with enterprise experts, students' innovation awareness has been cultivated, and innovative design solutions can be proposed based on market demand, and actual manufacturing can be carried out.

From the answers of the two professors above, it can be concluded that joint open laboratories have a positive impact on students' innovation awareness and abilities. Through exposure to the latest technologies and market demands, as well as interaction and guidance with enterprise experts, students can better cultivate their innovation awareness and ability, and achieve some innovative results.

(4) Has introducing corporate executives into the classroom played a positive role in students' career development in school enterprise cooperation? Please share some relevant viewpoints or practical experiences.

Professor A: Introducing corporate executives into the classroom has played a positive role in students' career development. Through interaction and communication with corporate executives, students can gain a deeper understanding of industry trends and employment needs. Enterprise executives can share their practical work experience and successful cases, guiding students' career planning and development direction. At a school enterprise docking meeting held by our school, we invited a senior executive from a company to share and exchange ideas. Students received many practical career suggestions and adjusted their employment strategies accordingly.

Professor C: Introducing corporate executives into the classroom has played a very positive role in students' career development. Enterprise executives can share practical work experience and wisdom, helping students better understand industry needs and job markets. They can introduce students to the latest career trends and skill requirements, guide them in formulating career plans, and provide employment opportunities. In the courses I teach, we often invite corporate executives to teach courses on specific topics or provide employment guidance, and students benefit

greatly. Some students have also established valuable networking relationships through interactions with corporate executives, laying the foundation for future career development.

From the answers of the two professors above, it can be concluded that introducing corporate executives into the classroom has played a positive role in students' career development. Enterprise executives can share practical experience and employment information, guide students' career development, and provide employment opportunities and networking resources for students.

(5) Does the collaborative education model of jointly building laboratories between schools and enterprises help cultivate students' teamwork spirit and communication skills? Please share your thoughts on this.

Professor D: The collaborative education model of jointly building laboratories between schools and enterprises is very helpful in cultivating students' teamwork spirit and communication skills. Firstly, students work together with classmates from different backgrounds and majors in the laboratory, requiring mutual cooperation and coordination to complete tasks. This collaborative process can exercise their teamwork awareness and ability. Secondly, in the process of collaborating with enterprises, students also need to have effective communication and exchange with enterprise representatives, in order to better understand and meet the needs of the enterprise. This practical experience can improve students' communication skills and interpersonal skills.

Professor E: I believe that the collaborative education model of jointly building laboratories between schools and enterprises can effectively cultivate students' teamwork spirit and communication skills. In laboratory projects, students need to collaborate with classmates, support and assist each other in order to successfully complete tasks. Such teamwork can enhance students' team awareness and teamwork ability. At the same time, cooperation with enterprises also requires students to actively communicate and exchange ideas with business representatives to understand the needs and expectations of the enterprise. This communication ability is also very important in your future career.

It can be seen that the collaborative education model of jointly building laboratories between schools and enterprises has a positive

impact on cultivating students' teamwork spirit and communication skills. Students need to collaborate with other classmates in laboratory projects, engage in effective communication and collaboration, which helps to enhance their teamwork awareness and ability. Collaboration with enterprises also provides more practical opportunities, and students need to actively communicate and exchange ideas with business representatives to improve their communication skills and interpersonal skills. In summary, the collaborative education model of jointly building laboratories between schools and enterprises has positive significance for cultivating students' teamwork and communication skills.

4. 2 Interview analysis of university management personnel

(1) Why did your school choose to co build laboratories with enterprises and adopt a collaborative education model of school enterprise co construction? What is the goal?

University administrator A: Our school has chosen to co build laboratories with enterprises and adopts the collaborative education model of school enterprise co construction mainly to break traditional teaching models and make education more practical and targeted. Through cooperation with enterprises, students can practice and innovate in a real work environment, improving their practical skills and problem- solving abilities. Our goal is to cultivate high- quality talents with both professional knowledge and practical experience to meet the demand of society for talents.

University administrator C: The collaborative education model of jointly building laboratories between schools and enterprises is a measure taken by our school to actively adapt to the development needs of the times. Through cooperation with enterprises, we can better understand the latest development trends and needs of the industry, adjust teaching content and methods in a timely manner, and cultivate professional talents that are in line with the market. Our goal is to promote the cultivation of students' innovation awareness and entrepreneurial ability, and improve their competitiveness in the workplace.

Based on comprehensive analysis, both managers emphasized practicality, pertinence, and market orientation in their responses. They believe that the collaborative education model built by schools and enterprises can provide

students with more practical opportunities, enabling them to have practical operational and problem- solving abilities, and to be consistent with market demand. The goal is to cultivate high- quality talents with both professional knowledge and practical experience, innovative awareness and entrepreneurial ability, and improve their competitiveness and adaptability in the workplace. This analysis and summary demonstrate the significance and goals of jointly building laboratories between schools and enterprises, as well as their positive impact on student development.

(2) What challenges do you think have been encountered in the implementation of school enterprise co construction of laboratories? How did you overcome it?

University administrator B: In the process of implementing the joint construction of laboratories between schools and enterprises, we are facing challenges in resource integration and management. Enterprises and schools have different resources, such as equipment, funds, and personnel. How to effectively integrate and reasonably utilize these resources is a challenge. In order to solve this problem, we have established a close cooperative relationship with the enterprise and coordinated the allocation and use of resources through project- based management, ensuring the coordination and efficient utilization of resources among all parties.

University administrator D: In the process of implementing the joint construction of laboratories between schools and enterprises, we are facing challenges in curriculum integration and teaching team building. There is a gap between the school's curriculum and the actual needs of enterprises, and it requires some effort to effectively combine the two. We have established a joint teaching team through strengthened communication and consultation with enterprises, including school teachers and enterprise professionals, to jointly develop and implement teaching plans, ensuring the targeted and practical nature of the curriculum.

Based on comprehensive analysis, both managers' responses involved issues of resource integration, management, and curriculum integration. They recognize the need to overcome these challenges in the process of jointly building laboratories between schools and enterprises, and respond to them through close cooperation with enterprises and the establishment of joint teaching teams to ensure

the smooth progress and effective operation of the jointly built laboratories between schools and enterprises. This analysis and summary demonstrate the specific challenges faced in the implementation of school enterprise co construction of laboratories, as well as the solution strategies adopted by management personnel.

(3) Has the collaborative education model of jointly building laboratories between schools and enterprises received positive feedback from students and enterprises? Please share some relevant feedback or feedback.

University administrator B: The collaborative education model of jointly building laboratories between universities and enterprises has received positive feedback from students and enterprises. Students expressed that through practical interaction with enterprises, they can better understand the application of professional knowledge and enhance their ability to solve practical problems. Enterprise feedback states that collaborating with schools can better cultivate talents that meet market demand, while also providing a group of employees with practical experience and innovative awareness for the enterprise.

University administrator E: We have received positive feedback from students and businesses. Students believe that through the joint construction of laboratories by schools and enterprises, they are more likely to combine their knowledge with practical applications, and have a deeper understanding of their majors. Enterprises believe that by collaborating with schools, they can learn about outstanding talents in advance and establish good cooperative relationships with them, which plays a positive role in promoting the development of the enterprise.

Based on comprehensive analysis, these feedback shows that the collaborative education model of jointly building laboratories between schools and enterprises has been recognized by both students and enterprises. Students can enhance their professional and problem-solving abilities through practical activities that interact with enterprises, while enterprises believe that this cooperation model helps cultivate talents who adapt to market demand and promote the development of enterprises. This analysis and summary demonstrate the positive effects and feedback received from the educational model in practice.

(4) What role does the school play in collaborating with enterprises? How can schools and enterprises coordinate and collaborate in education plans, curriculum design, and teaching methods?

University administrator C: The school plays the role of organizer and coordinator in cooperation with enterprises. The school is responsible for organizing the integration and management of enterprise resources, and working together with the enterprise to develop education plans, curriculum design, and teaching methods. The school will fully listen to the needs and opinions of enterprises, and work closely with them to adjust course content and optimize teaching methods while ensuring professionalism.

University administrator D: The school has played a role in integrating resources and supporting cooperation with enterprises. The school establishes cooperative relationships with enterprises to integrate and share resources from both parties, including teachers, equipment, and funding. Schools and enterprises collaborate to develop education plans and curriculum designs to ensure that the trained talents meet market demand. At the same time, the school and the enterprise closely coordinate and communicate to jointly choose appropriate teaching methods, such as practical internships, case studies, industry lectures, etc., to provide students with opportunities for practical application and vocational skills.

In the above interviews, both university managers C and D emphasized the important role and mode of cooperation between the school and enterprises. They unanimously believe that the school plays the role of organizer and coordinator in cooperation, and is responsible for integrating and managing enterprise resources. At the same time, schools and enterprises jointly develop educational plans, curriculum design, and teaching methods to ensure that the students they cultivate meet market demands.

(5) How does the collaborative education model of jointly building laboratories between schools and enterprises achieve the integration and sharing of school enterprise resources? What are the impacts on education quality and student development?

University administrator A: The collaborative education model of jointly building laboratories between schools and enterprises achieves the integration of school enterprise resources through shared resources

and in- depth cooperation. Schools and enterprises jointly establish laboratories, share laboratory equipment and technical support, and provide students with a better practical environment. At the same time, schools and enterprises jointly develop education plans and curriculum designs, integrating practical needs and industry standards into teaching, and improving the quality of education. This collaborative education model cultivates students' practical and problem- solving abilities, making them more adaptable to the needs of future career development.

University administrator E: The collaborative education model of jointly building laboratories between schools and enterprises provides a practical environment and opportunities through the integration of school and enterprise resources, which has a positive impact on the quality of education and student development. The school provides advanced laboratory equipment and teacher support, while enterprises provide practical problems and project support, allowing students to exercise and grow in practice. This collaborative education model has cultivated students' practical ability and innovative consciousness, improved the quality of education and students' comprehensive quality.

The response from university administrators shows that the collaborative education model of university enterprise co construction laboratories achieves the integration and sharing of university enterprise resources through resource sharing and in-depth cooperation. Schools and enterprises jointly invest in laboratory construction and management, sharing laboratory equipment and teaching resources. This cooperation model can improve the quality of education and the level of student development. Students can participate in project practice and innovative activities in a real work environment, cultivating problem- solving and teamwork abilities. Education is closer to practical needs, improving students' professional literacy and innovation ability.

5. Conclusions, Discussion and Recommendations

5.1 Conclusions

Based on the interview answers from the professors, the following main conclusions can be summarized:

(1) The collaborative education model of jointly building laboratories between schools and enterprises has a positive impact on education quality and student development, which can improve education quality, cultivate students' practical and problem- solving abilities, and enable them to better adapt to practical work needs.

(2) The joint construction of laboratories by schools and enterprises has improved students' practical and problem- solving abilities. By participating in real projects and practical operations, students can better apply their knowledge and cultivate practical and problem-solving abilities.

(3) Joint open laboratories have a positive impact on students' innovation awareness and abilities. Through exposure to the latest technologies and market demands, as well as interaction and guidance with enterprise experts, students can cultivate innovation awareness and abilities and achieve innovative results.

(4) Introducing corporate executives into the classroom has a positive impact on students' career development. They share practical experience and employment information, guide students' career development, and provide employment opportunities and networking resources for students.

(5) The collaborative education model of jointly building laboratories between schools and enterprises helps to cultivate students' teamwork spirit and communication skills. Students need to collaborate with classmates from different backgrounds and majors, and effectively communicate and communicate with enterprise representatives, thereby exercising team cooperation, communication skills, and interpersonal skills.

Based on the interview analysis of university management personnel mentioned above, the following conclusions can be drawn:

(1) The school chooses to co build laboratories with enterprises and adopts the collaborative education model of school enterprise co construction in order to break the traditional teaching mode, make education more practical and targeted, and cultivate high-quality talents with both professional knowledge and practical experience.

(2) In the process of implementing school enterprise co construction of laboratories, the school faces challenges such as resource integration and management, curriculum

integration, and teaching team building. In order to address these challenges, the school has established a close cooperative relationship with enterprises, coordinating the allocation and use of resources through project-based management and joint teaching teams.

(3) The collaborative education model of jointly building laboratories between schools and enterprises has received positive feedback from students and enterprises. Through practical interaction with enterprises, students can better understand the application of professional knowledge and enhance their ability to solve practical problems. Enterprises express that collaborating with schools can better cultivate talents that meet market demands and provide employees with practical experience and innovative awareness for enterprises.

(4) The school plays the role of organizer and coordinator in cooperation with enterprises, responsible for integrating and managing enterprise resources, and jointly developing education plans, curriculum design, and teaching methods with enterprises to ensure that the trained talents meet market demand.

(5) The collaborative education model of jointly building laboratories between schools and enterprises has achieved the integration and sharing of school enterprise resources. Schools and enterprises jointly provide practical environments and opportunities to share laboratory equipment and teaching resources. This cooperative model can improve the quality of education and the level of student development, cultivate students' practical ability, problem-solving ability, and innovative consciousness. At the same time, education is also closer to practical needs, improving students' professional literacy and competitiveness.

5.2 Discussions

This study used an interview method to deeply explore the collaborative education model of school enterprise co construction laboratories. Through interviews with professors and university administrators from Jiangxi Institute of Fashion, some important conclusions were drawn and discussed.

Firstly, in the collaborative education model of jointly building laboratories between schools and enterprises, collaborative cooperation between schools and enterprises has a positive impact on education quality and student development. Schools and enterprises can jointly develop education plans, curriculum

design, and teaching methods, and improve the pertinence and practicality of education through resource integration and cooperation. In this collaborative model, students can be exposed to more practical problems, cultivate practical skills and problem-solving abilities. In addition, students can also obtain more career development guidance and inspiration from the sharing and guidance of corporate executives.

Secondly, the joint open laboratory has a positive impact on students' innovation awareness and abilities. By participating in real projects and interacting with enterprise experts, students can understand the latest technologies and market demands, cultivate innovation awareness and abilities. In an open laboratory environment, students can engage in practical operations, apply their knowledge to practical situations, improve their innovation ability, and achieve innovative results.

In addition, introducing corporate executives into the classroom has also played a positive role in students' career development. Executives share practical experience and employment information, providing important guidance for students' career planning and development. They can help students understand industry trends, market demands, and job opportunities, providing them with broader career development space and opportunities.

Finally, the collaborative education model of jointly building laboratories between schools and enterprises helps to cultivate students' teamwork spirit and communication skills. In this mode, students need to collaborate with classmates from different backgrounds and majors, and have effective communication and exchange with business representatives. This collaborative environment can help students develop their teamwork, communication, and interpersonal skills, laying the foundation for future career development.

From the above discussion, we can see that the collaborative education model of jointly building laboratories between schools and enterprises has many advantages and values. It can improve the quality of education, cultivate students' practical abilities and innovative awareness, and enhance their problem-solving ability and teamwork spirit. However, we also need to recognize the challenges that this model may face in the implementation process, such as resource integration and management, curriculum integration, and teaching team building.

Therefore, when implementing the collaborative education model of jointly building laboratories between schools and enterprises, schools and enterprises need to closely cooperate, fully leverage their respective advantages, and jointly formulate reasonable cooperation plans and strategies. At the same time, it is also necessary to strengthen evaluation and monitoring, adjust and improve the education model in a timely manner, to ensure its sustainable development and achieve good results.

5.3 Recommendations

Based on the analysis and conclusions of the collaborative education model innovation and practical research on the joint construction of laboratories by schools and enterprises, the following are suggestions for further optimization and promotion of this model:

(1) Strengthen school enterprise cooperation: Schools and enterprises should strengthen strategic partnerships and establish long-term and stable cooperation mechanisms. By jointly developing educational plans, curriculum design, and teaching methods, we can achieve the sharing of teaching resources and practical environments, further improving the quality of education and the level of student development.

(2) Expanding practical opportunities: Schools and enterprises can further expand the scope and scale of joint open laboratories, providing more practical opportunities for students. Through practical projects and operations, help students apply their knowledge to practice, cultivate practical skills and problem-solving abilities.

(3) Strengthen guidance from corporate mentors: Further introduce corporate executives and professionals into the classroom for interactive communication and practical guidance with students. They can share practical experiences and cases to help students better understand industry trends and market demands, and provide career development guidance and inspiration.

(4) Establish a team cooperation mechanism: Strengthen the cultivation of team cooperation and communication skills, so that

students gradually develop a sense of teamwork and communication skills. Cultivate students' teamwork spirit and enhance their collaborative abilities through cross disciplinary and cross background team cooperation projects.

(5) Encourage innovative thinking: Further stimulate students' innovation awareness and creativity, guide students to engage in innovative practices through exposure to the latest technologies and market demands, as well as interaction and guidance with enterprise experts, and encourage them to propose new ideas and solutions.

(6) Comprehensive evaluation and recognition: Establish a scientific and effective comprehensive evaluation system, and determine evaluation indicators and methods suitable for this collaborative education model. At the same time, we will strengthen the recognition and rewards for the collaborative education model of school enterprise co construction laboratories, and encourage more schools and enterprises to participate in this model.

(7) Deepen research and exchange: Strengthen research and exchange on the innovation and practice of collaborative education models. By regularly organizing academic seminars, experience sharing sessions, and other activities, we aim to promote experience exchange and cooperation between schools and enterprises, and jointly promote the continuous development and improvement of this model.

Through the implementation of the above suggestions, the collaborative education model of jointly building laboratories between schools and enterprises will further improve the quality of education, cultivate students' practical abilities and innovative awareness, and better meet practical work needs. This will have a positive impact on schools, enterprises, and students, promoting the coordinated progress of talent cultivation and social development. At the same time, it is also necessary to continue to pay attention to and study the implementation effect of this model, continuously improve and optimize it to adapt to the constantly changing education and market demands.

References

- Barker, T. S., Smith, C. A., Waguespack, G. M., Mercante, D. E., & Gualdo, T. P. (2018). Collaborative Skill Building in Dentistry and Dental Hygiene through Intraprofessional Education: Application of a quality improvement model. *PubMed*, 92(5), 14–21.

- Brammer, S., & Clark, T. (2020). COVID-19 and management education: Reflections on challenges, opportunities, and potential futures. *British journal of Management*, 31(3), 453.
- Cheatham, B., Javanmardian, K., & Samandari, H. (2019). Confronting the risks of artificial intelligence. *McKinsey Quarterly*, 2(38), 1-9.
- Criado, J. I., Dias, T. F., Sano, H., Rojas-Martín, F., Silvan, A., & Filho, A. I. (2021). Public innovation and living labs in action: A comparative analysis in post-new public management contexts. *International Journal of Public Administration*, 44(6), 451-464.
- De Jesus, A., & Mendonça, S. (2018). Lost in transition? Drivers and barriers in the eco-innovation Road to the Circular Economy. *Ecological Economics*, 145, 75–89.
- DePetris, T., & Eames, C. (2017). A collaborative community education model: Developing effective School-Community partnerships. *Australian Journal of Environmental Education*, 33(3), 171–188.
- Dianto, D., & Idawati, I. (2020, September). *Business Education Funding Partnership*. In Proceeding International Conference On Language And Literature (Ic2lc) (pp. 336-344).
- Gessler, M. (2017). The lack of collaboration between companies and schools in the German dual apprenticeship system: Historical background and recent data. *International Journal for Research in Vocational Education and Training (IJRVET)*, 4(2), 164-195.
- Harwell, D. (2020). *Cheating-detection companies made millions during the pandemic*. Now students are fighting back.
- Hunaidah, Susantini, E., Wasis, W., Prahani, B. K., & Mahdiannur, M. A. (2018). Improving Collaborative Critical Thinking Skills of Physics Education Students through Implementation of CinQASE Learning Model. *Journal of Physics*, 1108, 012101.
- Huy, D. T. N., & Thuy, N. T. (2021). Education for students to enhance research skills and meet demand from workplace-case in vietnam. *Ilkogretim Online*, 20(4).
- Kovoor-Misra, S. (2020). The impetus for resilience and change in business education and management research. *Journal of Management Inquiry*, 29(2), 128-133.
- Lauterbach, A. (2019). Artificial intelligence and policy: quo vadis?. *Digital Policy, Regulation and Governance*, 21(3), 238-263.
- Mahoney, J. L., Weissberg, R. P., Greenberg, M. T., Dusenbury, L., Jagers, R. J., Niemi, K., ... & Yoder, N. (2021). Systemic social and emotional learning: Promoting educational success for all preschool to high school students. *American Psychologist*, 76(7), 1128.
- Marconi, M., & Favi, C. (2020). Eco-design teaching initiative within a manufacturing company based on LCA analysis of company product portfolio. *Journal of Cleaner Production*, 242, 118424.
- Miranda, J., López, C. S., Navarro, S., Bustamante, M. R., Molina, J. M., & Molina, A. (2019, June). Open innovation laboratories as enabling resources to reach the vision of education 4.0. In 2019 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC) (pp. 1-7). IEEE.
- Moldoveanu, M., & Narayandas, D. (2019). The future of leadership development. *Harvard business review*, 97(2), 40-48.
- Ng, L. K., & Lo, C. K. (2022). Flipped classroom and gamification approach: Its impact on performance and academic commitment on sustainable learning in education. *Sustainability*, 14(9), 5428.

- Pals, R. a. S., Drejer, S., Laursen, R. H., Oest, L., Levisen, V. D. H., Krogh, N. R., & Hempler, N. F. (2020). Implementing a collaborative model in health education practice: a process evaluation of a health education programme targeting users with mental health problems. *BMC Health Services Research*, 20(1).
- Patrawalla, P., Narasimhan, M., Eisen, L., Shiloh, A. L., Koenig, S., & Mayo, P. H. (2019). A regional, Cost- Effective, Collaborative model for critical care fellows' ultrasonography education. *Journal of Intensive Care Medicine*, 35(12), 1447–1452.
- Peurach, D. J., Cohen, D. K., Yurkofsky, M. M., & Spillane, J. P. (2019). From mass schooling to education systems: Changing patterns in the organization and management of instruction. *Review of Research in Education*, 43(1), 32-67.
- Secundo, G., Del Vecchio, P., Simeone, L., & Schiuma, G. (2020). Creativity and stakeholders' engagement in open innovation: Design for knowledge translation in technology-intensive enterprises. *Journal of Business Research*, 119, 272-282.
- Serdyukov, P. (2017). Innovation in education: what works, what doesn't, and what to do about it? *Journal of Research in Innovative Teaching & Learning*, 10(1), 4–33.
- Van De Mortel, T. F., Armit, L., Shanahan, B., Needham, J., Brown, C., Grafton, E., Havell, M., Henderson, A., & Grealish, L. (2020). Supporting Australian clinical learners in a collaborative clusters education model: a mixed methods study. *BMC Nursing*, 19(1).
- Vicente-Saez, R., Gustafsson, R., & Van den Brande, L. (2020). *The dawn of an open exploration era: Emergent principles and practices of open science and innovation of university research teams in a digital world*. *Technological Forecasting and Social Change*, 156, 120037.

Community Economic Development of Indigo-Dyed Cotton Productions to be Sustainable in Lahanam Village, SongKhone District, Savannakhet Province, Lao People's Democratic Republic

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Abstract

This research focused on the community economic development of indigo-dyed cotton producers in the Lahanam Village, Songkhone District, Savannakhet Province in the Lao People's Democratic Republic. The purposes of the study were to identify factors related to farmers, production processes, and factors driving the community economy, to gather opinions about policies and guidelines for community economic development, to identify needs and obstacles to sustainability and find ways to develop the community economy of indigo-dyed cotton producers in Lahanam Village. The study used a mixed research methods. The target group consisted of 154 families who produced indigo-dyed cotton in Lahanam village. Descriptive statistics were used to analyze data. Results showed that 100 percent of indigo-dyed cotton producers were females. The activity was passed down through generations using traditional methods. The focus was not solely on development for profit, but also on development from old wisdom and developed to create career for people in the community, promoting self-reliance, economic and social development, and conserving culture and local wisdom. To promote sustainability and economic development while maintaining cultural heritage and local wisdom. guidelines for community economic development of indigo-dyed cotton producers in Lahanam village were suggested, including developing knowledge and skills, manufacturing process improvement, marketing development, promoting cultural tourism, forming groups or cooperatives, increasing bargaining power, reducing production costs, and adding value to products.

Keywords: Indigo-Dyed Cotton, Household economy, Wisdom

Introduction

Savannakhet Province, located in the south-central region of Laos, is renowned for its superior cotton production, with various villages producing cotton. Among these villages, Lahanam stands out for its production of indigo-dyed cotton, a traditional textile that is held in high esteem due to its cultural significance and intricate weaving. Lahanam's indigo-dyed cotton is renowned for its natural dyes and traditional patterns, earning it the distinction of being an ODOP (One District One Product) product supported by the public sector for its continued development. (Laos, 2021)

However, the hand-weaving process utilizing natural dyes is beset by challenges in procuring materials from nature that provide color. The color fermentation process and cloth processing require natural materials that are becoming increasingly scarce. This has led to difficulties in maintaining the quality and authenticity of the product, which is crucial for its continued success. Another challenge is the lack of knowledge and resources for implementing sustainable practices in the production of indigo-dyed cotton. The traditional methods of indigo dyeing and weaving have been passed down from generation to generation, but the lack of innovation and adaptation to changing circumstances has put the industry at risk. There is need for the community to adopt sustainable practices that protect the natural environment and ensure the long-term viability of the industry. Moreover, the production of indigo-dyed cotton in Lahanam Village faces challenges in terms of marketing and distribution. While the product is highly valued for its cultural significance and intricate weaving, there is a limited market

for the product. The lack of access to modern marketing channels and the absence of a comprehensive marketing strategy have hindered the industry's growth potential.

Development that is governed by the economy and politics centered on the market is considered to be a trend that challenges current practices and is expected to continue indefinitely. This is because various communities stand to benefit from developing their local economies and receiving helpful advice from external sources to ensure their sustained growth. The purpose of this study was to examine the factors that contribute to the success of a community of indigo-dyed cotton producers in LahaNam Village, SongKhon District, Savannakhet Province, Lao People's Republic. The study sought to gather opinions on the customs and community development governance of this community, which has the ability to govern itself effectively.

Therefore, the study of the indigo-dyed cotton producers in LahaNam Village, SongKhon District, Savannakhet Province, Lao People's Democratic Republic serves as a valuable guideline for achieving efficient, effective, and sustainable economic development in other communities. As a result, the researcher specifically chose to study this community to gain insights and recommendations that can be applied to other areas seeking to enhance their economic development strategies.

Literature Review

Guidelines for community economic development

In order to develop a sustainable community economy, there are three crucial factors and processes that must be

considered: the driving factors of the community economy, the processes involved in building the community economy, and the surplus profits generated from the community economy.

In order to ensure successful community economic development, it is important to understand the driving factors that will propel the economy forward. There are four main factors that must be considered:

1. Human resource development:

This involves developing three groups of people - community economic leaders, villagers interested in community economic activities, and relevant officials who have the knowledge and ability to analyze needs, mobilize resources, and manage production and transformation.

2. Development of community groups/organizations: Group formation and group activities with village leaders and those involved working together is the heart of the community economy. This is consistent with Thai culture where rural people support each other and corresponds to the economic limitations of rural people.

3. Basic economic development: This includes the acquisition of funds through fundraising in the village and the reasonable use of those funds to ensure continuity and prevent corruption. Capital may also be obtained through savings activities, raising shares, fundraising, or setting up a village bank.

4. Basic physical development: This involves ensuring access to water sources for consumption and production, as during the dry season or rainy season when rain falls intermittently, villagers may spend a lot of time looking for water, preventing them from performing community economic activities continuously.

Household Economic Approach

Household economy encompasses the economic activities of the entire household and is distinguished from the business, government, and international sectors by the term "household sector". Transactions between households and markets resemble international trade between two economies more than transactions between different industrial sectors within one economy. The two primary types of trade between economies are the sale of household labor time and the sale of household goods and services in the market.

Unfortunately, economics textbooks often overlook households as producers who utilize their labor and capital. Instead, they focus on households as consumers and their behavior in purchasing goods. Household production, allocation of time, and investment in capital equipment are rarely mentioned. Charlotte Perkins Gilman and Margaret Reid were among the first authors to examine household production and question the traditional gendered division of labor. Reid's book, *The Economics of Home Production*, played a critical role in the development of home economics as a discipline. She was also the first to identify frequently used third-party criteria to distinguish between productive and unproductive activity (consumption). According to Reid (1934), an activity is considered effective if it can be assigned to a paid employee.

Sustainable Development

The Brundtland Report stated that sustainable development is development that meets the needs of the present without harming future generations. Besides, there are many different concepts and definitions of sustainable development, such as "sustainable development is a policy that meets the needs of people in the present

without destroying resources that will be needed in the future" or "a sustainable society is a society that can satisfy its needs without making other animals and future generations of people compromise their needs. (Development, Annual Report, 2007)

Sustainable development indicators are tools used to provide direction and monitor change, indicating the country's success in achieving the goals of sustainable development, which aims to create balanced development in economic, social, and environmental aspects.

Sustainability indicators help identify the most problematic issues in economic, social, and environmental aspects and determine the importance of goals in the sustainable development model. The United Nations Commission on Sustainable Development (UNCSD) has set indicators to create a conceptual framework consisting of Themes and Sub-themes for understanding sustainability and supporting policymakers in making decisions at the national level, as summarized in the **Table 1**.

Table 1: Indicators in various aspects of sustainability

Indicators	Examples
Economic Indicators include - Income Volatility - Income Diversification - Income Distribution	- Income per household - Income per person/year - Income in cash and non-cash, Income source diversification across income levels relative to the poverty line
Social Indicators include - Security of arable land rights - Food security - Poverty - Employment - Security of assets and debts - Social status - The strength of the organization in the community	- Proportion of arable land under various rights documents - Food expenses per family member - Food source - Proportion of households with income below the poverty line - Proportion of hired labor to total labor - Value of property of farmer households - Amount of debt and ability to repay debt - social position in the community - Organizational performance results - Cooperation between organizations in the community - Participation in various community activities - Providing assistance to the community Acceptance of people in the community
Physical indicators include - Infrastructure such as roads, electricity, schools, health centers - Access to news information	- Road conditions - Number of households with electricity - Number of households that have tap water for use - Distance and time from home to schools and health centers - Quality of health center services - Irrigation system, irrigation pond - Number of telephones per household/community

Indicators	Examples
Natural resource and environmental indicators include: - Soil resources - Water resources - Forest resources - Biological diversity - Environmental risks to farmers - Risk of natural disasters (floods, droughts), etc.	- soil erosion - Planting system for soil conservation - Farmers' methods of soil conservation - Water consumption in the cultivation system - Quality and quantity of water for consumption - Cultivation area under irrigation system - Proportion of income that comes from forest products - Size and abundance of forests - Amount of chemical use and illness from chemical use - Frequency of receiving damage from natural disasters

Research Methodology

Research Framework

This study uses a mixed-methods research design, combining quantitative and qualitative data collection and analysis. Quantitative data were collected using questionnaires, and qualitative data were collected through field visits, in-depth

interviews, and focus group discussions with academics, experts, and knowledgeable individuals. Quantitative data were summarized using tables, frequencies, percentages, and arithmetic means. Qualitative data were analyzed using principles and theoretical concepts to identify key themes and patterns.

Identifying Sample

- The population in this study is 154 indigo-dyeing cotton producers living in the LahaNam Village, Song Khon District, Savannakhet Province, Lao People's Democratic Republic.
- The sample in this study was the 154 households participating in the ODOP project, using purposive sampling

resource development, group/community organization development, basic development of the community economy, and physical basic development, are associated with the community economic development needs of indigo-dyeing cotton producers in the LahaNam Village, SongKhon District, Savannakhet Province, Lao People's Democratic Republic.

Research Hypotheses

Hypothesis 1 (H1): Factors related to indigo-dyeing cotton farmers are associated with the community economic development needs of indigo-dyeing cotton producers in the LahaNam Village, Song Khon District, Savannakhet Province, Lao People's Democratic Republic.

Hypothesis 2 (H2): Factors driving the community economy of indigo-dyeing cotton producers, including human

Research Instruments

The questionnaire is a tool for collecting quantitative data. It consists of five parts:

- **Part 1:** General information about indigo-dyed cotton producers in LahaNam Village, SongKhon District, Savannakhet Province, Lao People's Democratic Republic (PDR). This part includes questions about the production process (e.g., production costs, production income, marketing), and is

composed of closed-ended questions and a checklist.

- **Part 2:** Factors driving the community economy of indigo-dyed cotton producers in the LahaNam Village, SongKhon District, Savannakhet Province, Lao PDR. This part includes questions about human resource development, group/community organization development, basic development of the community economy, and basic physical development. It is composed of closed-ended questions and a rating scale.
- **Part 3:** Opinions on policies and guidelines for community economic development of indigo-dyed cotton producers the LahaNam Village, SongKhon District, Savannakhet Province, Lao PDR. This part includes questions about the perceived effectiveness and feasibility of different policies and guidelines. It is composed of closed-ended questions, a checklist, and a rating scale with 5 levels based on the Likert scale.
- **Part 4:** General opinions on policies and guidelines for community economic development in Lao PDR. This part is composed of closed-ended questions and a rating scale with 5 levels based on the Likert scale.
- **Part 5:** Challenges and obstacles faced by indigo-dyed cotton producers in Ban Laha Nam, Mueang Song Khon District, Savannakhet Province, Lao PDR. This part consists of open-ended questions.

Data collection

This research involves the collection of two main categories of data:

1. Primary data: This will be first-hand information obtained through questionnaires, focus group discussion, and

in-dept interviews with farmers who produce indigo-dyed cotton in Lahanam village, Songkhone district, Savannakhet province, Lao PDR. This primary data will provide valuable insights into the current situation of indigo-dyed cotton production in the village.

2. Secondary data: This will be second-hand data obtained from related research documents, such as previous studies on indigo-dyed cotton of Lahanam village, development strategic plans, target village development activities, and relevant journals. The secondary data will provide additional information to support and complement the primary data gathered in the study.

Data analysis

Quantitative data analysis

The researcher used a statistical software package to analyze the questionnaire data. The following methods were used:

- **Descriptive statistics:** This method was used to summarize the data and provide insights into the characteristics of the sample.
- **Inferential statistics:** This method was used to test the research hypotheses and draw conclusions about the population from which the sample was drawn.

Qualitative data analysis

To achieve the research objectives, the following qualitative data analysis methods were used:

- **Content analysis:** This method was used to analyze the interview data by identifying and grouping common themes and patterns.
- **Document analysis:** This method was used to analyze the documentary evidence (e.g., tables, books, research reports, theses, academic articles,

annual reports, government and private agency meeting minutes, news articles, and government laws and regulations)

by identifying relevant information and interpreting its meaning.

Results

Lahanam village’s income from indigo-dyed cotton weaving products

The result of income achieved per month of indigo-dyed product weaving is significant, generating a total average income of 13,767,532 Kip from selling a total of 202 pieces of weaving products per month. It is important to note that the Sinh

(Body part) is the most popular and highest-priced weaving product, generating the highest income per piece. The total income generated by selling Sinh (Body part) is 7,155,844 Kip, which is almost 40% of the total income achieved per month from all indigo-dyed cotton weaving products. **(Table 2)**

Table 2 Income received per month from all indigo-dyed cotton weaving products.

No.	Products	Average selling amounts per month (pieces)	Average income per month (Kip)
1	Sinh (body part)	72	7,155,844
2	Shirt Fabric	39	983,766
3	Tablecloths	45	1,342,208
4	Shawl	16	1,885,714
5	Sinh (bottom part)	30	2,400,000
Total		202	13,767,532

Lahanam village’s data (2023)

Lahanam’s Village Expense on indigo-dyed cotton weaving products

The given information in (Table 3) suggests that the total average monthly expense of indigo-dyed cotton weaving in Lahanam Village is approximately 11,687,204 Kip. This expense is comprised of several cost components, which are weaving tools, material cost, direct labor cost, produce cost, and activity cost. The largest cost component is weaving tools, which accounts for 75% of the total expense, at 8,775,133 Kip. Material cost is the second-largest component, representing

14% of the total expense at 1,685,117 Kip. The direct labor cost is the third-largest component, accounting for 6% of the total expense at 741,234 Kip. Produce cost, including water and electricity, represents 4% of the total expense at 463,383 Kip. Lastly, activity cost, such as transport, accounts for less than 1% of the total expense at 22,338 Kip. Overall, the total expense per month reflects the financial resources necessary to produce indigo-dyed cotton weaving in Lahanam Village and is driven primarily by the cost of weaving tools and materials.

Table 3 Expenditure per month of indigo-dyed cotton weaving products

No.	Description	Average Expense per month (Kip)
1	Weaving tools	8,775,133
2	Material Cost	1,685,117
3	Direct Labor Cost	741,234
4	Production Cost	463,383
5	Activity Cost	22,338
Total		11,687,204

Lahanam village's data (2023)

Result Hypotheses Testing

H1: Hypothesis testing revealed that the level of education and weaving experience of farmers who produce indigo-dyed cotton are factors related to the needs of community economic development in LahaNam Village, SongKhon District, Savannakhet Province, Lao People's Democratic Republic. This is statistically significant at the 0.05 level.

Farmers with higher education and weaving experience are more likely to have the knowledge and skills necessary to contribute to community economic development. This suggests that developing groups of cotton producers could be a beneficial strategy for promoting community economic development in regions where indigo-dyed cotton is produced as shown in **Table 4**.

Table 4: Results of Hypothesis 1 Testing

Factors	Community economic development needs of indigo-dyed cotton producers		
	r	P-value	Interpret
1. Genders	0.211	0.124	Uncorrelated
2. Age	0.426	0.222	Uncorrelated
3. Status	0.111	0.078	Uncorrelated
4. Educational Levels	0.321*	0.001	Moderate Correlation
5. Occupation	0.099	0.365	Uncorrelated
6. Weaving Experience	0.345*	0.000	Moderate Correlation

Remarks: *Statistical significance at 0.05 level

***Statistical significance at 0.01 level

H2: From the hypothesis testing, it was found that the factors driving the community's economic development of Indigo-dyed cotton producers in the LahaNam Village, Songkhon District, Savannakhet Province, Lao People's Democratic Republic, including human resource development, community organization development, economic

infrastructure development, and physical infrastructure development, are correlated with the need for the economic development of the silk and dyed cotton producers. This suggests that the indigo-dyed cotton producers attach significant importance to the development of their community, thus having a high demand for it as shown in **Table 5**.

Table 5: Results of Hypothesis 2 Testing

Factors	Community economic development needs of indigo-dyed cotton producers		
	r	P-value	Interpret
1. Human Resource Development	0.645* *	0.000	Moderate Correlation
2. Group/Community Organization Development	0.680* *	0.000	Moderate Correlation
3. Basic Community Economic Development	0.741* *	0.000	Moderate Correlation
4. Basic Physical Development	0.666* *	0.000	Moderate Correlation

Remarks: *Statistical significance at 0.05 level

**Statistical significance at 0.01 level

Discussion

The indigo-dyeing producers in the LahaNam Village, Savannakhet Province, Lao People's Democratic Republic, are all women, totaling 154 individuals. These women, mostly aged between 40 and 57, are primarily involved in domestic tasks and farming. The majority have completed only primary education.

The primary profession is weaving silk, a skill passed down through generations. Average monthly production costs are around 11,687,204 kip, with equipment costs being the largest component (75.08%). The monthly revenue from selling fabrics is approximately 13,767,532 kip, with the body part of Sinh being the most profitable product category. This suggests that this profession does not require higher education but relies on the transfer of traditional skills.

The analysis reveals a statistically significant relationship between the level of education and weaving experience of indigo-dyed producers in this community of LahaNam Village, Songkhone District, Savannakhet Province, Lao People's Democratic Republic, and the economic development needs of these fabric producers at a significance level of 0.05. This connection is rooted in the fact that individuals with higher

educational backgrounds and weaving experience tend to possess greater knowledge and an increased inclination to foster the development of the indigo-dyed cotton production group, thereby influencing the economic development requisites of the community.

In addition, factors related to the indigo-dyed production process, encompassing production costs, income generated from production, various stages of the production process, and the marketability of the fabric, are intricately tied to the economic development needs of indigo-dyed cotton producers in the community. An elevation in economic development needs is poised to result in transformations within the production process, subsequently leading to heightened development.

As for the challenges and impediments encountered in the pursuit of sustainable development in LahaNam Village, Songkhone District, Savannakhet Province, Lao People's Democratic Republic, they encompass issues such as resource scarcity, limited access to financial resources, deficiencies in knowledge and production skills, challenges in market management, quality control, competition in the international market, environmental

preservation, and complications related to transportation. These challenges collectively pose hurdles in the path towards sustainable development.

Conclusion

The textile industry, particularly silk and dyeing, in Laos, faces challenges in accessing raw materials and foreign markets due to factors such as local cultivation of silk and dyeing materials, limited availability of these materials at times, and challenges in international market access, including high tax rates and other trade barriers. Nevertheless, this industry remains a significant source of income and employment for rural households in Laos. With effective management of these challenges, it has the potential for growth and success in the future. This is consistent with a study by Nareerat (2014), which examined the knowledge transfer of local practices in silk weaving in Songkhla province and Nakhon Si Thammarat province, finding that both provinces sell their products through both retail and wholesale channels, with the wholesale channel being more popular. It is also more efficient, allowing weavers to access a wider market and sell their products at competitive prices. The study also found that the unique weaving styles, quality, and marketability of their silk products are critical to their success. Weavers in these two provinces have a long tradition of silk weaving and have developed unique and intricate patterns highly demanded by consumers. They also use high-quality materials and traditional dyeing methods that give their products a distinctive appearance and feel.

The development of community-based economics in the cotton dyeing industry of LahaNam Village, Songkhone District,

Savannakhet Province, Lao People's Democratic Republic, involves various factors and processes. It begins with the development of human resources, including training local economic leaders in the area and transferring knowledge and technology in silk dyeing to household members. Furthermore, community groups are formed to promote participation and mutual learning within the community. This results in better resource sharing, knowledge and skill aggregation, and more efficient marketing of their products, ultimately leading to economic growth and income distribution. This aligns with the 9th National Socio-Economic Development Plan (2021-2025), which emphasizes the importance of creating new economic and social development initiatives in the coming years. By upgrading and expanding their productive capacity and services, the country is aiming to strengthen the local economy and create a stable, sustainable community.

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References

- Agyeman, J., Bullard, R. D., & Evans, a. B. (2010). Exploring the Nexus: Bringing Together Sustainability, Environmental Justice and Equity. *Routledge Space and Polity*, 6(1), 77-90.
- Bergold, Jarg&Thomas, & Stenfan. (2010). Handbuch Qualitative Forschung in der Psychologie. *Partizipative Forschung. In Günter Mey & Katja Mruck(Eds.)*, 333-344.
- Buasra, P., Turisut, a. T., & Sanposh, a. K. (2020). Strategies to Increase the Value Added of Local Woven Fabrics Nongbualamphu Province. *Journal of MCU Nakhondhat*, 16(10), 13.
- Che-Oh, F. (2017). A Strategy for Developing Community of Practice through Internet Networks to Conserve the Gracilaria fisheri in Bangpu Community, Yaring District, Pattani Province. *Copy Rights of Songkla University*, 360.
- CHOI, N. G., & KIM, a. J. (2011). The effect of time volunteering and charitable donations in later life on psychological wellbeing. *Cambridge University Press 2010*, 590-610.
- Chumkate, J. (2017). *Product Development from Local Wisdom to Increase an Efficiency of Community-Based Management with Sustainability in Thai-Muslim Village, Amphur Cha Am, Phetchaburi Province*. Research grants from the Faculty of Management Science Silpakorn University.
- Cornwell, L. (1986). *Community Development: Science or Metaphor?* Unpublished masters thesis, UNISA, 219.
- Council, O. o. (2005). *Annual Report 2005*. Bangkok: Thailand Social's Dashboard.
- Development, O. o. (2004). *Informal Economic Administration Strategic*. Bangkok: nesdb Thailand.
- Investment, M. o. (2016). *8th Five-Year National Socio-Economic Development Plan (2016 2020)*. Vientiane: the VIIIth National Assembly's Inaugural session.
- K.Smith, M. (2013). What is community? *Infed*, 59.
- Keomongkhon, J. (2016). *Guidelines for Development of Silk Weaving of the Silk Weavers Group in Khon Kaen*. Thammathat, 8.
- Khan, M. R., Uddin, Z., & Hossain, a. D. (2014). Eco-Sustainable Process Development for Indigo Dye by Using Natural Reducing Agents. *Middle-East Journal of Scientific Research*, 22(7), 1090-1095.
- Klinubon, S. (2019). *The Study of Participation of Community Contributed to the Success of Community Development Guided by the Philosophy of Sufficiency Economy at Banhuakhaojeen, Tambon Hoyyangtone, Paktor District, Ratchburi Province*. Copy of Graduate School, Slipakorn.
- Kongphunphin, C. (2018). An Approach to Create Urbun Public Space for Sustaning Social Indentity. *A dissertation submitted in partial fulfilment of the requirements for the degree of doctor of philosophy intergrated science of built environment*, Faculty of architecture and planning, Thammasat University.
- Lai, C.-C., & Chang, a. C.-E. (2021). A Study on Sustainable Design for Indigo Dyeing Color in the Visual Aspect of Clothing. *MDPI*, 1-11.
- Laos, N. I. (2021). *Annual Research 2021*. Vientiane: NIER Laos.

- Niyomthai, N. (2004). *Environmental Sustainable Development Community Planning by People Participation by Ban Oon Community Mu 14, San Kamphaeng Municipality, San Kamphaeng District, Chiang Mai Province*. Copyright by Chiang Mai University.
- Norasee, A. (2014). *Survival of CommunityEconomy in Globalization: A Case Study of BaitongKlongKrajong Group, Sawankhaloke District, SukhothaiProvince*. Copyright by Chiang Mai University.
- Ruangprad, W. (2013). Inheritance of Lao Viang Wisdom in Weaving by Information Technology . *Chandrakasem Rajabhat University Journal*,19(37), 10.
- Santitham, K. (2017). *Decision Making Process Towards Sustainable Real Estate Development: Green Office Building in Bangkok, Thailand*. Copyright by Thammasat University.
- Songleknok, S., Loipha, a. D., & Vongprasert, a. D. (2015). Knowledge Management Process of Indigo Dyed Cloth Community Business. *KKU Res J (GS)* 15(3), 14.
- B. o. (1999). *Economic and Finance Report 2542*. Bangkok: Bank of Thailand.
- Wattanasin, N. (2014). *A local wisdom transmission : a case study of Koh Yor weaving in Songkhla province and Nameunsri weaving in Trang province*. Copyright by Prince of Songkla University.
- Worapong, S. (2012). *The Sustainable Development Administration for a Karen Communiton the High Land of Maesariang District, Mae Hong Sorn District*. Copyright by Maejo University.

An Analysis of Rectification and Safety Affecting Student Satisfaction: Take Jining University a Case Study

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ABSTRACT

This study aimed to analyze the impact of safety and rectification factors on students' satisfaction with the university laboratory. The data were collected from 614 samples selected from relevant majors at Jining University through random sampling and questionnaires were sent to the correspondents online. A linear regression model was used for data analysis. The results indicated that both safety and rectification affected students' satisfaction with the university laboratory. The model was consistent with empirical data, and the statistical results were: CRONBACH'S α = .881 (X1) .953 (X2) .900 (Y), Mean (X1) = 4.245, SD = .568, Mean (X2) = 4.434, SD = 0.608, Adjusted R Square = .791, F = 1160.333, $p = 0.000 < 0.05$, at the level of .05 statistical significance.

KEYWORDS: Laboratory, Safety, Rectification, Jining University.

Introduction

In recent years, with the reform of applied universities proposed by the country, applied technology undergraduate colleges refer to ordinary undergraduate colleges with applied technology as the educational orientation rather than academic orientation. It is opposite and different from academic undergraduate programs. Applied undergraduate education plays a positive role in adapting to the needs of China's economic and social development, cultivating high-level applied talents, and promoting the popularization of higher education in China. Some universities actively respond to the country's call to transform into applied universities. The experimental training room is an important teaching tool in applied universities, playing an increasingly important role in teaching.

In the actual use process, we found that the efficiency of laboratory use and the

enthusiasm of students are influenced by student satisfaction. If students have a high level of satisfaction with the laboratory, they are often proactive and proactive in using it. If students have a low level of satisfaction with the laboratory, they are often passive and passive in using it. Therefore, in response to the above issues, this article intends to adopt a quantitative research method to study and explore the impact of laboratory safety factors and rectification factors on student satisfaction.

It is hoped that this study can analyze and demonstrate the above problems and provide solutions. Although the laboratory is the standard teaching configuration and practical training place of colleges and universities, the school has many years of laboratory management experience, but with the progress of The times and economic development, the existing management mode

can no longer meet the learning and scientific research needs of college teachers and students. Through this study, the effective solution to improve the utilization rate of the laboratory is explored, and the rational use and availability of the laboratory are promoted. At the same time, it has played a role in promoting laboratory safety. It is hoped that this study can promote the development of laboratory fine management. Promote the transformation of university laboratories to the direction of refinement and standardization, and scientifically and effectively improve the level of scientific research and students' practical ability.

Research Objectives

1.To study the influence of university laboratory rectification factor on students' satisfaction.

2.To study the influence of university laboratory safety factor on students' satisfaction.

3. To compare the influence factors of rectification and safety on students' satisfaction of university laboratory.

Literature Review and Concept

Universities undertake both educational work and scientific research tasks. Laboratory is an important part of teaching activities and scientific research. To some extent, its management level reflects the comprehensive quality of the overall teaching level, scientific research level and management level of colleges and universities, which directly affects the quality level of experimental teaching and scientific research speed, and is an important guarantee for the smooth development of experimental teaching. (Liang, 2022) In June 2019, the Ministry of Education issued the Opinions on Strengthening Laboratory Safety Work in Universities, emphasizing the importance of laboratory safety management and pointing out that the construction of safe chemistry laboratories is imminent. (Qiao, 2022)

Laboratory safety is the promotion and improvement of teaching and research work

in higher education institutions. The basic guarantee for students' growth and success is related to the development of the school's career and the development of teachers and students. The safety of employees' lives and property requires the establishment of a concept of safe development. Carrying forward the idea of putting life first and safety first is a new era of higher education. The starting point and basic point of school laboratory safety work. (Guo,2020)

The development of modern science and technology shows that most inventions that have a significant impact on economic construction come from laboratories, and the more modern science and technology rely on scientific experiments to develop (Zhang, 1984). Laboratory construction is the basic work of running a good university and training talents. Laboratory has its unique role in education, not only to teach people with knowledge and technology, to cultivate students' practical ability, analytical ability and problem-solving ability, but also to influence students' world view, way of thinking and style. Many classic teaching experiments are actually simplified simulations of some of the greatest discoveries in the history of science and technology. These findings objectively reflect the dialectical materialist way of thinking, the style of seeking truth from facts and the rigorous scientific habit. (Zhu, 1992).

A comprehensive inspection of the laboratory and the removal of unwanted things in the laboratory is the basis of the "5S" activity. Classify the "needed" and "unnecessary" items, investigate the frequency of use of the needed items, determine the daily amount and storage place, put the items with high use rate in the place where it is convenient to pick up, and put the items with low use frequency near the use place. (Yin, 2020)

Every tool, chemical reagent and experimental equipment should be in a reasonable position, so that students can use more convenient, tools are not easy to lose, but also more safe, and the rectification is not

only a simple placement, but also the use of modern information statistics, statistics and tracking of the use of experimental equipment and consumables. In this way, the missing supplies can be replenished in time, and the abnormal use of equipment can be warned.

Through fine management and reasonable grading system, the existing problems can be solved to a certain extent. Digitization and information technology are also important. The establishment of laboratory management information system centralized the management of laboratory teachers, students, laboratory technicians and laboratory instruments and equipment into the system platform. The purpose is to realize the modernization and systematization of laboratory management and operation, to provide efficient, multi-level and all-round services for experimental teaching, and to provide data support for the formulation of laboratory management decisions. (Liu, 2017)

The use of 5s tools for laboratory management can meet students' actual needs for laboratory use and strengthen management level. 5s does not need to invest too much management costs, and plays a great role in management quality and efficiency. (Xu, 2022)

SEITON - The necessary items left behind are placed in a prescribed place and placed neatly and marked. Purpose: The workplace is clear, eliminates the time to find items, a neat work environment, eliminates excessive inventory.

SECURITY - Attaches importance to the safety education of members, and has the safety first concept at all times to prevent it from happening. Objective: To establish and maintain a safe production environment, all work should be established under the premise of safety. (baidu encyclopedia 2023-8-8. <https://baike.baidu.com/item/6S/779245>).

Laboratory consolidation and safety are also the basis for open laboratories. A good open laboratory can greatly improve the overall scientific research ability of the

school, stimulate students' interest in scientific research, and improve students' innovative ability.

Conceptual Framework

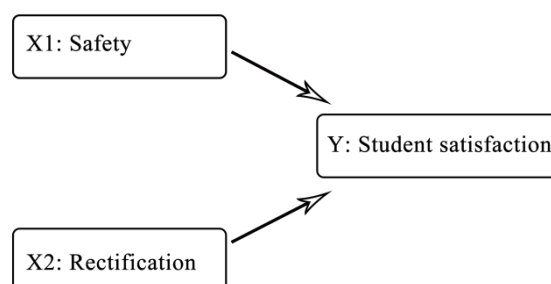


Figure-1. A conceptual framework for this research.

Research Methodology

Considering that this study takes Jining University as an example, it is convenient to organize and collect data, and has the conditions for quantitative research. Therefore, this study adopts quantitative method to conduct research, and the data comes from the online questionnaire survey of relevant students in Jining University.

Population and Sample

The total number of students in Jining University's relevant courses is about 6,000. The sample design is 10% of the total number of students, and 600 samples are randomly selected from the students. Sampling method adopts simple random sampling method to conduct probability sampling of students. Considering the large population, sample collection is difficult, so a 5% error is allowed on the basis of 10% sample collection, that is, 570 samples. In the end, we collected and used 614 samples, and when considering that this study was based on a larger population, more samples are obviously more beneficial for subsequent studies.

Instruments

Send questionnaires to students using online questionnaires.

Expert review: After questionnaire and interview design is completed, school experts, laboratory management leaders and specific managers are invited to review the questionnaire questions, and propose a revised questionnaire design plan from a professional perspective to improve the effectiveness and professionalism of the questionnaire to the greatest extent. At the same time, the responsible leaders and specific managers are asked to put forward suggestions from the practical management perspective to improve the multi-angle and comprehensive questionnaire design.

Focus group: After expert review, a focus group is convened to make final improvements to the questionnaire. Find out the loopholes in the questionnaire by brainstorming. All participants played different roles and made suggestions on the questionnaire.

Field pre- test/ Pilot: After questionnaire design is completed, a small number of samples are randomly selected from the original population for testing. After the test is completed, the samples that participated in the test are not included in the formally sampled population. Through the test, we can verify the validity of the questionnaire design in this study. The questionnaire design can then be finalized and used as a formal data collection tool to participate in follow-up studies.

The questionnaire is designed with 28 single-choice questions, among which questions 1-3 are basic information, questions 4-12 are independent variables, questions 13-22 are independent variables, and questions 23-28 are dependent variables.

The questionnaire used Likert five scale to scaling responses in survey research,

it typically has five scale point descriptors as: “strongly disagree”, “disagree”, “neutral”, “agree”, “Strongly agree”. The questionnaire codes the responses accordingly: Strongly disagree = 1, disagree = 2, neutral = 3, agree = 4, strongly agree = 5.

Data Analysis

All statistical data were completed by spss statistical software for survey data input, sorting and statistical analysis. A quantitative method was used to analyze the questionnaire results of student samples. Using multiple regression analysis to analyze the data, you can calculate the influence of the derived variable on the dependent variable and use it as the data for research.

Results

The basic information of the sample

This chapter presents the results of the data collected from the case study sample. The study collected valid online data from 614 students from Jining University in Shandong Province. These data are shown in the figure below.

Reliability analysis

For Cronbach's α coefficient, if the Cronbach α coefficient (or half coefficient) is above 0.9, the reliability of the test or scale is very good, between 0.8-0.9 indicating good reliability.

In this study, the Alpha value of Safety Factors was 0.881, indicating that the Safety Factors factor reliability in the questionnaire is good, and the Rectification factor and Satisfaction degree reliability above 0.9 indicate that the reliability is very reliable.

Table 1. Reliability Statistics

variable	number of items	Cronbach's Alpha
Safety Factors	9	0.881
Rectification factor	10	0.953
Satisfaction degree	6	0.900

Mean and Standard Deviation

Table 2 provides statistics on laboratory satisfaction. In the survey of laboratory satisfaction with safety and rectification factors, the mean and standard deviation were the highest (Mean = 4.43, SD = 1.073). According to the total data analysis of Safety Factors (Mean = 4.245, SD = 0.568), the influence of the total respondents was huge, indicating that the impact of the independent variable Safety Factors on satisfaction was very strong.

Table 3 provides statistics on laboratory satisfaction. In the survey of laboratory satisfaction with safety and rectification factors, the mean and standard deviation were the highest (Mean = 4.51, SD = 0.982). According to the total data analysis of Safety Factors (Mean = 4.434, SD = 0.608), the influence of the total respondents is huge, indicating that the impact of Safety Factors on satisfaction is very strong.

Table 2. Report on Mean and SD of Safety Factors

	Indicative Statements	Mean	Std. Deviation	Verbal Interpretation
1	Do you think the laboratory is a place with relatively high safety risks?	3.68	1.073	Highly importance
2	.Do you think the laboratory layout is reasonable and safety signs are clear?	4.4	0.677	Very Highly importance
3	Do you think the safety measures in the laboratory you use are sufficient?	4.43	0.652	Very Highly importance
4	Do you rarely worry about safety issues in the laboratory?	4.15	0.885	Very Highly importance
5	Have you received any laboratory safety training, and if so, do you feel that this safety training	4.31	0.748	Very Highly importance
6	You will review the standard operation before using the laboratory.	4.37	0.703	Very Highly importance
7	I think the safety of the lab can be guaranteed.	4.37	0.678	Very Highly importance
8	You feel that the safety of the laboratory has a certain impact on your study and experimental work.	4.09	0.946	Very Highly importance
9	You are satisfied with the safety of the laboratory.	4.41	0.669	Very Highly importance
	Total	4.245	0.568	

Table 3. Report on Mean and SD of Rectification factor

	Indicative Statements	Mean	Std. Deviation	Verbal Interpretation
1	You are satisfied with the cleanliness of the laboratory now.	4.39	0.693	Very Highly importance
2	You feel comfortable with the access and use of laboratory tools and experimental equipment.	4.36	0.728	Very Highly importance
3	Will you put the used equipment back in its original place?	4.51	0.614	Very Highly importance
4	The laboratory you are working in is often overhauled.	4.26	0.779	Very Highly importance
5	After the rectification, do you feel that the environment and equipment of the laboratory have been improved?	4.39	0.671	Very Highly importance
6	You believe that the current equipment management methods meet the needs of learning.	4.4	0.677	Very Highly importance
7	You have never experienced that the progress of learning was affected by the delay of equipment deployment.	4.05	0.982	Very Highly importance
8	I think the construction of the laboratory meets my study needs.	4.37	0.684	Very Highly importance
9	I think the laboratory environment can help me concentrate more.	4.38	0.672	Very Highly importance
10	I think the position of the experimental tools is reasonable and easy to access.	4.36	0.702	Very Highly importance
	Total	4.434	0.608	

Result analysis

As can be seen from Table 4, a linear regression analysis was performed with safety and rectification factors as the independent variables and satisfaction as the dependent variable. From Table 4.5, we can see that the r-square value of the model is 0.792, which means that the independent variable 1, independent variable 2 versus dependent variable change by 79%.

As can also be seen from the above table, when the F test is performed, the model

has passed the F test ($F=1160.333$, $p=0.000 < 0.05$), which means that the construction of the model will be meaningful.

Further analysis of the coefficient matrix found that these two independent variables had significant effects on satisfaction, with Rectification factor having the largest effect, followed by Safety Factors. The formula of the analysis is: Satisfaction degree = $0.416 + 0.21$ (Safety Factors) + 0.695 (Rectification factor)

Table 4. Regression analysis table

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890a	0.792	0.791	0.27223

Table 5. ANOVA^a

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	171.986	2	85.993	1160.333	.000 ^b
1	Residual	45.282	611	0.074		
	Total	217.268	613			

Table 6. Coefficients

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
	Model	B	Std. Error	Beta	t	Sig.
1	(Constant)	0.416	0.084		4.949	.000
	Safety Factors	0.21	0.039	0.2	5.359	.000
	Rectification factor	0.695	0.037	0.71	19.018	.000

Problem Solving Outcomes

Whether it is safety or rectification, it affects students' satisfaction with the laboratory. Safety is the basic guarantee of laboratory operation, if there is a security problem, then the subsequent rectification and management will be meaningless. Rectification can make the operation of the laboratory more efficient and is an effective way to improve student satisfaction. This study will be used in university laboratory management, including construction to provide certain help, in order to improve students' satisfaction with the laboratory and laboratory management ability, and play a positive role in promoting the development of the school.

Conclusion and Discussion

Taking rectification and safety analysis as the theme, this paper mainly discusses the problems affecting the

satisfaction of university laboratories, analyzes the impact of safety factors and rectification factors on the utilization rate of laboratories, and finds that safety factors and rectification factors can affect students' satisfaction with laboratories. This topic is suitable for the practical needs of colleges and universities, and has theoretical and practical significance. The research design is reasonable, the research method is scientific, and the research results are reliable. This paper was completed successfully within the specified time and achieved the expected purpose.

Through data collection and result analysis, it can be found that students' satisfaction with laboratories in Jining College is affected by safety factors and rectification factors, which is consistent with the hypothesis of this study. Reliability results show that the reliability score is

above 0.9, indicating that the questionnaire has excellent credibility and accurate results, which can be used as data support for this study.

Safety factor Mean = 4.41, rectification factor Mean = 4.434, the results show that safety factor and rectification factor have a strong impact on students' satisfaction, and rectification factor has a greater impact. This conclusion can also be drawn from the last question of the questionnaire.

Rectification is not only an effective way for laboratory staff to improve the efficiency of laboratory users, but also a management method that is easy to implement, easy to quantify and easy to form a system. Through effective rectification, students' satisfaction with the laboratory can be improved, which has positive significance for university teaching and scientific research. It provides data and support for the construction and follow-up management of university laboratories, and plays a certain role in promoting the development of universities, which is also the significance of this study.

According to the regression analysis, rectification factors have a greater impact, while safety factors have a smaller impact, but this does not mean that safety factors are not important in laboratory management, but because the construction and management of laboratories in colleges and universities have always put safety in a very important position, safety factors are the first factor to be considered, and also an important link in laboratory management. Therefore, the laboratory brings a safe and reliable feeling to the people who use the laboratory, which is a natural trust of the users of the school, and is also the result of many years of efforts of the laboratory staff.

Compared with safety factors, rectification factors have a greater impact on laboratory satisfaction. According to the research of Maslow's demand theory, when people meet the safety needs, they will pursue higher needs. A convenient, clean and orderly environment has a positive effect on users, and will naturally improve users' satisfaction with the laboratory. "Rectification" can classify and place items, put them neatly, and make relevant marks, which can shorten the time of searching for items and improve the working environment (Cheng, 2022). Compared with the results of the research on the effect and satisfaction of 6S lean management applied to university medical laboratory management (Cheng, 2022), this result has a certain consistency. In addition, whether the laboratory is clean, whether the items are placed neatly, and whether the tools are convenient to take are intuitive and easy to be felt. Because of this, the results of this questionnaire are biased towards the rectification factor.

Deficiencies and outlook

In this study, we collected sample data through questionnaire survey, and used qualitative analysis to summarize and analyze the data, and obtained experimental results that were highly consistent with the expected results. To some extent, it solves the problems related to laboratory satisfaction. There are also some limitations in this study, which did not cover all the students who used the laboratory during the sampling. The main reason for this is that some students did not use the laboratory too much and were too scattered. Therefore, the overall sampling selected students with high frequency of using the laboratory,

instead of expanding to all students. While this facilitates easy sampling and accuracy of results, non-lab students may also have a need to use the lab. Secondly, stratified sampling and probability sampling are used according to majors and grades when selecting samples. However, some students did not have the opportunity to use the laboratory for a long time due to the impact of enrollment time and the epidemic when filling out the questionnaire. They are not very clear about the requirements and questions about the use of the laboratory, so the results of these students may not be objective, and two problems may arise in the survey of our school. First, the degree of students' recognition of the school will affect the accuracy of the questionnaire survey; Second, students knew that the questionnaire was issued by the teachers of our school, and there might be favorable answers when filling in the questionnaire. In order to reduce the impact of these questions on the accuracy of the questionnaire results, many arguments and tests were conducted during the questionnaire design stage to minimize these impacts as much as possible. In the following research, we can further optimize the above problems. For example, we can

set up an overall sample for all students. When designing the questionnaire, we can add the option of long-term use of the laboratory. In this way, students with non-related majors and students with low usage time can add a scale coefficient of 0.3-0.5 to the results to ensure that the overall scope of the sample can cover the whole school, and also improve the validity of the results.

This study takes Jining University as an example. During the research process, many research problems are common in colleges and universities, and some problems are unique to Jining University. Therefore, the research results can only accurately reflect the actual situation of Jining College. In the future, it is suggested to expand the scope of sample selection, not limited to Jining University. The sample can be selected from students to schools as a whole. For example, the research results of Jining University can be used as a sample group to participate in the next research. In this way, we can find more common problems and research solutions in university laboratories, and we can also find more common problems between schools, so the research results will be more universal and applicable.

References

- Cheng.Q.W. (2022), Research on the effect and satisfaction of 6S Lean management applied to university medical laboratory management, *Chinese Health Standards Management*, 13(09), 19-21.
- Guo.J.Z, Li.K., Liu.S.H. & Li.Z.H. (2020), Exploration and Practice of High Level Laboratory Safety Management in the New Era—Current Situation, Analysis and Countermeasures of Laboratory Safety Management in Shaanxi Province's Universities, *Experimental Technology and Management*, 37(4), 4-8.
- Qiao L., Gao.Z.Y. & He.X.Y. (2022), Preliminary Exploration on Safety Management and Elaboration of Chemical Laboratories in Colleges and Universities, *Journal of Science and Education*, 11, 82-86.
- Liang. Y. H. (2022), Research on the problems and strategies of university laboratory management, *Technology Wind*, (8), 133-135.

- Liu.C. (2017), Exploration and practice of fine management of university laboratories, *Journal of Higher Education*, (3), 134-135.
- Xu.Y. (2022), *Application of 5S concept in college laboratory management*, Jiangsu Science & Technology Information, October, (28):58-60.
- Zhu.K. X. (1992), Deepen reform, leverage efficiency, and improve laboratory work in universities to one level A New Level (Abstract) [J], *Experimental Technology and Management*, 9(2), 1-7.
- Zhang.W.Y.(1984), Scientific experiments are the source of scientific theory and the foundation of natural science, It is the foundation of engineering technology. *Experimental Technology and Management*, 11(1), 3-4

Enhancing Effective Communication Through Organization Development Intervention Treatment Case Study: An Experimental Research at Raffles International College in Thailand

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ABSTRACT

The significance of effective communication in organizational development cannot be overstated. This research aimed to achieve the following objectives: Investigate the state of communication at Raffles International College in four sub variables as Leader Communication, Information, Group work and Communication climate amongst Raffles International College employees during the Pre-ODI stage. Design and implement suitable Organization Development Interventions (ODIs) to enhance communication within Raffles International College. Assess the communication situation at Raffles International College during the Post-ODI stage. Determine the disparities in communication between the Pre-ODI and Post-ODI stages among the experiential group at Raffles International College. The study employed both qualitative and quantitative methods, with the employee body of Raffles International College serving as the sample. Three experts reviewed the questionnaires, which were then distributed to 301 employees at the college. Descriptive analysis and t-tests were employed for data analysis. Results indicated that the experimental group, which underwent Organization Development Intervention, exhibited improvement in the four sub variables amongst Raffles International College employees, as evidenced by higher scores in the Post-ODI stage compared to the Pre-ODI stage. In contrast, no discernible differences were observed between the Pre-ODI and Post-ODI stages in the control group. This underscores the positive impact of Organization Development Intervention on communication within the organizational context.

KEYWORDS: Organizational communication, Higher education institution, Organization development.

Introduction

In contemporary professional life, communication stands out as one of the most crucial soft skills, fostering connections among entrepreneurs, employers, employees, and interpersonal relationships among coworkers. This multifaceted aspect of communication encompasses various elements such as communication channels, transparency, authenticity, and employee engagement.

Communication channels play a pivotal role, as Welch emphasizes that effective internal communication relies on providing accurate information in suitable and usable formats for employees. Social media, rooted in Web 2.0's theoretical and technological foundations, facilitates the creation and sharing of user-generated content (Men & Hung-Baesecke, 2015).

Transparency is essential for informed decision-making, with Rawlins highlighting open communication as a key mechanism enabled by technological advancements. Organizations should ensure that information is communicated comprehensibly, meeting the needs of the recipients. Effective communication with internal stakeholders not only enhances organizational credibility but also contributes to competitive advantage and overall success (Men & Hung-Baesecke, 2015).

Authenticity holds significant importance in public relations research and practice, according to Molleda. In a landscape where organizations are increasingly called to be accountable and accessible, Bishop's principles—such as being clear, relevant, timely, consistent, truthful, fundamental, comprehensive, accessible, caring, and responsive to feedback—are crucial (Men & Hung-Baesecke, 2015).

Employee engagement, as noted by Harter, Schmidt, and Keyes (2003), involves cognitive and emotional antecedents in the workplace. Schaufeli and Bakker further define employee engagement as a positive work-related state characterized by energy, dedication, and absorption (Men & Hung-Baesecke, 2015). Recognizing and fostering employee engagement is vital for cultivating a satisfying and productive work environment.

Purposes

The objectives of this study are as follows:

1. To examine the communication situation, focusing on four sub-variables: Leader Communication, Information, Group Work, and Communication Climate among employees of Raffles International College in the Pre-ODI stage.

2. To devise and implement suitable Organization Development Interventions (ODIs) aimed at enhancing communication across four sub-variables: Leader Communication, Information, Group Work, and Communication Climate among employees at Raffles International College.

3. To assess the communication landscape, considering four sub-variables: Leader Communication, Information, Group Work, and Communication Climate among Raffles International College employees in the post-ODI stage.

4. To evaluate the effectiveness of Organization Development interventions on communication, specifically in the sub-variables of Leader Communication, Information, Group Work, and Communication Climate.

Literature Review

Internal communication is often regarded as the lifeblood of an organization, holding significant influence. Ineffectiveness in internal communication is frequently linked to various internal issues within organizations. Poor internal communication not only affects individual aspects but also has a cascading impact on broader corporate dimensions, leading to negative sentiments and strained employee relationships. The larger the organization, the more complex and challenging internal communication becomes, emphasizing the need to identify key factors that can mitigate reliability issues before they escalate. The following factors significantly influence the effectiveness of internal communications:

Leader Communication Skill:

This factor encompasses top-down and centralized communication, emphasizing not only the individual but also communication style, leadership approach, and tonal aspects in communication (Yamaguchi, 2017).

Information:

The core of organizational communication, information plays a crucial role in measuring effectiveness. This involves assessing the accuracy of information and gauging employees' understanding of the information provided (Yamaguchi, 2017; Vercic, 2021).

Group Work:

Often synonymous with teamwork, group work evaluates how well employees collaborate. Group dynamics, leadership styles, and individual employee performance are key factors influencing group work effectiveness (Verčič, 2021).

Communication Climates:

The social tone of relationships, communication climates define how individuals interact within their professional relationships. Each relationship possesses its unique communication climate, influencing overall communication effectiveness (Verčič, 2021).

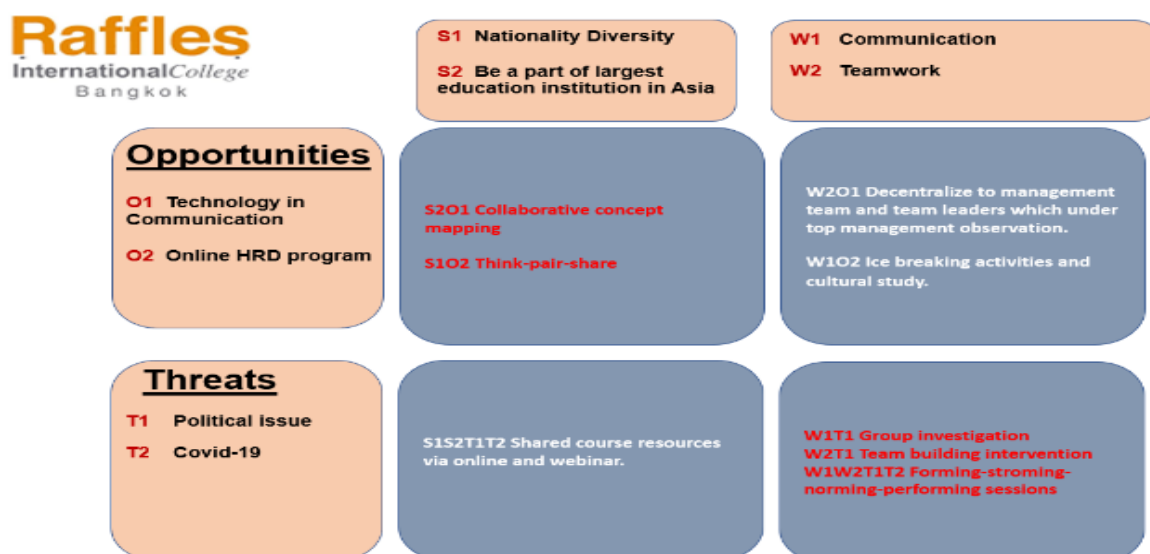


Figure 1: Organization Diagnosis

Based on the insights derived from Figure 1, the researcher will concentrate on two primary dimensions: Strength + Opportunity and Weakness + Threat. These dimensions serve as significant indicators of major advantages and disadvantages for the organization. Figure 1 facilitates the

categorization of strategies, where strengths align with opportunities, and weaknesses align with threats. Additionally, it introduces a collaborative concept strategy mapping and encourages the think-pair-share approach for organizational considerations.

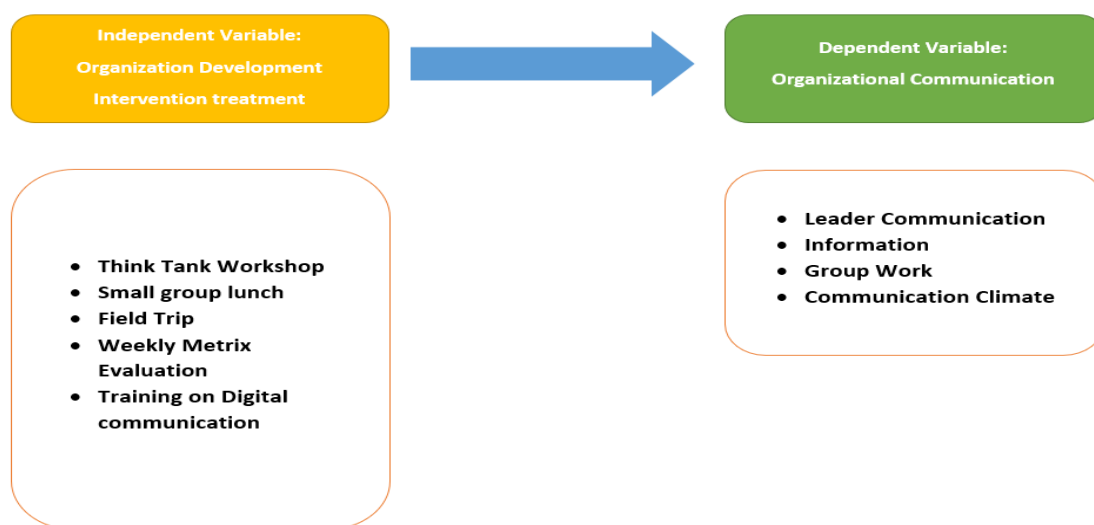


Figure 2: Conceptual Framework

To establish its conceptual framework, the study relies on a theoretical foundation and a literature review (refer to Figure 2). Within this conceptual framework, communication and teamwork are considered a singular relationship. The independent variable is Organization Development Intervention, while organizational communication serves as the dependent variable.

Hypotheses

H1: The mean score of communication (LC, IF, GW, and CC) in the experimental group during the post-test is expected to be higher than the mean score of the control group in the Pre-ODI stage.

H2: The mean score of communication (LC, IF, GW, and CC) in the experimental group during the post-test is anticipated to be higher than the mean score of the control group in the Post-ODI stage.

H3: The mean score of communication (LC, IF, GW, and CC) in the control group during the post-test is projected to be higher than the mean score of the control group in the Pre-ODI stage.

H4: The mean score of communication (LC, IF, GW, and CC) in the experimental group during the post-test is predicted to be higher than the mean score of the experimental group in the Pre-ODI stage

Benefits of Research

This study provides organizations with a comprehensive understanding of internal communication dynamics. The interventions outlined in this research paper are designed to enhance organizational communication, offering owners and managers practical insights applicable to their respective organizations. Improved communication at all levels has the potential to inspire employees, aligning them with the organization's strategic objectives. Effective communication stands as a pivotal strategy for organizational success.

Furthermore, the findings of this research are particularly relevant to private educational institutions that share similar contexts and cultures with Raffles International College. The study demonstrates that interventions such as think tank workshops, business trips, and field trips can effectively enhance leader communication, information dissemination, group collaboration, and overall communication climate within an organization.

Research Methodology

The research methodology employed in the investigation is an experimental research design. Within this design, an Organizational Development Intervention (ODI) centered around communication is implemented, complemented by teamwork assessments conducted before and after the intervention.

For data collection and interpretation, a hybrid research approach integrates both qualitative and quantitative methodologies. Qualitative approaches employ non-standardized tools and procedures, such as interviews and analytical techniques, to delve into the

underlying reasons and processes behind observed situations (Creswell, 2014).

Conversely, quantitative approaches employ standardized measurement tools and procedures, such as sample surveys and statistical analyses. The primary focus of quantitative research is to elucidate frequency and relationships within the data (Creswell, 2014).

The integration of a mixed methods approach combines both qualitative and quantitative techniques, offering a more comprehensive and nuanced analytical perspective. In the pursuit of a thorough organizational understanding, this research utilizes a mixed methodology, rigorously testing the outcomes of the intervention. The methodology involves a judicious blend of quantitative and qualitative methods to provide a holistic overview of the organization and robustly assess the impact of the intervention.

Population and Sample

For this research, a sample of 301 individuals is drawn from the entire population of 301 employees at Raffles International College Bangkok. This comprehensive selection encompasses all strata within the organization, reflecting the entirety of the employee demographic. It is noteworthy that the researcher holds the position of President at Raffles International College and is deeply committed to advancing internal communication within the organization. Given this commitment and the desire to capture a holistic perspective, the decision was made to include the entire population of 301 employees as the sample.

This diverse group comprises individuals from various departments, including management, academic staff, academic support, student administration

and services, finance and accounting, admissions and marketing, as well as facility and building management. The inclusivity extends across the organizational hierarchy, encompassing roles from the presidential level to positions such as housekeeping, gardening, and security.

It is important to highlight that the research methodology employed is a quasi-experimental approach, emphasizing a structured yet flexible design to assess the impact of organizational development interventions on communication within Raffles International College.

Instruments

Quantitative analysis of survey responses was conducted using SPSS software to evaluate and analyze the hypotheses proposed in the study.

For qualitative analysis, responses from interviews and the primary focus group questions were subjected to content analysis. Additionally, questionnaires underwent a thorough review by three experts to assess the Index of Item Objective Congruence (IOC) and gather expert insights. This IOC index was instrumental in determining the content validity of the questionnaire. Three experts specializing in Human Resource Management and Organization Development, representing both educational institutes and business companies, meticulously examined the questionnaire.

The Item-Objective Congruence (IOC) employed a scoring range from -1 to +1, where:
Congruent = +1

Questionable = 0

Incongruent = -1

Items scoring below 0.5 underwent updates, while items scoring equal to or above 0.5 were retained. The departments, including Administration Team, Marketing Team, Human Resources Team, Finance Team, Management Team, and Facility Team, each contributed half of their population to control and experimental groups through a random method.

The main focus group comprised all 301 employees of Raffles International College Bangkok, categorized into departmental groups such as Academic Team, Student Services Team, and Admission Teams for effective analysis and evaluation.

ODI Design Process

During the Pre-ODI phase, OD interventions were planned according to the results of the questionnaires, detailed interviews and group interviews were held. Furthermore, in order to design the most effective solutions for the appropriate group of staff, the needs of each group on either dimension must be prioritized.

ODI Design Process

In the Pre-ODI phase, the design of Organizational Development Interventions (ODIs) was meticulously crafted based on the outcomes derived from questionnaires, detailed interviews, and group discussions. To ensure the development of highly effective solutions tailored to specific groups of staff, a thorough prioritization of the needs of each group on various dimensions was undertaken. This process aimed to ascertain the unique requirements of each staff category, thereby facilitating the creation of targeted and impactful interventions.

Table 1: Descriptive Statistic of the experimental group

Information	Percentage
Gender	
1. Male	54
2. Female	46
Age	
1. <30	34.67
2. 30-40	41.33
3. 41-50	18.67
4. >50	5.33
Education Background	
1. Below bachelor's degree	6
2. Bachelor's degree	48.7
3. Master's degree	30
4. Doctoral Degree	15.3
Position	
1. Management	13.33
2. Non-Management	86.67
Current workplace service year	
1. Less than 6 months	14.0
2. 6 months – 1 year	14.4
3. Between 1 year – 3 s	16.6
4. More than 3 years	55

Data Analysis

The research sample has been categorized into two groups: the control group and the experimental group. An overview of the overall demographic data for both groups is presented in Table 1.

For the control and experimental groups, the survey reveals a higher participation of female respondents in both categories. In the experimental group, 54 percent of the participants are female, while 46 percent are male. In terms of age distribution within the experimental group, the majority falls between 30-40 years old (41.33 percent), followed by those less than 30 years old (34.67 percent). The age group of 41-50 years old constitutes 18.67 percent of the respondents.

Examining the highest level of education attained by the experimental group, 48.7 percent hold a bachelor's

degree, while 30 percent have a master's degree or lower. Those with a doctorate degree comprise 15.3 percent. Additionally, 86.67 percent of respondents in the experimental group hold non-management positions, while 13.33 percent are in management roles. Regarding the duration of employment with the organization, the majority of respondents have over 3 years of experience (55 percent), followed by those with 1-3 years of experience (16.6 percent), and 28.4 percent with less than a year's experience.

To assess the impact of the Organizational Development Intervention (ODI), a mean comparison was conducted between the control and experimental groups in the Pre-ODI stage, revealing discernible differences between the two groups.

Research Results

Table 2: Pre ODI on Communication

Grouping	N	Mean	Standard Deviation	Std. Error	Result
Control	151	2.5464	.19496	.01587	Priority area for improvement
Experimental	150	2.4661	.17653	.01441	Priority area for improvement

However, during the ODI stage, the intervention aimed at enhancing communication effectiveness unfolded, targeting specific factors: Leader Communications (LC), Information (IF), Group Work (GW), and Communication Climate (CC), as detailed in Table 2. The Organization Development Intervention (ODI) comprised various strategies, including interviews, a Think Tank Workshop, small group lunches, business trips, and field trips.

In this context, the Think Tank Workshop served as a platform to share insights on routine tasks, prevalent issues, complaints, and recommendations across

the entire organization. Additionally, the small group lunches were instrumental in fostering a communicative group work climate, while Communication Climate itself was defined as the social tone within relationships—capturing the nuances of how individuals interact.

The final ODI incorporated a field trip, offering all management levels an opportunity for uninterrupted interaction and collaborative problem-solving away from day-to-day tasks. This unique experience took place at Raffles Education Corporation in Singapore, the origin of the Raffles Education group.

Table 2: Pre ODI on Communication in each variable included by Leader Communication (LC), Information (IF), Group Work (GW) and Communication Climate (CC)

		N	Mean	SD	t	Sig (2-tailed)
Mean Pre LC	Control Group	151	2.5391	.32659	.172	.863
	Experimental Group	150	2.5327	.30946		
Mean Pre IF	Control Group	151	2.3550	.27660	.472	.638
	Experimental Group	150	2.3387	.24924		
Mean Pre GW	Control Group	151	2.6728	.19111	.258	.796
	Experimental Group	150	2.6673	.18715		
Mean Pre CC	Control Group	151	2.6209	.25837	.463	.644
	Experimental Group	150	2.6083	.20819		

In concluding Hypothesis 1, all variables exhibit a significance level exceeding 0.05, implying acceptance of the

Null Hypothesis. This indicates that there are no discernible differences between the control and experimental groups

concerning organizational communication in the Pre-ODI stage.

Table 3: Post ODI on each variable

		N	Mean	SD	t	Sig (2-tailed)
Mean Post LC	Control Group	151	3.2424	.57160	-24.833	.000
	Experimental Group	150	4.4633	.19504		
Mean Post IF	Control Group	151	2.9669	.56705	-22.892	.000
	Experimental Group	150	4.4153	.11469		
Mean Post GW	Control Group	151	3.2437	.67916	-25.406	.000
	Experimental Group	150	4.4400	.11469		
Mean Post CC	Control Group	151	3.3742	.6916	-14.416	.000
	Experimental Group	150	4.2017	.18981		

In concluding Hypothesis 2, all variables with a significance level below 0.05 indicate acceptance of the Alternative Hypothesis. This suggests that differences

exist between the control group and experimental group concerning organizational communication in the Pre-ODI stage.

Table 4: Compare Pre and Post ODI of Control group

		Mean	SD	Std. Error	t	df	Sig
Pair1	Mean Post LC Mean Pre LC	.00331	.05088	.00414	.80	150	.425
Pair2	Mean Post IF Mean Pre IF	-.00132	.11718	.0954	-.139	150	.890
Pair3	Mean Post GW Mean Pre GW	.00662	.22261	.01812	.366	150	.715
Pair4	Mean Post CC Mean Pre CC	.02341	.19377	.01577	1.485	150	.140

Concluding Hypothesis 3, all variables exhibit significance levels greater than 0.05, signifying acceptance of the Null Hypothesis. This implies that there is no

significant difference in communication for the control group between the Pre-ODI stage and Post-ODI stage.

Table 5: Compare pre and post ODI on experimental group

		Mean	SD	Std. Error	t	df	Sig
Pair1	Mean Post LC Mean Pre LC	2.13733	.36957	.03018	70.830	149	.000
Pair2	Mean Post IF Mean Pre IF	2.07667	.41619	.03398	61.112	149	.000
Pair3	Mean Post GW Mean Pre GW	1.84867	.26157	.02136	86.558	149	.000
Pair4	Mean Post CC Mean Pre CC	1.59333	.30932	.02526	63.088	149	.000

Conclusion of Hypothesis 4:

All variables exhibit significance levels below 0.05, indicating acceptance of the Alternative Hypothesis. This suggests a significant difference in communication for the experimental group between the Pre-ODI stage and Post-ODI stage.

Conclusion and discussion

As per the research result, it's how that Organization Development Intervention generates a positive effect on the experimental group. The mean score of Post-ODI is significantly higher than Pre-ODI. On the other hand, there is no difference between Pre-ODI and Post-ODI inside the control group. Moreover, this result also confirms that all ODI that researchers conducted for the company generated positive effects in organization communication. which included statistical analysis to testing the conceptual framework. The researcher can conclude the result of 4 hypothesis as follows:

Hypothesis 1: H1a: There is a significant difference in Leader Communication between the Pre-ODI stage and the Post-ODI stage.

Hypothesis 2: H2a: There is a significant difference in Information between the Pre-ODI stage and Post-ODI stage.

Hypothesis 3: H3a: There is a significant difference in Group Work between the Pre-ODI stage and the Post-ODI stage.

Hypothesis 4: H4a: There is a significant difference in Communication Climate between Pre-ODI stage and Post-ODI stage

Recommendation

According to the research results, Organization Development Interventions are customized and designed for Raffles International College, which this organization has a complex in nationality and gender diversity. However, it's not reflected in the bigger or smaller organizations which also have their own style. Raffles is considered as a flat organization in which there isn't a lot of power privilege between management and sub-ordinates. To generate better accuracy of research results, researchers would like to apply this research method to all colleges and schools under Raffles Education Group. The result shall represent international private education which provides a higher sample size and shows another dimension in the bigger picture not only Thailand.

References

- Bakar, H. A., & Mustaffa, C. S. (2013). Organizational communication in Malaysia organizations: Incorporating cultural values in communication scale. *Corporate Communications: An International Journal*, 18(1), 87-109.
- Creswell, J. W. (2014). *Qualitative, quantitative and mixed methods approaches*: Sage.
- Cummings, T. G., & Worley, C. (2005). *Organization development*. Thomson South-Western.
- Johansson, E., Speck, C., & Chabes, A. (2011). *A top-down view on DNA replication and recombination from 9,000 feet above sea level*: Springer.
- Harter, J. K., Schmidt, F. L., & Keyes, C. L. (2003). *Well-being in the workplace and its relationship to business outcomes: A review of the Gallup studies*.
- Men, L. R., & Hung-Baesecke, C.-j. F. (2015). Engaging employees in China. *Corporate Communications: An International Journal*, 20(4), 448-467. doi:10.1108/CCIJ-11-2014-0079.
- Verčič, A. T., Ćorić, D. S., & Vokić, N. P. (2021). Measuring internal communication satisfaction: Validating the internal communication satisfaction questionnaire. *Corporate Communications: An International Journal*, 26(3), 589–604.
- Yamaguchi, I. (2017). Instruments for organizational communication assessment for Japanese care facilities. *Corporate Communications: An International Journal*, 22(4), 471-485.
- Zwijze-Koning, K. H., & de Jong, M. D.T. (2009). Auditing management practices in schools: Recurring communication problems and solutions. *International Journal of Educational Management*, 23(3), 227–236.

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